



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, 2014 (Version 1/2022)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This template is current as of April 2022. It is the responsibility of the EAP to ascertain whether subsequent versions of the template have been published or produced by the competent authority.
3. A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.
4. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority (uploaded to the EIA online system) empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application. The EIA online system can be accessed at <https://eia.gauteng.gov.za>.**
5. **A copy (PDF) of the final report and attachments must be uploaded to the EIA online system. The EIA online system can be accessed at <https://eia.gauteng.gov.za>.**
6. **Draft and final reports submitted in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) must be emailed to environmentsue@gauteng.gov.za.**
7. 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.
8. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
9. An incomplete report may lead to an application for environmental authorisation or Waste Management License being refused.
10. Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorization or Waste Management License being refused.
11. 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 application for environmental authorisation or Waste Management License being refused.
12. The applicant must fill in all relevant sections of this form. Incomplete applications will not be processed. The applicant will be notified of the missing information in the acknowledgement letter that will be sent within 10 days of receipt of the application.
13. 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.
14. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

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

Ground floor, Umnotho House, 56 Eloff Street, Johannesburg

Administrative Unit telephone number: (011) 240 3051/3052
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

N/A

Is a closure plan applicable for this application and has it been included in this report?

N/A

if not, state reasons for not including the closure plan.

N/A

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

YES

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

NO

If no, state reasons for not attaching the list.

- Department of Water and Sanitation
- Department of Agriculture and Rural Development
- Gauteng Department of Roads and Transport
- South African Heritage Resource Agency (SAHRA)
- Department of Public Works and Infrastructure Development
- Department of Human Settlements
- Eskom
- City of Tshwane Metropolitan Municipality

Have State Departments including the competent authority commented?

If no, why?

Section A: Activity Information

1. Proposal or Development Description

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

The proposed township establishment on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR within the City of Tshwane Metropolitan Municipality, Gauteng Province.

Select the appropriate box

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

Does the activity also require any authorisation other than NEMA EIA authorisation?

Yes No

If yes, describe the legislation and the Competent Authority administering such legislation

N/A

If yes, have you applied for the authorisation(s)?

Yes No

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

Yes No

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:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
National Environment Management Act EIA Regulations (8 December 2014)	National & Provincial: Departments of Environmental Affairs (Gauteng Department of Agriculture and Rural Development - GDARD).	08 December 2014
National Water Act, 1998(Act No. 36 of 1998) as amended	National & Provincial	26 August 1998
National Environmental Management: Waste Act (Act No, of 59) as amended	National & Provincial: Department of Environment Affairs	2008
National Heritage Resources Act (Act 35 of 1998)	South African Heritage Resources agency	28 April 1999
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004).	National & Provincial	2004
National Development Plans	National Governments	2012
Regional integrated Development Plans: Region 2	Provincial Governments	2014
Gauteng Conservation- Plan 3.3 (2011)	Provincial (GDARD)	2011

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998 as amended).	An application for Environmental Authorisation for the proposed development is submitted in terms of GNR 326 of NEMA EIA Regulations, 7 April 2017, promulgated under NEMA.
GNR 326 of NEMA EIA Regulations, 7 April 2017	The EIA regulation prescribes the methods and procedures of assessing the impacts of proposed development on environmental aspects. In these regulations as published in Gazette 38282, all activities and respective thresholds for which environmental authorization is required are established. The activities

	<p>of this development are compared to the listings and thresholds set for undertaking such developments. Compliance with these regulations demands that activities that are triggered be applied for, and an assessment conducted of the potential impacts, which must be authorized prior to the commencement of such activities. The production or keeping of chicken and the related construction of infrastructure as considered in this development, is interpreted to have exceeded the thresholds, hence as a compliance measure, this application is being lodged, and related activities will only commence upon the granting of an environmental authorization.</p>
National Environmental Management: Waste Act (NEM:WA) GNR 921, 29 November 2013	<p>An application for a Waste Management Licence will be submitted in terms of NEM:WA as the proposed activity pertains to the following activities included in the Act:</p> <p>Category A (1): The storage of general waste in lagoons.</p> <p>Category A (12): The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).</p>
National Water Act, 1998 (Act 36 of 1998)	<p>This act aims to manage activities related to water resources including, watercourses and associated riparian habitats. The act defines offence such as pollution of water resources and list activities to be addressed during the authorization phase. No water courses are present in the study area and the department of Water and Sanitation have received a copy of the draft Basic Assessment Report for comment.</p>
National Heritage Resource (Act No. 25 of 1999)	<p>The SAHRA is the relevant competent authority for protection of archaeological and paleontological resources. Though a scan through the site did not reveal any sites of archaeological significance, an application for Heritage Resources review was submitted to SAHRA (Ref No. 9782) in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended (NHRA).</p>
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)	<p>This regulation allows for the efficient assessment and management of critical biodiversity ecosystems and habitats, including identification and preservation and or managing of endangered species. Given the fact that the area is a previously cultivated land, with degraded vegetation no endangered species were noticed. The biodiversity database was also consulted to ensure the site does not fall within endangered or high priority zones.</p>
National Development Plan	<p>The South African Government through the Presidency has published a National Development Plan. The Plan aims to eliminate poverty and reduce inequality by 2030. The Plan has the target of developing people's capabilities to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety. It proposes to implement the following strategies to address the above goals:</p> <ol style="list-style-type: none"> 1. Creating jobs and improving livelihoods; 2. Expanding infrastructure; 3. Transition to a low-carbon economy; 4. Transforming urban and rural spaces; 5. Improving education and training; 6. Providing quality health care; 7. Fighting corruption and enhancing accountability; 8. Transforming society and uniting the nation. <p>The proposed project is therefore aligned with the goals of the NDP as it will create jobs and improve livelihoods.</p>
National Environmental Management: Waste Act no 59, as amended	<p>The waste management act seeks to protect human health, by spelling out the manner in which waste should be management. Waste management is thus critical in providing safe, clean and habitable or unpolluted</p>

	environment. This development will generate some waste products, the handling of which needs to be undertaken in accordance with this Act. Waste produced in this development is largely general waste and building rubble during the construction phase, which is envisaged to be largely recycled and the latter disposed accordingly. Soluble waste which is not likely to be recycled, is to be disposed of at a licensed waste site within the area.
Gauteng Conservation -Plan 3.3 (2011)	An ecological overview was undertaken to ensure that the site does not fall within the high biodiversity areas according to the C-plan of the area. This was undertaken, with the help of the DEA Screening Tool.

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.

Please describe the process followed to reach (decide on) the list of alternatives below

<p>The process that was followed to conclude on the proposed development consisted for the following steps:</p> <ul style="list-style-type: none"> • Consideration of suitability and desirability of the site; • Consideration of ecological and social-economic implications of the proposed development; • Consideration of economic impacts on other similar developments in the vicinity of the site; and • Consideration of possible development alternatives on the property. <p>Key among such considerations was need for residential developments in the area. To this end there is generally planned extensive residential developments in the area and in the Region 3 especially in the vicinity of the application site.</p> <p>The need and desirability of the development that mainly informed the process followed to conclude on the location alternative include:</p> <ul style="list-style-type: none"> • Addressing housing backlog; • Dealing with demand for new housing and providing various housing options; and • Connecting the proposed development with the existing townships. <p>In this context, although the primary objective of the project is housing provisioning, proximity to job opportunities becomes a major factor that is noted to contribute to the socio-economic sustainability of the communities.</p> <p>Thus, even though alternative locations were considered; proximity to job opportunities, access to major roads, demand for housing and associated backlog made the site the ideal location for the proposed residential development. Furthermore, although design and technological alternatives are relevant these alternatives have not been assessed at this stage as the best technology and designs will be decided upon closer to construction time. These will also include energy and water efficiency measures.</p>

Provide a description of the alternatives considered

No.	Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	Description
1	Proposal	The proposed development entails the establishment of a kirkney township on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR. The proposed establishment of the township is on an extent area of 7.88 hectares; however, only an area of approximately 1.63 hectares will be developed, taking in consideration of the environmental sensitivity and the layout was revised as a measure to avoid any development closer to the ridge, taking in consideration of the Gauteng Ridges Guideline.

		The proposed development will be located within the proximity of an existing township in Kirkney. Therefore, it will contribute towards creating a sense of place as the development will be made in context of the surrounding developments of Kirkney. It will further contribute towards socio-economic sustainability as it will contribute to job creation and investments within Kirkney
2	Location alternative	The current preferred location is ideal as it is within the vicinity of an existing residential area and a school in Kirkney which are located within radius of 2 km from the proposed development site. Therefore, the site is easily accessible to the surrounding community. This is the only location that will be considered in this Basic Assessment Report.
3	Activity alternative	The current preferred activity is deemed to be the only feasible activity alternative as this activity will result in provision of residential houses. Therefore, no reasonable or feasible alternative in terms of the type of activity to be undertaken could be investigated
4	Design alternative	The layout will not have a high impact on the environment, as long as it complies with criteria listed in this report as well as an EMP.
5	Technology alternative	The operational alternatives have been assessed to ensure that the best processes and services like water supply and sanitation to minimize pollution are considered to reduce any potential negative environmental impact. All the mitigation measures are provided in the Environmental Management Plan.
6	Operational alternative	The operational aspects of the activity relate to the improved residential, educational and business facilities for the local community. No other alternatives were deemed feasible other than the proposed activity.
7	No-go alternative	It is mandatory to consider the "no-go" option in the EIA process. The "no-go" alternative refers to the current status quo and the risks and impacts associated with it. Some existing activities may carry risks and may be undesirable.

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

Given the location of the site, desirability, accessibility, and close proximity to other complementary land uses that mainly present potential for job opportunities, no location alternatives were considered. Furthermore, due to the fact that the site is owned by the applicant, no location alternatives have been considered. The activity preferred to focus on residential provision as the site is boarded by the existing Kirkney township. To minimise the ecological liability of the development, the layout shall be such that the impacts are minimised, energy efficient options as well as water harvesting will be also considered.

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:

Proposed activity (**Total environmental (landscaping, parking, etc.) and the building footprint**)

Alternatives:

Alternative 1 (if any)

Alternative 2 (if any)

Size of the activity:

1.63 hectares

Ha/ m²

or, for linear activities:

Proposed activity

Alternatives:

Alternative 1 (if any)

Alternative 2 (if any)

Length of the activity:

m/km

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

Proposed activity
Alternatives:
Alternative 1 (if any)
Alternative 2 (if any)

Size of the site/servitude:

Ha/m²

5. Site Access

Proposal

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

Yes	No
787 M	

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

Describe the type of access road planned:

The site will be accessed via an unnamed gravel road from the main street (Simonsberg Street).

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

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

Yes	No
M	

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

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

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

Yes	No
m	

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

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Please Note: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated

Number of times

(only complete when applicable)

6. Layout 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 to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
 - A4 size for activities with development footprint of 10sqm to 5 hectares;
 - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
 - A2 size for activities with development footprint of >20 hectares to 50 hectares);
 - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
 - A0 = 1: 500
 - A1 = 1: 1000
 - A2 = 1: 2000
 - A3 = 1: 4000
 - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity 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, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) 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);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

For locality map (note this is also included in the application form requirements)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

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.

Alt. 2																				
etc.																				

3. Gradient of the site

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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4. Location In Landscape

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front
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5. Groundwater, soil and geological stability of the site

a) Is the site located on any of the following?

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

Yes	No
Yes	No
Yes	No
Yes	No
Yes	No
Yes	No
Yes	No
Yes	No

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

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

Yes	No
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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):	°
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c) are any caves located within a 300m radius of the site(s)

Yes	No
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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):	°
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d) are any sinkholes located within a 300m radius of the site(s)

Yes	No
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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):	°
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If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. Agriculture

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

Yes	No
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Please note: The Department may request specialist input/studies in respect of the above.

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 % = 90	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
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Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % = 10
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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	No
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If yes, specify and explain:

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Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

Yes	No
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If YES, specify and explain:

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

Yes	No
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If YES, specify and explain:

According to the ecological report, one protected plant (*pterocarpus angolensis*) was identified on the overall site. However, where the development is located, there is low vegetation sensitivity with no red data or protected species identified.

Was a specialist consulted to assist with completing this section

Yes	No
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If yes complete specialist details

Name of the specialist:

Naledzani Environmental Services

Qualification(s) of the specialist:

Honours Degree in Botany

Postal address:

Suite 221, Elephant House, 107 Albertina Sisulu Street, Johannesburg,

Postal code:

2107

Telephone:

078 901 4833

Cell: 076 388 7203

E-mail:

ramalivhanam@gmail.com

Fax: N/A

Are any further specialist studies recommended by the specialist?

Yes	No
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If yes, specify: N/A

If yes, is such a report(s) attached?

Yes	No
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If yes list the specialist reports attached below

N/A

Signature of specialist: _____

Date: _____

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

8. Land Use character of surrounding area

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

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

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

	North					
	14	1,7	7	1	8	
	1,7,8	1	7	1	1	
West	7,8	7,8		7	19	East
	5	5	10	5	5	
	7,10	10,17	10,17	8	8	
	South					

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
If yes indicate the type of reports below

Yes	No
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<ul style="list-style-type: none"> • Ecological Report • Heritage Impact Assessment Report • Geotechnical report • Engineering Services Report • Traffic Impact Assessment Report
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9. Socio-Economic Context

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

The proposed development site falls within region 3 in terms of RSDF and the property is demarcated as ward 55 in terms of political demarcation. The site is located within the jurisdiction of the City of Tshwane Metropolitan Municipality in Gauteng Province, South Africa. According to Statistics SA; the population for the area consists of 2,921,488 people of which 24.2% of the people are unemployed, 32.6% of the youth are unemployed, and 4.2% of the population have no schooling. Out of the 2,921,488 people in the area only 34% have completed secondary school and only 23.4% of people have higher education (www.statssa.gov.za, 12/12/2017).

Employment rates are usually associated with education levels; therefore, employment and incomes are based on education levels. 23.2% of the population comprises of children that are younger than 15 years old. A high level of 39% of the population, does not have an income. 2,214,488 people are employed, 707,000 people are unemployed (www.statssa.gov.za, 24/05/2016).

The proposed development will increase urban densities by providing additional housing opportunities within the urban edge which will also reduce urban sprawl and prevent development of housing in marginal places. The proposed development promotes the goals of the NDP, 2030 by providing housing opportunities in close proximity to places of work as the development will gain access via an unnamed gravel road from Simonsberg street.

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	No
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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:

The archaeological specialist indicated that possible occurrence of late iron age stone-walled remains on the ridge. Any archaeological features could still be identified on site; however, they will not be of high significance. Therefore, a heritage specialist should be contact immediately to undertake a site inspection in case of identifying features with possible negative impacts on the site.

Will any building or structure older than 60 years be affected in any way?
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

Yes	No
Yes	No

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

Section C: Public Participation (Section 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

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 thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?

Yes	No
-----	----

If yes, has any comments been received from the local authority?

Yes	No
-----	----

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

This draft is being submitted to organs of state and comments received will be incorporated into the final report.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

This is still a Draft Report and the PPP is still ongoing. Comments received from the authority will be recorded, responded to and collated into the Final BAR.

3. Consultation with other stakeholders

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

Has any comment been received from stakeholders?

Yes	No
-----	----

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

This draft is being submitted to stakeholders and comments received will be incorporated into the final report. Initial integration did not reveal any issues of concern, other than the need to speed up the project.

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

This is still a Draft Report and the PPP is still ongoing. Comments received from the authority will be recorded, responded to and collated into the Final BAR.

4. General Public Participation Requirements

The Environmental Assessment Practitioner must ensure that the public participation process 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 flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report 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 as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 – Communications to and from interested and affected parties

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

Section D: Resource Use and Process Details

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

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

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

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

1. Waste, Effluent, and Emission Management

Solid waste management

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

Yes	No
-----	----

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

200 m ³

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

Waste that will be generated at construction stage is likely to consist mainly of rubble, material packages (cardboards and wraps) and also litter that might be generated by the construction staff. The recycling of these waste as much as possible is highly recommended.

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

Waste that is not recycled will need to be disposed of at a registered Landfill site. This will need to be checked and monitored during the monitoring stage of implementation. The service provider, in charge of the construction will be tasked to oblige with lawful waste disposal of each site. This will largely be disposed of at landfill site. It was noted that there is a landfill site in close proximity to the area that may be used. The license status of this will need to be confirmed

Will the activity produce solid waste during its operational phase?

Yes	No
-----	----

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

33.8 m ³

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

All construction solid waste will be disposed of at a nearest registered landfill site.

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

Yes	No
-----	----

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

Different kinds of waste will be produced during the operational phase of the residential, purposes of which none of the waste will be of magnitude concern. The solid waste will consist of general refuse (litter) generated by the residents. The Metropolitan Municipality will have to be engaged to provide bulk bins, refuse bags and refuse removal services for the proposed.

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

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

Yes	No
-----	----

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO
-----	----

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

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

Frequent correspondence between the different contractors on the proposed development will ensure optimum reuse and recycling of materials where possible. Furthermore, it is proposed that all waste construction materials be sorted into recyclable and non-recyclable materials. The recyclable materials should be re-used where possible 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	No
-----	----

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

M ³	
----------------	--

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

Yes	No
-----	----

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

Yes	No
-----	----

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

m ³	
----------------	--

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

--

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

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

Yes	No
-----	----

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:

--

Liquid effluent (domestic sewage)

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

Yes	No
-----	----

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

M ³	
----------------	--

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

Yes	No
-----	----

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

Yes	No
-----	----

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

--

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

Yes	No
-----	----

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

Yes	No
-----	----

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:

During construction, there will be localized liberation of dust due to excavations and the hauling of materials around the site. Localised exhaust emissions will also occur.

2. Water Use

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

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

	liters
--	--------

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?

Yes	No
-----	----

If yes, list the permits required

--

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

Yes	No
-----	----

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

Yes	No
-----	----

3. Power Supply

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

The proposed development will be supplied with electricity by the City of Tshwane Metropolitan Municipality.

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

N/A

4. Energy Efficiency

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

Energy saving measures such as energy saving lighting choices will be implemented during operation. Further energy saving measures could be included in the design of filling station structures.

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

Use of solar power for water heating and outside lighting will be encouraged this development.

Section E: Impact Assessment

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, 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 as well as the impacts of not implementing the activity (Section 24(4)(b)(i)).

1. Issues raised by Interested and Affected Parties

Summarise the issues raised by interested and affected parties.

This report is still a Draft Report and the public participation process (PPP) is still ongoing. Comments received from Registered Interested and Affected Parties will be recorded, responded to and collated into the Final BAR.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

2. Impacts that may result from the construction and operational phase

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

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

In any process of identifying and recognising impacts, one must recognise that the determination of impact significance is inherently an anthropocentric concept. Duinker and Beanlands, (1986) in DEAT 2002, Thompson (1988), (1990) in DEAT 2002 stated that the significance of an impact is an expression of the cost or value of an impact to society.

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

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

Nature	Classification of whether the impact is positive or negative , direct or indirect
Extent	Spatial scale of impact and classified as: Site: the impacted area is the whole site or a significant portion of the site Local: within a radius of 2 km of the construction site. Regional: the impacted area extends to the immediate, surrounding and neighboring properties. National: the impact can be considered to be of national significance.
Duration	Indicates the lifetime of the impact and is classified as: Short term: the impact will either disappear with mitigation will be mitigated through natural processes in a span shorter than the construction phase. Medium term: the impact will last for the period of the construction phase, where after it will be entirely negated. Long term: the impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory. Permanent: mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity	Describes whether an impact is destructive or benign Low: impact affects the environment in such a way that natural, cultural and social functions and processes are not affected. Moderate: affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way. High: natural, cultural and social functions and processes are altered to extent that

	they temporarily cease. Very high: natural, cultural and social functions and processes are altered to extent that they permanently cease.
Probability	Describes the likelihood of an impact to occur: Improbable: likelihood of the impact materializing is very low. Possible: the impact may occur. Highly probable: most likely that the impact will occur. Definite: the impact will occur.
Significance	Based on the above criteria the significance of issues was determined. The total number of points scored for each impact indicates the level of significance of the impact, and is rated as follows: Low: the impacts are less important. Medium: the impacts are important and require attention, mitigation is required to reduce the negative impacts. High: the impacts are of great importance. Mitigation is therefore crucial.
Cumulative	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Mitigation	Where negative impacts are identified, mitigation measures (ways of reducing impacts) have been identified. An indication of the degree of success of the potential mitigation measures is given per impact.

Criteria for the rating of impacts				
Criteria	Description			
Extent	National	Regional	Local	Site
Duration	Permanent	Long-term	Medium-term	Short-term
Intensity	Very high	High	Moderate	Low
Probability	Definite	Highly probable	Possible	Improbable
Points allocation	4	3	2	1
Significance Rating of classified impacts				
Impact	Points	Description		
Low	4-6	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.		
Medium	7-9	Mitigation is possible with additional design and construction inputs.		
High	10-12	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.		
Very high	13-16	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/ or operational phases. The effects of the impact may affect the broader environment.		
Status	Perceived effect of the impact			
Positive (+)	Beneficial impact			
Negative (-)	Adverse impact			
Negative impacts are shown with a (-) while positive ones are indicated as (+)				

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 (preferred alternative) Design/ Planning Phase			
Identified Impacts- Planning Phase			
Impact	Significance rating of impact before mitigation	Proposed mitigation	Significance rating of impact after mitigation

Direct Impacts			
Poor Design- Structural failures	High (Negative)	Ensure compliance with the industry standards	Low (Negative)
Indirect Impacts			
Disregard of legislative requirement	High (Negative)	Ensure compliance with relevant legislation and legal standards	Low (Negative)
Construction Phase			
Identified Impacts- Construction Phase			
Impact	Significance rating of impact before mitigation	Proposed mitigation	Significance rating of impact after mitigation
Direct Impacts			
Loss of vegetation and faunal habitat	Medium (Negative)	<ul style="list-style-type: none"> Maintain the viability of the indigenous seed bank in excavated soil so that it can be used for subsequent re-vegetation of any disturbed areas. Prevent impact of construction activities to extend on to neighbouring land demarcated and fenced construction camp; strict control of labourers. Avoid unnecessary loss of indigenous trees. 	Low (Negative)
Geology and soils: <ul style="list-style-type: none"> Destabilisation of surface geology as a result of excavations. Potential erosion, degradation and loss of topsoil due to construction activities 	High (Negative)	<ul style="list-style-type: none"> Site disturbances must be limited to the areas where structures will be constructed. Excavated rocks and boulders to be used for erosion protection on site. Excess material from excavations together with construction rubble must be appropriately disposed of. Suitable excavated material is to be stockpiled next to excavations for use as backfill. Areas to be backfilled must be cleared of all unsuitable material and debris. Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent loss through runoff. The soil is to be used during rehabilitation or within the site. 	Medium (Negative)
Increased risk of dust and erosion from clearing of vegetation and earth moving vehicles	Medium (Negative)	<ul style="list-style-type: none"> All vehicles must be along existing lines or tracks. Erosion protection measures must be implemented on the site to reduce erosion and sedimentation of the receiving environment. Measures could include: <ul style="list-style-type: none"> Sediment traps Sandbags Bunding around soil stockpiles. <p>Adequate dust control strategies should be applied to minimise dust disposition; they can include periodic</p>	Low (Negative)

		spraying of roads with water, cover trucks to prevent dust emission during transportation.	
Waste collection services	High (Negative)	Confirmation from the municipality must be sought to ensure the municipal waste collection service will collect the waste generated by the proposed development/ activity.	Low (Negative)
Topography and slopes Alteration of topography due to stockpiling of soil, building material, debris and waste material on site.	Medium (Negative)	<ul style="list-style-type: none"> No stockpiling of soil and other material on areas in a manner to pose obtrusive visual impact; Precautionary and design measures proposed by the engineer must be implemented. Temporary stabilisation of slopes using geo-textiles; and installation of gabions and reno-mattresses where necessary. 	Low (Negative)
Waste: Waste generation could have a negative impact on the environment, if not controlled adequately. Waste streams likely to include domestic waste, spent grinding material, mixed concrete, paint cans and brushes, construction rubble and other construction waste	Medium (Negative)	<ul style="list-style-type: none"> General waste disposal bins must be made available for use on site. General waste should be placed in a water tight container and disposed of on a regular basis. Where possible construction waste should be recycled or reused. Waste should be temporarily stored on site for a limited period only while awaiting disposal. Records of all waste taken off site and disposed of must be kept as evidence. Building rubble must be re-used, where possible, where this is not possible, the rubble to be disposed of at an appropriate site. Burning of waste material will not be permitted. Hazardous materials generated through spillages during construction and maintenance periods must be cleaned up using absorbent material provided in spill kits on site and must be disposed of accordingly at a hazardous waste landfill. Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin. All hazardous waste to be disposed of in a registered hazardous waste disposal facility. The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated. Employees to be provided with appropriate PPE for handling hazardous materials. 	Low (Negative)

<p>Noise: Potential noise impact from the use of construction equipment</p>	<p>Medium (Negative)</p>	<ul style="list-style-type: none"> • Limit construction activities to day time hours. • Construction personnel must wear personal protective equipment where appropriate. • All machineries to be utilised on the site must be fitted with buffers and must be maintained in good working conditions in order to minimize noise. • The contractor shall warn all local community that could be affected by the noise generation from construction activities. 	<p>Low (Neutral)</p>
<p>Increase in stormwater runoff resulting from construction activities</p>	<p>Medium (Negative)</p>	<ul style="list-style-type: none"> • To prevent stormwater damage, the increase stormwater runoff resulting from construction activities must be estimated and drainage patterns accessed accordingly. • Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 	<p>Low (Negative)</p>
<p>Potential health injuries to construction personnel as a result of construction work.</p>	<p>Medium (Neutral)</p>	<p>The contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate.</p>	<p>Low (Negative)</p>
<p>Safety and Security: A construction site can be a dangerous place and thus could result in harm to people and property and by their nature act as a magnet to the unemployed, resulting in large numbers of people gathering around the site.</p>	<p>Low (Negative)</p>	<ul style="list-style-type: none"> • The construction area to be fenced off to prohibit unauthorised entry. • Health and Safety Officer to be appointed to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • Staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Record and report any environmental, health and safety incidents to the responsible person. • Signs should be erected to warn of construction activities. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations • All structures that are vulnerable to high winds must be secured. • All manhole openings are to be covered and clearly demarcated with danger tape. • Potentially hazardous areas such 	<p>Low (Negative)</p>

		<p>as trenches are to be cordoned off and clearly marked at all times.</p> <ul style="list-style-type: none"> • The Contractor is to ensure traffic safety at all times and shall implement road safety precautions for this purpose. • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • An environmental awareness training programme for all workers shall be put in place by the Contractor. Before commencing with any work, all workers shall be appropriately briefed about the EMPr and relevant occupational health and safety issues. • Access to fuel and other equipment stores is to be strictly controlled. • No unauthorized firearms are permitted on site. • Emergency procedures must be available on site and communicated to all. • Adequate emergency facilities must be provided for the treatment of any emergency on the site. • The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent • The basic spill control kit must be available at each 	
<p>Heritage: Disturbance of Heritage Resources from construction activities.</p>	Low (Negative)	SAHRA must immediately be alerted in case evident or artefacts, paleontological fossils, additional graves or heritage resources are discovered during the course of development.	Negligible
<p>Socio-economic Impact: Employment creation and skills development opportunities during the construction phase, which is expected to give rise to new jobs. This impact is rated as positive.</p>	Medium (Positive)	<ul style="list-style-type: none"> • Enhance the use of local labour and local skills as far as reasonably possible. • Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained. • Ensure that an equitable 	High (Positive)

		<p>percentage allocation is provided for local labour employment as well as specify the use of small-to-medium enterprises and training specifications in the Contractors contract.</p> <ul style="list-style-type: none"> • Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible. 	
<p>Air quality impact: Emissions from construction vehicles and generation of dust as a result of earthworks</p>	Medium (Negative)	<ul style="list-style-type: none"> • Ensure that cleared areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimise dust generation. • Approved soil stabilizers may be utilised to limit dust generation. • Ensure that construction vehicles travelling on unpaved roads do not exceed a speed limit of 40 km/hour. • Adequate dust control strategies should be applied to minimise dust deposition, for example: Periodic spraying of the entrance road and environmentally friendly dust control measures (e.g. mulching and wetting) where and when dust is problematic. 	Low (Negative)

No-go alternative

Direct Impacts:

- None of the impacts mentioned above will occur.
- If the proposed project does not proceed, increased income and economic spin-off activities will not be realised.

Indirect Impacts:

There are no indirect impacts during the construction phase for the No-go Option.

Cumulative Impacts:

There are no cumulative impacts during the construction phase for the No-go Option.

Operational Phase

Identified Impacts- Operational Phase

Impact	Significance rating of impact before mitigation	Proposed mitigation	Significance rating of impact after mitigation
Direct Impacts			
Visual impacts will increase during the operation phase due to development and lighting	Medium (Negative)	Lighting and layout to be maintained as per the layout plan to ensure bright street lighting is not permitted.	Low (Negative)
Impeded traffic flow due to ingress/egress from the residential property	Medium (Negative)	All signage and road markings for the proposed site should be in accordance with the South African Road Traffic Signs Manual".	Low (Negative)
Risk of fire explosion	Medium (Negative)	<ul style="list-style-type: none"> • Prevent spread of fire to surrounding buildings or vegetation. • Adequate firefighting training must be given to staff. 	Low (Negative)

		<ul style="list-style-type: none"> Ensure that relevant signage e.g. no smoking, is displayed in potentially dangerous areas and is abided by. 	
Socio-economic Impact: Skills development opportunities and economic spin off activities will also occur during the operational phase. This impact is rated as positive.	Medium (Positive)	<ul style="list-style-type: none"> Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained. Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible. 	High (Positive)

Indirect Impacts

Impact on the surrounding community in terms of visibility and great Environment.	Medium (Negative)	<ul style="list-style-type: none"> Ensure that surrounding gardens are well maintained. The planting of indigenous vegetation is encouraged. Use water sparingly in maintaining gardens. Institute an appropriate building and site maintenance programme. 	Low (Negative)
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No-go alternative

Direct Impacts:

- None of the impacts mentioned above will occur.
- If the proposed project does not proceed, increased income and economic spin-off activities will not be realised.

Indirect Impacts:

There are no indirect impacts during the construction phase for the No-go Option.

Cumulative Impacts:

There are no cumulative impacts during the construction phase for the No-go Option.

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

- Ecological Report
- Heritage Impact Assessment Report
- Geotechnical report
- Traffic Impact Assessment Report
- Engineering Services Report

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

There is no recent socio economic studies that were available for referencing during compilation of the report that presents a clear picture of the extent of unemployment and related housing backlog in the Gauteng province especially in CoT. Their absence results in limited comparative appraisal being possible between the "no go" option and the proposal. With limited information, it is concluded that these socio-economic conditions are dire and hence the need and desirability of the project. It is also assumed that all the specialist studies and findings are correct.

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

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

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:

Cumulative impacts refer to the incremental impacts resulting from the implementation of an activity on a common resource which are added to the impacts of other past, present or reasonably foreseeable future activities. The potential cumulative impacts of the township both during construction and occupation by considering the effects of the development have been considered relative to the;

- The biophysical environment; and
- Socio-economic conditions

The biophysical environment

The proposed development will result in the clearing of vegetation. The clearing of vegetation is likely to result in the exposing the land and possible surface runoff pollution. This can be mitigated by implementing appropriate stormwater management strategies, including proper channelling of the stormwater during construction and operational phases. Other impacts that were identified, for the construction phase are noted to be mitigatable. Noise and dust, and oil spillage can be mitigated by avoiding and managing the occurrences. Impacts during the construction stage may be short term and may end when construction is completed.

Operational stage impacts on the natural environment can also be mitigated if proper strategies are put in place the possibility of mitigating these impacts makes reduces their significant levels considerably, to low significance. The neglect of mitigation measures, such as waste management could result in severe health hazards. This therefore infers the need to take the recommendations made herein and in all applicable regulations and guidelines seriously.

Socio-economic condition

The proposed development is for establishment of a high density residential development. The construction phase of the project will result in job creation opportunities, albeit temporary, and associated poverty reduction. This is generally a positive socio-economic impact that will be experienced in the short to medium term. Long term positive impacts of the proposed development are associated with the provisioning of affordable housing and job opportunities related to management and maintenance operations of the security residential estate. The cumulative impacts in this regard are worth highlighting.

Economic development in the area

This development will add to the market confidence for economic development in the area. This will thus contribute to the realisation of the objectives of spatial planning and development frameworks for CoT for the area. This development also serves as a pioneer for other similar developments aimed at addressing housing backlog in these parts of CoT.

Risks

The significance of positive impacts is further highlighted by the risk of land invasion for such undeveloped sites that are located in close proximity to high density residential townships that already have high number of informal settlements. If land invasions occur on site, the cumulative positive impacts of the development will not be realized. The biophysical and socio-economic negative impacts will be increased.

5. Environmental Impact Statement

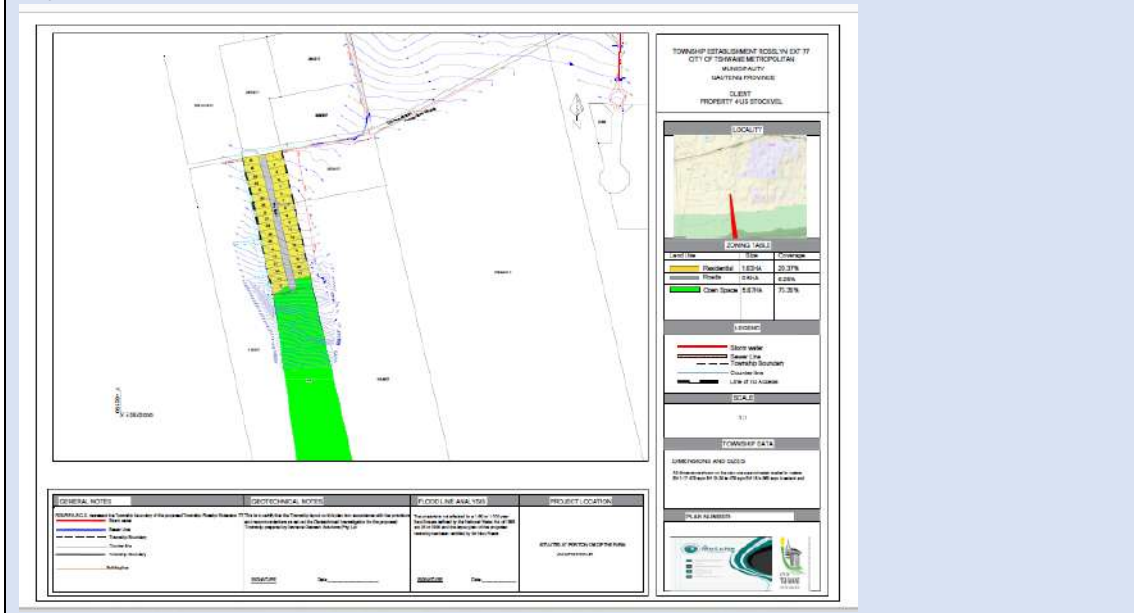
Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types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

Proposal

Site alternative can be either for the entire development where the activity is proposed on a totally different site, or for certain components of it. In terms of the proposed development, the site alternative will not be further investigated since the applicant is the landowner and has no other land available for

the proposed development in the area, which results in the proposed development occurring on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR or not occurring at all in such instances the no-go alternative will play an important role.

Layout of the proposed development



Alternative 1

Alternative 2

No-go (compulsory)

The no-go alternative is the option not to go ahead with the development. The no-go alternative will only be considered as an alternative if it is concluded that the preferred alternative will have significant negative impacts on the environment which cannot be reduced or managed to an acceptable level. As there it has already been indicated that there is a need and desirability for the proposed development it is anticipated that this development will relieve the demand for housing and basic services in the region.

If left undeveloped, there is the possibility of further infestation of invasive alien plant species and continued illegal activities mainly waste dumping and sand mining leading further disturbance of the site. Also the potential for degradation on other nearby sites will increase. Furthermore, there is risk of land invasions that is heightened if the site remains undeveloped.

6. Impact summary of the proposal or preferred alternative

For proposal:

From the assessment conducted, it is concluded that the proposed activity possesses no critical issues to the environment if all necessary care and due diligence are applied. The activity is considered both environmental and socio-economically viable, in the absence of any fatal flaws to warrant a no-go alternative. As long as the mitigation measures are well implemented, the potential impacts are manageable.

For alternative:

The no-go option will have low negative impacts on the environment, it will also have pronounced negative impacts on the social and economic environment and therefore is not preferred.

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

Short term environmental impacts of the project during the construction phase include increased traffic, dust,

noise and surface water contamination. There is potential for increased traffic, noise and groundwater contamination during operation phase.

The socio-economic impacts have been largely being positive and include realizing the developmental objectives of the regional Spatial Development Frame Work and the sub-area 1 where the site is located.

In order to mitigate the potential noise and visual nuisance on adjacent residential areas, proper siting and design of the infrastructure within the site is required.

The overall environmental and socio-economic impact associated with the proposed development is considered to be acceptable.

7. Spatial Development Tools

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The proposed development is well aligned to critical spatial planning tools such as the 2021/2022 IDP of the City of Tshwane Metropolitan Municipality. This seeks to improve in the provision of employment opportunities, and promotion of economic activities in purporting livelihood of the urban areas.

8. Recommendation of the 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 as bound by professional ethical standards and the code of conduct of EAPASA).

Yes	No
-----	----

If "NO", indicate the aspects that require further assessment 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:

GENERAL ENVIRONMENTAL MANAGEMENT STATEMENT

Roles and Responsibilities

- An EMPr for site establishment, construction and operational phase must be finalized and approved by GDARD prior to the contractor moving onto site.
- The Environmental Control Officer (ECO) must be appointed prior to site development and construction to prevent contravention of the approved EMPr and Environmental Authorization.
- An Environmental Liaison Officer (ELO) must inspect the site during the construction phase on a weekly basis.
- The working areas must be clearly demarcated by the ECO prior to commencement of the construction and no access is to be allowed in sensitive areas.
- The ECO is to conduct monthly audits and prepare monthly audit reports. Copies of these reports are to be provided by the ECO to the developer and GDARD. The ECO duties extend to the end of the construction phase.
- The proponent will ultimately be responsible for the implementation of the operational EMPr.

DESIGN PHASE

Engineering Design

- Must accommodate spills containment slabs to assist in the containment of accidental spillage during construction phase (concrete and cement batching on site).
- A storm water management plan must be prepared once the engineering design of the site has been finalized.

CONSTRUCTION PHASE

Noise pollution

- Regular maintenance of machinery must be done, as per the manufacturer's instruction.
- Working hours should be limited from 07:00 to 17:00 on weekdays, from 07:00 to 13:00 on Saturday and no work must be conducted on Sundays.

- Construction employees should be encouraged to not generate noise, which is not essential to construction.
- In the event of employment being noisy during lunch breaks It could impact neighbouring properties.

Air Pollution

- Water should be sprayed on the construction access road during the dry/windy periods
- Construction phase stockpiles which have the potential of generating dust must be covered with tarpaulin/plastic sheeting.
- Maintain construction vehicles and machinery to control exhaust emissions.

Water Pollution

- Construction activities must remain within the footprint of the development.
- Construction machinery must be maintained by a suitably qualified mechanic, at an appropriately lined site, during working hours, so that diesel and /or oil leaks are avoided.
- Prevent run-off by constructing diversion berms and / or placing straw bales on denuded areas.

Erosion Measures

- Should erosion become a problem during the construction phase then diversion berms and drains shall be constructed to divert run-off away from exposed area.
- During this phase, bales can be used as filters across run-off pathways

Accidental Spillage

- Spills shall be cleared up immediately
- The contaminated soils and the spilled material shall be taken to the nearest registered landfill site capable of receiving such spills
- A registered of all incidents shall be kept on site showing measures taken to clear up the spillages

Heritage Issues

- During construction, if heritage findings are made (graves, archaeological objects, etc), SAHRA should be contacted and works to be stopped immediately.
- A chance find protocol must be implemented, as the site has a high paleontological sensitivity. Mitigation measures contained in the Environmental Management Plan as well as the specialist recommendations to be implemented of “find chance protocol”

Health and Safety

- Traffic signage shall be erected to advice people of machinery/ construction vehicles, driving in the area.
- Pollution that could be detrimental to humans, flora and fauna shall be prevented as much as possible.
- Construction employees must be restricted to the development area; they must be warned not to trespass on the neighbouring properties
- Point's men must be used at areas where children will be crossing to ensure their safety to school or their homes/households
- Emergency contact numbers must be available on site, and an emergency kit to assist if someone get injured before help arrives
- Fire protection equipment such as, fire extinguisher and hose.

9. The needs and desirability of the proposed development (as per notice 792 of 2012, or the updated version of this guideline)

The Needs

The need for housing is an aspect in development that does not need to be elaborated on, hence housing is a fundamental human rights as stated in the constitution. Official Government policy supports all forms of housing development, in an effort to decrease housing backlog in the country and also to create sufficient housing stock on a continuous basis to provide in the current demand for housing units resulting from population growth, family formation, etc.

The application for Township Establishment for residential purposes will uplift the area 's needs through spontaneous development from agricultural uses to residential uses. Considering the modern day society aims to live, work and play in close proximity to various amenities without having to spend time travelling long distances in search for services and opportunities. Furthermore, the development site has a good connection to external services; therefore, the proposed development is feasible and it seeks to

achieve the following:

- Job creation during the construction and operation phases.
- Promoting the principle of proximity
- The proposed development will play an important role in attracting other forms of developments to surroundings that will subsequently add value to the farm.

Desirability

The performance and potential of the residential uses will be correlated to current consumer numbers and the market gap within the area. These factors influence the proposed development and the extent to which the site would be able to successfully capture local demand. The development of this property for residential purposes will only strengthen the existing residential character of the surrounding area. The existing road system will be able to accommodate the additional traffic generated by this development. The property has been vacant for some years now, however the property owner saw this opportunity to develop the site in order to excesses the proposed rights. It is ideal to utilize this prime property in terms of its location as a supportive use for what is happening in the immediate surroundings and the ever-increasing pressure of population, industries and transportation. The proposed development will be desirable as a viable option, as a sustainable, within available infrastructure, and it will contribute to the GDP through creation of permanent and temporary jobs during the construction or upgrade phase of the development.

10. The period for which the Environmental Authorisation is required (*Consider when the activity is expected to be concluded*)

10 years

11. Environmental Management Programme (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

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

EMPr attached

Section F: Appendixes

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

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) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

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

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

Checklist

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

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.

Appendix A – Locality Map



LEGEND



SITE

KIRKNEY TOWNSHIP

The proposed establishment On portion 136 (portion of 110) of the farm Zandfontein 317-JR, City of Tshwane Metropolitan Municipality in Gauteng Province

LOCALITY MAP

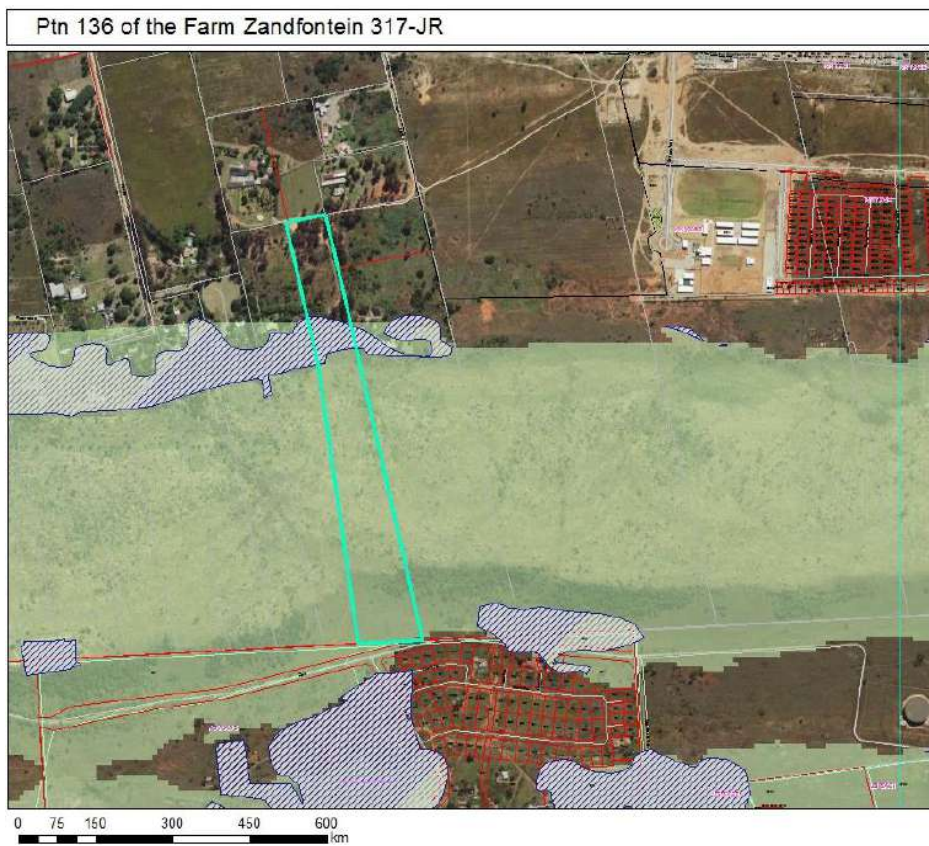
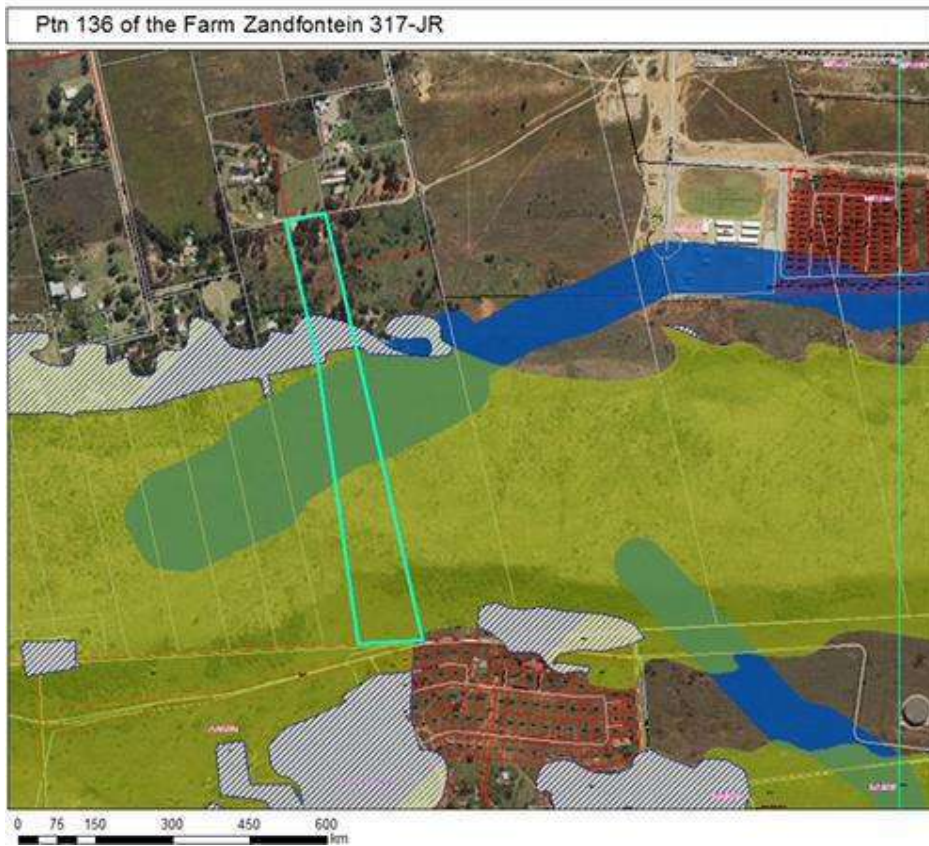
DATE

03/03/2023



Head Office: Kutlwanong Democratic Centre
Office No: SU40
357 Visagie Street
Pretoria
0002
Tel: +27 12 881 1803
Cell: +27 79 054 7652
Email: phakwaqokabelo@gmail.com

SENSITIVITY MAP

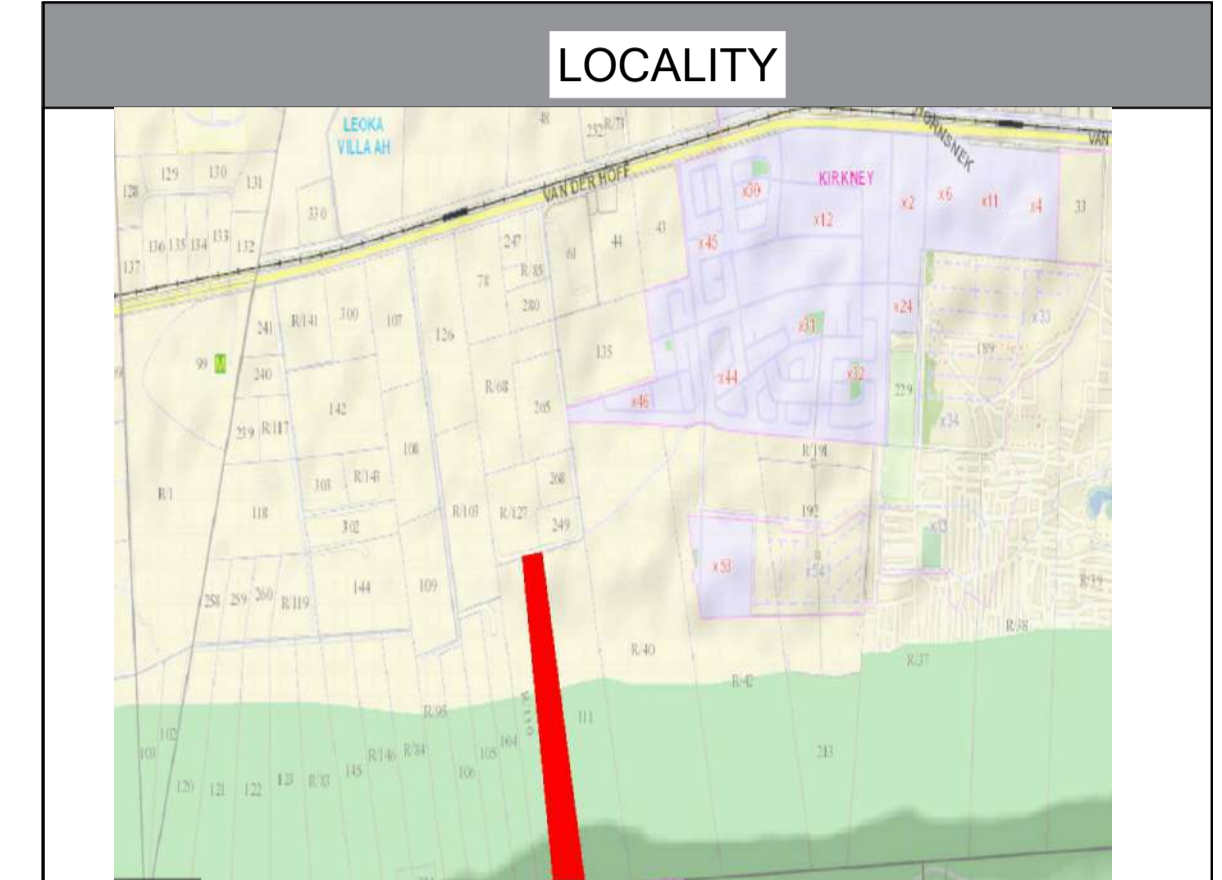


Appendix B – Layout Plan



TOWNSHIP ESTABLISHMENT ZANDFONTEIN 317 JR
 CITY OF TSHWANE METROPOLITAN
 MUNICIPALITY
 GAUTENG PROVINCE

CLIENT
 PROPERTY 4 US STOCKVEL



ZONING TABLE

Land Use	Size	Coverage
Residential	1.63HA	20.37%
Roads	0.5HA	6.25%
Open Space	5.87HA	73.35%

LEGEND

- Storm water
- Sewer Line
- Township Boundary
- Counter line
- Line of no Access

SCALE

1:4

TOWNSHIP DATA

DIMENSIONS AND SIZES

All dimensions shown on the plan are approximately scaled in meters
 Erf 2-17 479 sqm Erf 19-34 is 479 sqm Erf 18 is 560 sqm in extent and
 Erf 1 and 35 is 468 sqm

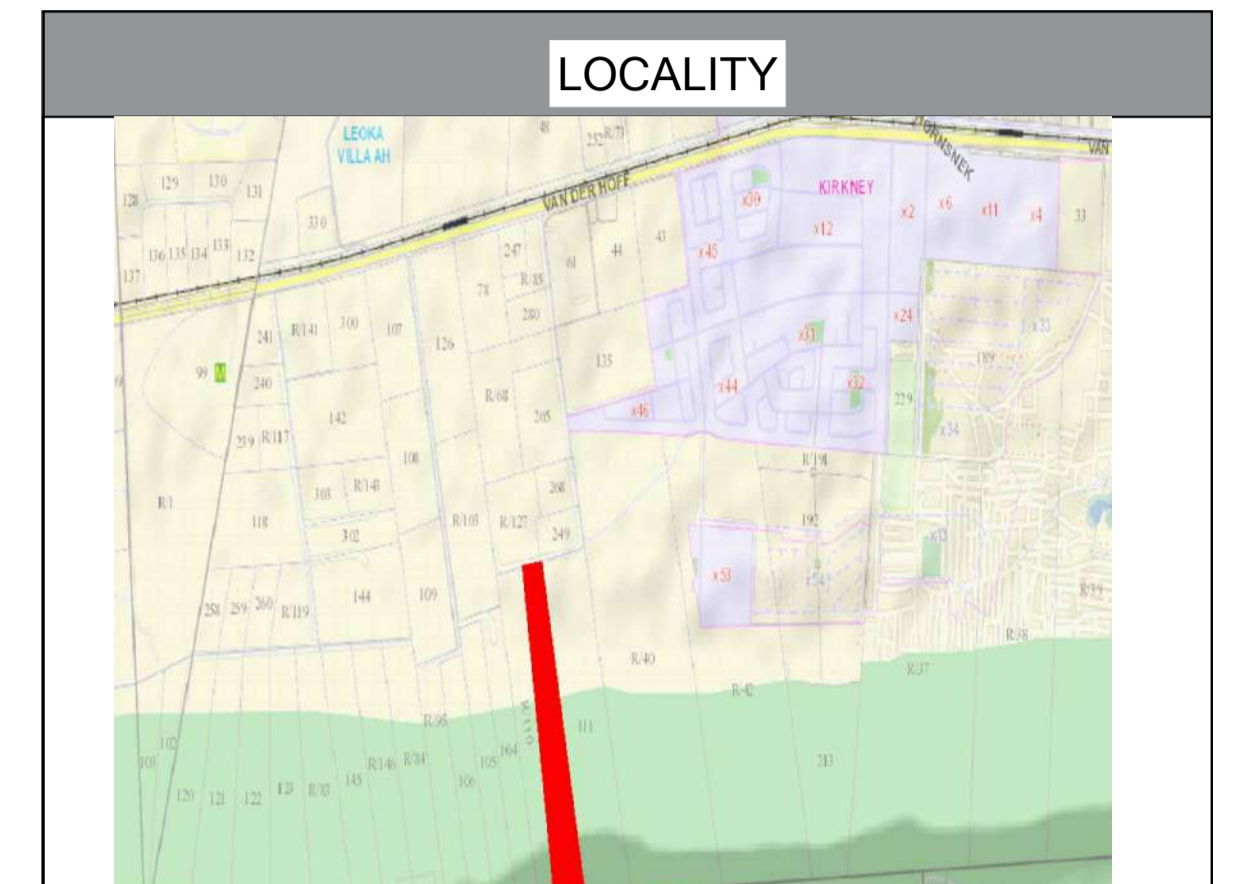
GENERAL NOTES	GEOTECHNICAL NOTES	FLOOD LINE ANALYSIS	PROJECT LOCATION
FIGURE A,B,C,D, represent the Township boundary of the proposed Township Rosslyn Extension 77 Storm water Sewer Line Township Boundary Counter line Township Boundary Buildingline	This is to certify that the Township layout on this plan is in accordance with the provisions and recommendations as set out the Geotechnical Investigation for the proposed Township prepared by Davhana Geotech Solutions (Pty) Ltd SIGNATURE Date: 08-03-2023	The property is not affected by a 1:50 or 1:100 year flood line as defined by the National Water Act of 1998 act 36 of 1998 and the layout plan of the proposed township has been certified by Mr Nico Roets Date: 08-03-2023 SIGNATURE Pr Tech Eng 201170222	SITUATED AT PORTION 136 OF THE FARM ZANDFONTEIN 317 JR

PLAN NUMBER:



TOWNSHIP ESTABLISHMENT ZANDFONTEIN 317 JR
 CITY OF TSHWANE METROPOLITAN
 MUNICIPALITY
 GAUTENG PROVINCE

CLIENT
 PROPERTY 4 US STOCKVEL



ZONING TABLE

Land Use	Size	Coverage
Residential	1.63HA	20.37%
Roads	0.5HA	6.25%
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LEGEND

- Storm water
- Sewer Line
- Township Boundary
- Counter line
- Line of no Access

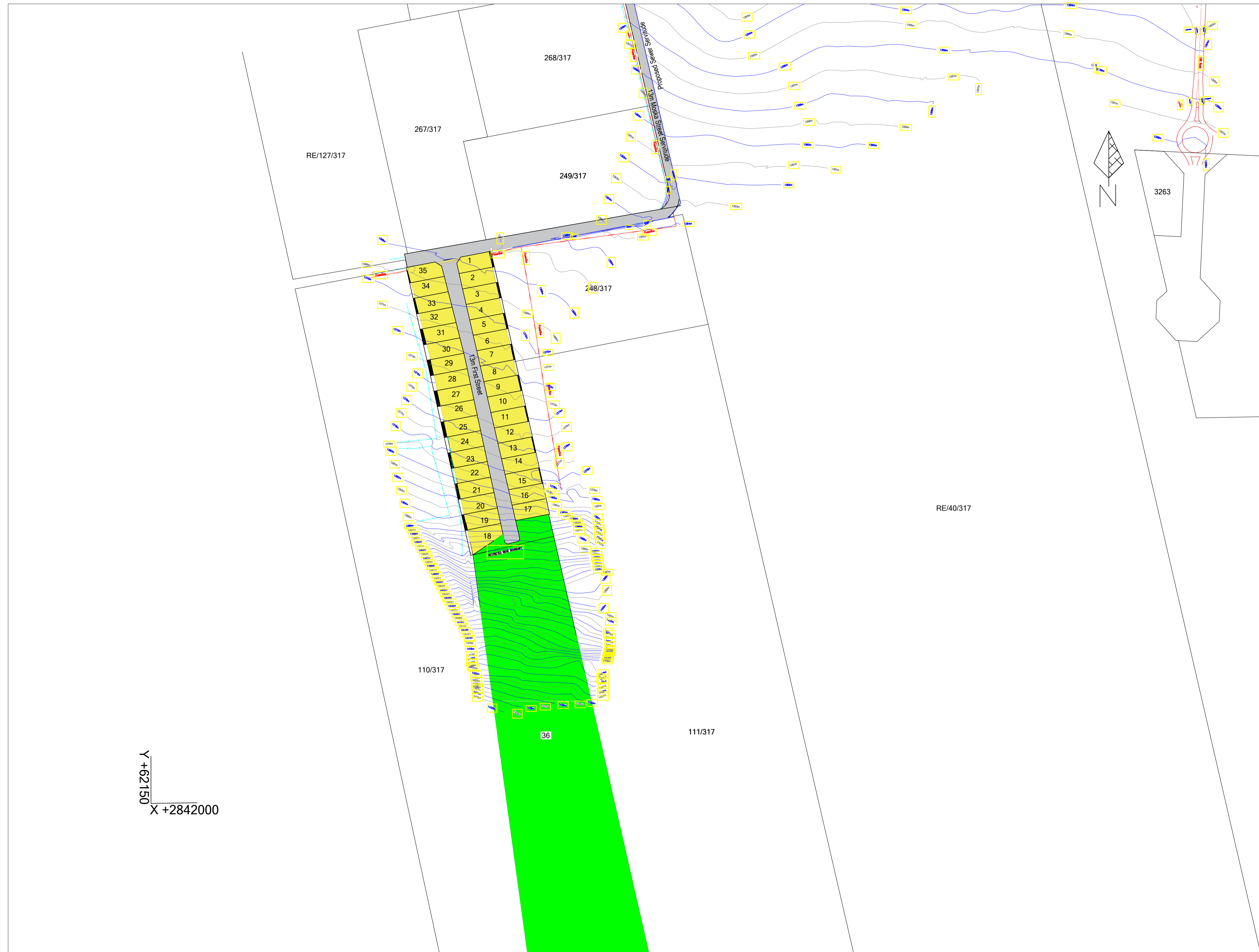
SCALE

1:2

TOWNSHIP DATA

DIMENSIONS AND SIZES

All dimensions shown on the plan are approximately scaled in meters
 Erf 2-17 479 sqm Erf 19-34 is 479 sqm Erf 18 is 560 sqm in extent and
 Erf 1 and 35 is 468 sqm



Y +62150
 X +2842000

GENERAL NOTES

- FIGURE A,B,C,D, represent the Township boundary of the proposed Township Rosslyn Extension 77
- Storm water
 - Sewer Line
 - Township Boundary
 - Counter line
 - Township Boundary
 - Buildingline

GEOTECHNICAL NOTES

This is to certify that the Township layout on this plan is in accordance with the provisions and recommendations as set out the Geotechnical Investigation for the proposed Township prepared by Davhana Geotech Solutions (Pty) Ltd

SIGNATURE

Date: 08-03-2023

FLOOD LINE ANALYSIS

The property is not affected by a 1:50 or 1:100 year flood line as defined by the National Water Act of 1998 act 36 of 1998 and the layout plan of the proposed township has been certified by Mr Nico Roets

SIGNATURE
 Pr Tech Eng 201170222

Date: 08-03-2023

PROJECT LOCATION

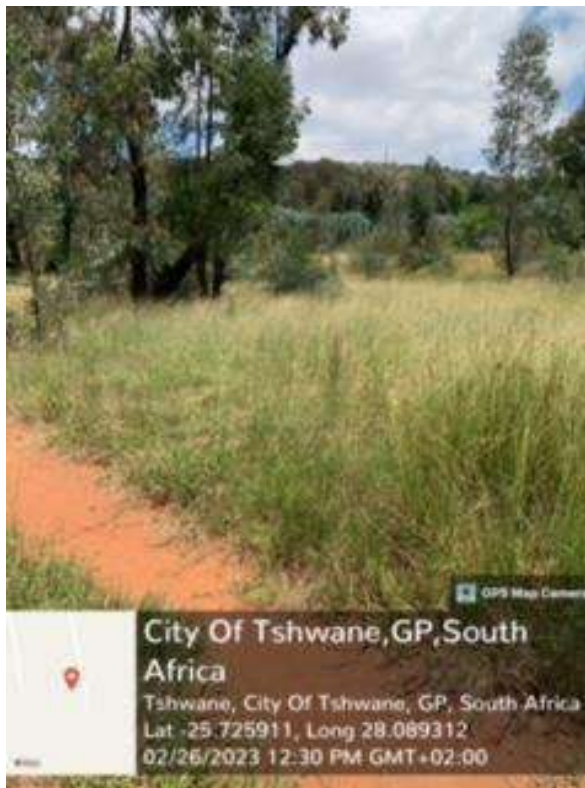
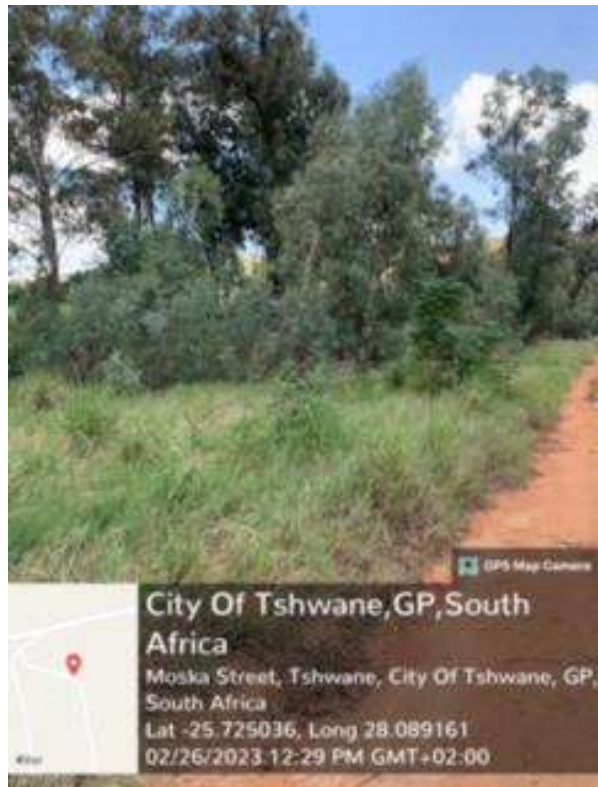
SITUATED AT PORTION 136 OF THE FARM
 ZANDFONTEIN 317 JR

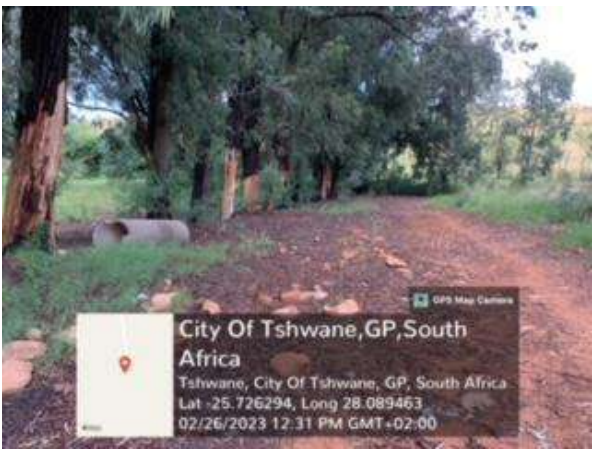
PLAN NUMBER:



Appendix C – Site Photographs

SITE PHOTOGRAPHS





Appendix D – Public Participation Process

Site Notices

SITE NOTICES



NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998)

Notice is hereby given in terms of Regulation 41 published in Government Notice No. R982 under Chapter 5 of the National Environment Management Act, 1998 (Act 107 of 1998) of the intent to submit an application for Environmental Authorisation to the Gauteng Department of Agriculture and Rural Development (**GDARD**).

Proponent and Location: Property4US Stokvel is proposing the establishment of Kirkney township on portion 136 (portion of portion 110) of the Zandfontein 317-JR in Gauteng Province.

NEMA Listed Activities Applied for:

- Listing Notice 1:GN R327 - Activity 9, 10, 27, 28

Current Zoning of the Property: Undeveloped

Date of Notice: 25 February 2023

To be identified as an Interested and/or Affected Party, (I&AP), please submit your name, contact information, interest in the matter and any comments in writing within 30 days of this notice.

Queries regarding this matter should be referred to:

Mokone Town Planners and Property Consultants (Pty) Ltd

Kutlwanong Democratic Centre
Office No: SU40, 357 Visagie Street
Pretoria, 0002

Public Participation Registration and Enquiries

Kabelo Phakwago

[phakwagokabelo@gmail.com/](mailto:phakwagokabelo@gmail.com)

Info@mokoneconsulting.co.za

012 881 1803

Newspaper Advert

Legals

Legals@citizen.co.za

intention to apply for the issue of a certified copy of DEED OF TRANSFER NUMBER T15314/1995 passed by SUSARA JOHANNA MCLAREN, IDENTITY NUMBER 291229 0064 00 9 Married out of Community of Property in favour of 1. WILLIAM GEORGE STOCKER, IDENTITY NUMBER 531222 5167 18 2 Married to CHRISTINE SUSAN STOCKER, which marriage is governed by the laws of ENGLAND and 2. JEFFREY DAVID BENJAMIN Born on the 3rd April 1954 married to LAURA ESTHER BENJAMIN which marriage is governed by the laws of ENGLAND in respect of certain PORTION 5 OF ERF 1793 HENLEY ON KLIP TOWNSHIP, REGISTRATION DIVISION I.R., THE PROVINCE OF GAUTENG, IN EXTENT 4 047 (FOUR THOUSAND AND FORTY SEVEN) Square Metres which has been lost or destroyed. Applicant CMM ATTORNEYS Address P.O. Box 6632, Vanderbijlpark, 1900, Tel: (016) 982 1805 E-mail address: convey4@cmm-attorneys.co.za Contact number: 016 982 1805 WILLIAM GEORGE STOCKER CHRISTINE SUSAN STOCKER JEFFREY DAVID BENJAMIN LAURA ESTHER BENJAMIN All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at PRETORIA within two weeks from the date of publication of this notice. Dated at this Day of _____ BH015444

The Trustees for the time being of the MISEDI DISCRETIONARY TRUST
LOST OR DESTROYED DEED
Notice is hereby given in terms of regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Deed of Transfer Number ST48866/2000, passed by the Registrar of Deeds at Johannesburg in favour of: The Trustees for the time being of the MISEDI DISCRETIONARY TRUST Registration Number IT6221/1995(T) in respect of certain: A Unit consisting of (a) Section Number 58 as shown and more fully described on Sectional Plan Number SS32/1999 in the scheme known as SILVER STONE in respect of the land and building or buildings situated at WELTVEREDENPARK EXTENSION 99 TOWNSHIP, LOCAL AUTHORITY: CITY OF JOHANNESBURG, of which section the floor area, according to the said sectional plan is 73 (Seventy Three) square metres in extent and (b) An undivided share in the common property in the scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan. HELD BY Deed of Transfer Number ST48866/2000 which has been lost or destroyed. All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Johannesburg, Deeds Office Information Section, Mezzanine Floor, 208-212 Marble Towers Building, c/n Von Weilligh & Pritchard Street, Johannesburg, within two weeks from the date of the publication of this notice. Dated at JOHANNESBURG this 27TH day of FEBRUARY 2023 Applicant: KEVIN NIVELLE BARNARD For MISEDI DISCRETIONARY TRUST C/O GISHEN & ASSOCIATES INC Address: Gishen House, 58 Peter Place, Bryanston, 2191 E-mail address: evandenber@gisheninc.co.za Tel: 011 790 4200 _____ CK030356

The Trustees From Time To Time Of Mlangeni Family Trust (T15943/2014)
LOST OR DESTROYED DEED
Notice is hereby given in terms of regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Deed of Transfer T15943/2014 passed by BELFAST STEEL AND SCRAP METALS CC, Registration Number: 2001/083170/23 in favour of THE TRUSTEES FROM TIME TO TIME OF THE MLANGENI FAMILY TRUST, Registration Number IT 2045/2008 in respect of certain REMAINDER OF PORTION 12 OF THE FARM WEMMERSHUIS 379, REGISTRATION DIVISION J.T., PROVINCE OF

MPUMALANGA, which has been lost or destroyed. All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds NELSPRUIT, at 25 Bell Street, Mbombela, 1201, Mpumalanga within two weeks from the date of the publication of this notice. Applicant Krügel Heinsen Inc. Address: Profite Building, 23 Corridor Crescent, Route N4 Business Park, Benfontein, Emalahleni E-mail address: mand@krugels.co.za Contact number: (013) 653 6400 _____ JD066092

The Trustees From Time To Time Of Mlangeni Family Trust (T15949/2014)
LOST OR DESTROYED DEED
Notice is hereby given in terms of regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Deed of Transfer T15949/2014 passed by HESTER LLOYD, Identity Number: 680129 0077 08 5, Married out of community of property in favour of THE TRUSTEES FROM TIME TO TIME OF THE MLANGENI FAMILY TRUST, Registration Number IT 2045/2008 in respect of certain REMAINDER OF THE FARM BERGENDAL 981, REGISTRATION DIVISION J.T.; PROVINCE OF MPUMALANGA, which has been lost or destroyed. All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds NELSPRUIT, at 25 Bell Street, Mbombela, 1201, Mpumalanga within two weeks from the date of the publication of this notice. Applicant Krügel Heinsen Inc. Address: Profite Building, 23 Corridor Crescent, Route N4 Business Park, Benfontein, Emalahleni E-mail address: mand@krugels.co.za Contact number: (013) 653 6400 _____ JD066093

VAN HEERDEN H J (T98886/2008)
LOST OR DESTROYED DEED
Notice is hereby given in terms of Regulation 68(1) of the Deeds Registries Act, 47 of 1937, of the intention to apply for the issue of a certified copy of Deed of Transfer T98886/2008 passed by The Executor of the Estate Late Marthinus Beyers van Heerden, Registration Number 14192/2008 in favour of HANNAH JANE VAN HEERDEN, Identity Number 460219 0045 08 7, Unmarried in respect of certain Erf 13 Florauna Township, Registration Division J.R. The Province of Gauteng which has been lost or destroyed. All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at Pretoria, Merino Building, 120 Pretorius Street, Pretoria within two weeks from the date of publication of this notice. Dated at Rosebank this 10 day of November 2022 HJ VAN HEERDEN APPLICANT Couzins, ATTORNEYS - H1854 4TH FLOOR, ONE STURDEE, 1 STURDEE AVENUE ROSEBANK e-mail: khanyisile@couzins.co.za Tel: 011 788 0188 _____ TP000592

Zambesa Investments (Pty) Ltd (K6069/2016S)
LOST OR DESTROYED DEED
Notice is hereby given in terms of Regulation 68 of the Deeds Registries Act, 1937, of the intention to apply for the issue of a certified copy of Certificate of Real Right K6069/2016S in the name of ZAMBESA INVESTMENTS PROPRIETARY LIMITED, Registration number: 1993/001566/07 in respect of The right to erect and complete from time to time within a period of 10 years for his/her personal account in terms of Section 25(1) on the specified portion of the common property as indicated on the plan referred to in Section 25(2)(a) of the Act files in this office, and to divide such building or buildings into a section or sections and common property, and to confer the right to exclusive use over portion of such common property upon the owner or owners of one or more units in the Scheme known as TUBATSE HOMES in respect of the land and buildings situated at ERF 5973 BURGERSFORT EXTENSION 40 TOWNSHIP, GREATER TUBATSE LOCAL MUNICIPALITY and shown on the site plan Which has been

lost or destroyed. All interested persons having objection to the issue of such copy are hereby required to lodge the same in writing with the Registrar of Deeds at PLOKOWANE with street address 101 Dorp Street, Polokwane Central, Polokwane, Tel: 015-283-2300, within two weeks from date of publication of this notice. SIGNED AT NELSPRUIT on Applicant Address: Law Chambers, Du Toit Smuts & Partners, Van Niekerk Street, Nelspruit Email address: idouglass@dtamp.co.za Contact number: 013-745-3237 _____ JD066173

MUNICIPAL NOTICE

TOWN PLANNING SCHEMES

VAALPLAN
TOWN & REGIONAL PLANNERS

Farm Klipspruit 64, Parys of Portion 130, 131 & 132
Notice of application in terms of the Ngwatho Municipal Land Use Planning By-Law, 2018 1 H.L. Janse van Rensburg from Vaalplan Town & Regional Planners being the authorized agent of the owner(s) of Portions 130, 131 & 132 of the Farm Klipspruit 64, Parys, hereby give notice in terms of the provisions of Section 49 of the Ngwatho Municipal Land Use Planning By-Laws, that I have applied in terms of Section 16(2)(a)(iv) of the mentioned by-laws for the amendment of General Plan SG No 311/2014 consisting of Portions 130 to 139 (of 26) of the Farm Klipspruit 64 by amending the route of an existing Right of Way Servitude stretching over Portion 130, and simultaneously applying for the registration of a new servitude to stretch over Portions 130 and 132. The purpose of the application is to create an alternative route as to the existing one stretching through plantations. The public is hereby invited to submit written comments, objections or representation, together with reasons in writing at: Ms Bontsi Naale (Administrator Community Service Department), Ngwatho Local Municipality, First Floor, office 38, Liebenberg Street, or P.O. Box 359, Parys, 9585, Tel: (056) 816 2700, e-mail: bontsi@ngwatho.co.za All relevant documents relating to the application will be open for inspection during normal office hours at the offices of the said authorized local authority and applicant. Any person who wishes to object to the application or submit representations in respect thereof, together with the reasons therefore, must lodge the same in writing with the said authorized local authority at its address specified above within a period of 30 days from the first day of publication on (3 March 2023 to 3 April 2023). Any person who cannot write may during normal office hours go to the municipal address stated above to be assisted in transcribing their objections, comments or representations. Any person who submits objections, comments or representations will be notified if a hearing will be held. Details of agent: Vaalplan Town & Regional Planners, H.L. Janse van Rensburg, 43 Livingstone Boulevard, Vanderbijlpark, 1911, Tel (016) 981 0507, e-mail vaalplan3@telkomsa.net, website: www.vaalplan.co.za _____ BH015421

80 GENERAL

Farm Zandfontein 317-JR, Portion 136
NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998)
Notice is hereby given in terms of Regulation 41 published in Government Notice No. R982 under Chapter 5 of the National Environment Management Act, 1998 (Act 107 of 1998) of the intent to submit an application for Environmental Authorisation to the Gauteng Department of Agriculture and Rural Development (GDARD). Proponent and Location: Property 4US Stokvel is proposing the establishment of Kirkney township on portion 136 (portion of portion 110) of the Zandfontein 317-JR in Gauteng Province. NEMA Listed Activities Applied for: •Listing Notice 1:GN R327 - Activity 9, 10, 27, 28 Current Zoning of the Property: Undeveloped Date of Notice: 03 March 2023 To be identified as an interested and/or Affected Party, (I&AP), please submit your name, contact information, interest in the matter and any comments in writing within 30 days of this notice. Queries regarding this matter should be referred to: Mokone Town Planners and Property Consultants (Pty) Ltd Kutlwano Democratic Centre Office No: SU40, 357 Visagie Street, Pretoria, 0002 Public Participation Registration and Enquiries Kabela Phakgwao Info@mokoneconsulting.co.za 012 881 1803 _____ CK030498

Sand Hawks (Pty) Ltd
NOTICE OF RECORD OF DECISION FOR ENVIRONMENTAL AUTHORISATION
The National Department of Environmental Affairs (DEA) has granted an Environmental Authorisation (EA) to Sand Hawks (Pty) Ltd to mine sand (general) on Portion 1 of the farm Majebaskraal 1005-LS situated within Polokwane Local Municipality, Limpopo Province. The said environmental authorisation, reference number: LP30/5/1/3/3/2/1 (1418) EM was issued on the 21st December 2022. Any party wishing to appeal any aspect of the decision must lodge a notice of intention to appeal with the Minister within 20 days of the date of the EA, by means of one of the

AMENDMENT SCHEMES

Farm Doornrug 302, of Portion 5
NOTICE IN TERMS OF SECTION 80(1) OF THE EMALAHLENI SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW, 2016, READ WITH THE PROVISIONS OF THE

following methods. Appeal to the Department of Environmental Affairs: Attention: Directorate Appeals and Legal Review Email: appeals@dfre.gov.za Post: Private Bag X447, Pretoria, 0001 By hand: Environmental House, Corner Steve Biko and Soutpansberg Street, Arcadia, Pretoria, 0083 Copy of the lodged appeal to the Department of Mineral Resources to: Attention: Regional Manager: Limpopo Region Facsimile: 015 297 7230 Email: Thivulaw.Kolani@dmre.gov.za Post: Private Bag X 9467, Polokwane, 0700 By hand: Broll Building, 101 Dorp Street, Polokwane, 0699 A copy of the environmental authorization and the reasons for the decision is available from our offices and will be furnished on request. Our details are given below: Gudani Consulting 37A Voortrekker Street, Polokwane, 0699 P. O. Box 714, Faunapark, Polokwane, 0787 Tel: 015 - 291 4932 / 296 4471 Email: mulanga@gudaniconsulting.co.za Website: www.gudaniconsulting.co.za _____ BH015399

SALE IN EXECUTION

81 HAMMOND POLE SALE IN EXECUTION

HAMMOND POLE

Changing Tides 17 (Pty) Ltd N.O. / Mohale D T AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, PRETORIA CASE NUMBER: 63122/2021
In the matter between: CHANGING TIDES 17 (PROPRIETARY) LIMITED N.O. Judgment Creditor And DAVID TEFO MOHALE Judgment Debtor
IN Execution of a Judgment of the High Court of South Africa, (Gauteng Division, Pretoria) in the abovementioned suit, the Property shall be sold by the Sheriff Vereeniging to the highest bidder subject to a reserve price of R600 000.00 and will be held on 16 March 2023 at 10:00 at 97 General Hertzog, Vereeniging of the undermentioned property of the Execution Debtor on the conditions which may be inspected at 97 General Hertzog, Vereeniging, prior to the sale.
CERTAIN : HOLDING 485 WALKER'S FRUIT FARMS AGRICULTURAL HOLDINGS EXTENSION 1 REGISTRATION DIVISION I.Q. PROVINCE OF GAUTENG MEASURING 2.0819 (TWO COMMA ZERO EIGHT ONE NINE) HECTARES
Held under Deed of Transfer No T52474/2016 SITUATED AT: 485 PLOUGH ROAD, WALKER'S FRUIT FARMS AH, WALKERVILLE
Situated in the Magisterial District of VEREENIGING.
The following information is furnished re the improvements, though in this respect nothing is guaranteed and no warranties are given in respect thereof. It is the buyers' responsibility to verify what is contained herein.
THE 1ST DWELLING COMPRISING OF: MAIN BUILDING: LOUNGE, DINING ROOM, KITCHEN, 3 BEDROOMS, 2 BATHROOMS, 2 TOILETS, OUTSIDE BUILDINGS: 2 GARAGES SUNDRIES: NONE THE 2ND DWELLING COMPRISING OF: MAIN BUILDING: 2 BEDROOMS, 1 BATHROOM OUTSIDE BUILDINGS: DOUBLE GARAGE SUNDRIES: NONE THE 3RD DWELLING COMPRISING OF: MAIN BUILDING: LOUNGE, 1 BEDROOM, 1 BATHROOM OUTSIDE BUILDINGS: NONE
All prospective purchasers will be required to register as such in terms of the Consumer Protection Act 68 of 2008 and will be required to provide proof of identity and address and to comply with the sheriff's registration conditions. The rules of the Auction and conditions of sale are available at the office of the sheriff as set out above.
DATED AT PRETORIA on 17

82 EAST & WEST RAND SALE IN EXECUTION

Absa / Hlahane M F AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NO: 2020/11858
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the undermentioned property of the Defendants on the Conditions, which will lie for inspection at the offices of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1, subject to a reserve price set at R911,000.00.
ERF 744 ESTHERPARK EXTENSION 1 TOWNSHIP, REGISTRATION DIVISION I.R., THE PROVINCE OF GAUTENG, IN EXTENT 1000 (ONE THOUSAND) SQUARE METRES,
HELD BY DEED OF TRANSFER NO. T5535/1991. SITUATED AT: 22 SILVER OAK STREET, ESTHER PARK, KEMPTON PARK Magisterial Court District (Johannesburg) (NO WARRANTY IS GIVEN IN

January 2023
HP NDLOVU INC. Attorneys of Judgment Creditor c/o NVG Attorneys Menlo Law Chambers No. 49 11th Street Menlo Park Pretoria Ref: MAT3534/BJ/EC Tel: (011) 874-1800 _____ JD065910

HAMMOND POLE

Nedbank / Mokoena S J & D AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG LOCAL DIVISION, JOHANNESBURG CASE NUMBER: 46071/2021
In the matter between: NEDBANK LIMITED Judgment Creditor And SELLO JOHANNES MOKOENA 1st Judgment Debtor DARLENE MOKOENA 2nd Judgment Debtor
IN Execution of a Judgment of the High Court of South Africa, (Gauteng Local Division, Johannesburg) in the abovementioned suit, the Property shall be sold by the Sheriff BOKSBURG to the highest bidder subject to a reserve price of R268 000.00 and will be held at 182 LEEUWPOORT STREET, BOKSBURG on 17 MARCH 2023 at 09:30 of the undermentioned property of the Execution Debtors on the conditions which may be inspected at 182 LEEUWPOORT STREET, BOKSBURG, prior to the sale.
CERTAIN : ERF 8461 WINDMILL PARK EXTENSION 21 TOWNSHIP, Registration Division I.R., Province of GAUTENG, being 8461 EAST CENTRAL ROAD, WINDMILL PARK EXT 21 MEASURING: 150 (ONE HUNDRED AND FIFTY) Square Metres; HELD under Deed of Transfer No. T8209/2019 Situated in the Magisterial District of BOKSBURG. The following information is furnished re the improvements, though in this respect nothing is guaranteed and no warranties are given in respect thereof. It is the buyers' responsibility to verify what is contained herein.
MAIN BUILDING: 3 BEDROOMS, 1 BATHROOMS, 1 WATER CLOSET, KITCHEN, LIVING ROOM, DINING ROOM, ENTRANCE HALL OUTSIDE BUILDINGS: NONE SUNDRIES: NONE All prospective purchasers will be required to register as such in terms of the Consumer Protection Act 68 of 2008 and will be required to provide proof of identity and address and to comply with the sheriff's registration conditions. The rules of the Auction and conditions of sale are available at the office of the sheriff as set out above.
DATED AT BOKSBURG on 10 January 2023
HAMMOND POLE MAJOLA INC. Attorneys of Judgment Creditor C/O VERMAAK & PARTNERS INC 3RD FLOOR 54 ON BATH 54 BATH AVENUE ROSEBANK Ref: MAT446867/LW/EC Tel: (011) 874-1800 _____ JD065911

82 EAST & WEST RAND SALE IN EXECUTION

Absa / Pretorius W J & R J J AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NUMBER: 2017/47834
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the undermentioned property of the Defendants on the Conditions, which will lie for inspection at the offices of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1, subject to a reserve price set at R911,000.00.
ERF 744 ESTHERPARK EXTENSION 1 TOWNSHIP, REGISTRATION DIVISION I.R., THE PROVINCE OF GAUTENG, IN EXTENT 1000 (ONE THOUSAND) SQUARE METRES,
HELD BY DEED OF TRANSFER NO. T5535/1991. SITUATED AT: 22 SILVER OAK STREET, ESTHER PARK, KEMPTON PARK Magisterial Court District (Johannesburg) (NO WARRANTY IS GIVEN IN

to the said section plan is 66 (SIXTY SIX) square meters in extent; and
(b) An undivided share in the common property in this scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan; Held by Deed of Transfer ST24293/2009 SITUATED AT: 9 LAKE COMO, 4TH AVENUE, FLORIDA, ROODEPOORT Magisterial Court District (Johannesburg) (NO WARRANTY IS GIVEN IN RESPECT OF THE PHYSICAL ADDRESS) The following information is furnished regarding the improvements, though in this respect nothing is guaranteed: RESIDENTIAL PROPERTY CONSISTING OF: IMPROVEMENTS: LOUNGE, KITCHEN, 2 x BEDROOMS, 1 x BATHROOM, 1 x GARAGE, CARPORT, SWIMMING POOL THE NATURE, EXTENT, CONDITION AND EXISTENCE OF THE IMPROVEMENTS ARE NOT GUARANTEED AND/OR NO WARRANTY IS GIVEN IN RESPECT THEROF AND ARE SOLD "VOETSTOOTS"
1. The purchaser shall pay auctioneer's commission subject to a maximum of R40 000.00 plus V.A.T. and a minimum of R3 000.00 plus v.a.t.
2. A Deposit of 10% of the purchase price immediately on demand by the Sheriff. The balance of purchase price and any such interest payable, shall be paid to the Sheriff against transfer and shall be secured by a Bank guarantee, to be approved by the Plaintiff's Attorney, which shall be furnished to the Sheriff within 21 days after the date of sale.
3. The Rules of the auction are available 24 hours prior to the auction at the offices of the Sheriff, 182 PROGRESS ROAD, LINDHAVEN, ROODEPOORT.
The office of the Sheriff will conduct the Sale. REGISTRATION AS A BUYER IS A PRE-REQUISITE SUBJECT TO CONDITIONS, INTER ALIA: a. Directive of the Consumer Protection Act 68 of 2008 (URL http://www.infp.gov.za/view/DownloadFileAction?id=99961) b. FICA-Legislation - Proof of identity and address particulars c. Payment of a registration fee in Cash / EFT d. Registration Conditions THE AFORESAID SALE SHALL BE SUBJECT TO THE CONDITIONS OF SALE WHICH MAY BE INSPECTED AT THE OFFICE OF THE SHERIFF KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1. DATED AT JOHANNESBURG on this the day of JANUARY 2023. PLAINTIFF'S ATTORNEYS TIM DU TOIT & CO INC 33 The Valley Road c/n Jan Smuts Avenue Westcliff Johannesburg TEL: (011) 274 9800 EMAIL: nastassja@timdutoit.co.za cobus@timdutoit.co.za Ref: M40523 /P420/N. Erasmus/CO _____ JD065932

Absa / Pretorius W J & R J J AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NUMBER: 2017/47834
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the undermentioned property of the Defendants on the Conditions, which will lie for inspection at the offices of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1, subject to a reserve price set at R911,000.00.
ERF 744 ESTHERPARK EXTENSION 1 TOWNSHIP, REGISTRATION DIVISION I.R., THE PROVINCE OF GAUTENG, IN EXTENT 1000 (ONE THOUSAND) SQUARE METRES,
HELD BY DEED OF TRANSFER NO. T5535/1991. SITUATED AT: 22 SILVER OAK STREET, ESTHER PARK, KEMPTON PARK Magisterial Court District (Johannesburg) (NO WARRANTY IS GIVEN IN

Absa / Hlahane M F AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NO: 2020/11858
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the undermentioned property of the Defendants on the Conditions, which will lie for inspection at the offices of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1, subject to a reserve price set at R911,000.00.
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RESPECT OF THE PHYSICAL ADDRESS) The following information is furnished regarding the improvements, though in this respect nothing is guaranteed: RESIDENTIAL PROPERTY CONSISTING OF: IMPROVEMENTS: LOUNGE, KITCHEN, 2 x BEDROOMS, 1 x BATHROOM, 1 x GARAGE, CARPORT, SWIMMING POOL THE NATURE, EXTENT, CONDITION AND EXISTENCE OF THE IMPROVEMENTS ARE NOT GUARANTEED AND/OR NO WARRANTY IS GIVEN IN RESPECT THEROF AND ARE SOLD "VOETSTOOTS"
1. The purchaser shall pay auctioneer's commission subject to a maximum of R40 000.00 plus V.A.T. and a minimum of R3 000.00 plus v.a.t.
2. A Deposit of 10% of the purchase price immediately on demand by the Sheriff. The balance of purchase price and any such interest payable, shall be paid to the Sheriff against transfer and shall be secured by a Bank guarantee, to be approved by the Plaintiff's Attorney, which shall be furnished to the Sheriff within 21 days after the date of sale.
3. The Rules of the auction are available 24 hours prior to the auction at the offices of the Sheriff at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1. The office of the Sheriff will conduct the Sale. REGISTRATION AS A BUYER IS A PRE-REQUISITE SUBJECT TO CONDITIONS, INTER ALIA: a. Directive of the Consumer Protection Act 68 of 2008 (URL http://www.infp.gov.za/view/DownloadFileAction?id=99961) b. FICA-Legislation - Proof of identity and address particulars c. Payment of a registration fee in Cash / EFT d. Registration Conditions THE AFORESAID SALE SHALL BE SUBJECT TO THE CONDITIONS OF SALE WHICH MAY BE INSPECTED AT THE OFFICE OF THE SHERIFF KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1. DATED AT JOHANNESBURG on this the day of JANUARY 2023. PLAINTIFF'S ATTORNEYS TIM DU TOIT & CO INC 33 The Valley Road c/n Jan Smuts Avenue Westcliff Johannesburg TEL: (011) 274 9800 EMAIL: nastassja@timdutoit.co.za cobus@timdutoit.co.za Ref: M40523 /P420/N. Erasmus/CO _____ JD065932

to the said section plan is 66 (SIXTY SIX) square meters in extent; and
(b) An undivided share in the common property in this scheme apportioned to the said section in accordance with the participation quota as endorsed on the said sectional plan; Held by Deed of Transfer ST24293/2009 SITUATED AT: 9 LAKE COMO, 4TH AVENUE, FLORIDA, ROODEPOORT Magisterial Court District (Johannesburg) (NO WARRANTY IS GIVEN IN RESPECT OF THE PHYSICAL ADDRESS) The following information is furnished regarding the improvements, though in this respect nothing is guaranteed: RESIDENTIAL PROPERTY CONSISTING OF: IMPROVEMENTS: LOUNGE, KITCHEN, 2 x BEDROOMS, 1 x BATHROOM, 1 x GARAGE, CARPORT, SWIMMING POOL THE NATURE, EXTENT, CONDITION AND EXISTENCE OF THE IMPROVEMENTS ARE NOT GUARANTEED AND/OR NO WARRANTY IS GIVEN IN RESPECT THEROF AND ARE SOLD "VOETSTOOTS"
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HAMMOND POLE

Nedbank / Mokoena S J & D AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG LOCAL DIVISION, JOHANNESBURG CASE NUMBER: 46071/2021
In the matter between: NEDBANK LIMITED Judgment Creditor And SELLO JOHANNES MOKOENA 1st Judgment Debtor DARLENE MOKOENA 2nd Judgment Debtor
IN Execution of a Judgment of the High Court of South Africa, (Gauteng Local Division, Johannesburg) in the abovementioned suit, the Property shall be sold by the Sheriff BOKSBURG to the highest bidder subject to a reserve price of R268 000.00 and will be held at 182 LEEUWPOORT STREET, BOKSBURG on 17 MARCH 2023 at 09:30 of the undermentioned property of the Execution Debtors on the conditions which may be inspected at 182 LEEUWPOORT STREET, BOKSBURG, prior to the sale.
CERTAIN : ERF 8461 WINDMILL PARK EXTENSION 21 TOWNSHIP, Registration Division I.R., Province of GAUTENG, being 8461 EAST CENTRAL ROAD, WINDMILL PARK EXT 21 MEASURING: 150 (ONE HUNDRED AND FIFTY) Square Metres; HELD under Deed of Transfer No. T8209/2019 Situated in the Magisterial District of BOKSBURG. The following information is furnished re the improvements, though in this respect nothing is guaranteed and no warranties are given in respect thereof. It is the buyers' responsibility to verify what is contained herein.
MAIN BUILDING: 3 BEDROOMS, 1 BATHROOMS, 1 WATER CLOSET, KITCHEN, LIVING ROOM, DINING ROOM, ENTRANCE HALL OUTSIDE BUILDINGS: NONE SUNDRIES: NONE All prospective purchasers will be required to register as such in terms of the Consumer Protection Act 68 of 2008 and will be required to provide proof of identity and address and to comply with the sheriff's registration conditions. The rules of the Auction and conditions of sale are available at the office of the sheriff as set out above.
DATED AT BOKSBURG on 10 January 2023
HAMMOND POLE MAJOLA INC. Attorneys of Judgment Creditor C/O VERMAAK & PARTNERS INC 3RD FLOOR 54 ON BATH 54 BATH AVENUE ROSEBANK Ref: MAT446867/LW/EC Tel: (011) 874-1800 _____ JD065911

HAMMOND POLE

Changing Tides 17 (Pty) Ltd N.O. / Mohale D T AUCTION
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DATED AT PRETORIA on 17

82 EAST & WEST RAND SALE IN EXECUTION

Absa / Pretorius W J & R J J AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NUMBER: 2017/47834
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the undermentioned property of the Defendants on the Conditions, which will lie for inspection at the offices of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1, subject to a reserve price set at R911,000.00.
ERF 744 ESTHERPARK EXTENSION 1 TOWNSHIP, REGISTRATION DIVISION I.R., THE PROVINCE OF GAUTENG, IN EXTENT 1000 (ONE THOUSAND) SQUARE METRES,
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Absa / Hlahane M F AUCTION
IN THE HIGH COURT OF SOUTH AFRICA GAUTENG DIVISION, JOHANNESBURG CASE NO: 2020/11858
In the matter between: ABSA BANK LIMITED Plaintiff and PRETORIUS, WYNAND JOHANNES First Defendant PRETORIUS, RACHELLE JOHANNA JACOMINA Second Defendant
IN EXECUTION of a judgment of the above Honourable Court in the above action, dated the 9 JULY 2019, a sale will be held at the office of the sheriff KEMPTON PARK & TEMBISA at 5 ANEMOON STREET, GLEN MARAIS EXTENSION 1 on 16 MARCH 2023 at 10H00 of the

Proof of Communication



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:22

To: wayleaveJHB@eskom.co.za

Good day

Mokone Town Planners and Property Consultants would like to invite ESKOM to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:32

To: collin.loete@drdlr.gov.za

Good day

Mokone Town Planners and Property Consultants would like to invite the Department of Agriculture and Rural Development to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,

Phakwago M. Kabelo

Reg. EAP

0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:28

To: "betty.kgobe@gauteng.gov.za" <betty.kgobe@gauteng.gov.za>

Good day

Mokone Town Planners and Property Consultants would like to invite the Department of Human Settlements to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:28

To: solomon.maruma@drrdlr.gov.za

Good day

Mokone Town Planners and Property Consultants would like to invite the Department of Agriculture and Rural Development to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:27

To: "thokob@daff.gov.za" <thokob@daff.gov.za>

Good day

Mokone Town Planners and Property Consultants would like to invite the Department of Public Works and Infrastructure Development to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:27

To: Lutho.Hopa@gauteng.gov.za

Good day

Mokone Town Planners and Property Consultants would like to invite the Gauteng Department of Roads and Transport to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The link below is for access to the full report:

<https://1drv.ms/b/s!Ajglb1cwSkXAhdpsA3ZfoQs6G6vJyA?e=qz15fV>

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Draft BAR - Kirkney.pdf**
15724K



Kabelo Phakwago <phakwagokabelo@gmail.com>

INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY

1 message

Kabelo Phakwago <phakwagokabelo@gmail.com>

13 March 2023 at 12:20

To: mjonat@dws.gov.za

Good day

Mokone Town Planners and Property Consultants would like to invite the Department of Water and Sanitation to register as an interested and affected party for the proposed township establishment in Kirkney within the City of Tshwane Metropolitan Municipality in Gauteng Province.

The attached is the Draft BAR for the proposed development. The below is the link with the full report:

[Kirkney BAR.pdf](#)

As part of NEMA, a 30 days period is allocated for Interested and Affected Parties to comment on a proposed development; therefore, your comments will be appreciated.

Kind regards,
Phakwago M. Kabelo
Reg. EAP
0790547652

 **Kirkney BAR.pdf**
18591K

Register



+27 12 881 1803 / +27 67 676 5555

info@mokoneconsulting.co.za
 mokoneconsulting.co.za

Office No SU40, 1st Floor 357
 Visagie Street Pretoria 0002

25 February 2023

Proof of delivery for the EIA application notice and registration forms to the I&AP for the proposed establishment of Kirkney township on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR, Gauteng Province.

Recipient Name	Contact Details	Address	Recipient's Signature
Lucky	Email: Cell/ Tel no.: 0194009772	Kirkney	[Signature]
Macdonald	Email: Cell/ Tel no.: 064 818 9965	Kirkney	[Signature]
Leago	Email: lceagopherame@e-mail.com Cell/ Tel no.: 0649035985	Kirkney	[Signature]
Mataboge	Email: Cell/ Tel no.: 0721201294	kirkney	[Signature]
Sinobo	Email: Cell/ Tel no.: 0665004558	Kirkney	[Signature]
khutzu	Email: Cell/ Tel no.: 067 010 4090	kirkney	[Signature]
K Mefele	Email: N/A Cell/ Tel no.: 072334622	Kirkney	[Signature]
Mobko	Email: Cell/ Tel no.: 065 707 5357	KIRKNEY	[Signature]
Mahlatshe	Email: Cell/ Tel no.: 07 221 2576	kirkney	[Signature]
Gosime Leitope	Email: 062 001 9585 Cell/ Tel no.:	KIRKNEY	[Signature]

Comments

I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Mr. Nahimana Straton

Organization: Resident

Postal Address: 1239 Akhunte Crescent
Kirkney Ext 45

Email Address: stratonnah@yahoo.com

Tel: 0825602871 Fax:

Comments/ Issues/ Concerns:

I have no comment against the establishment of proposed township

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Moloko Malakalaka

Organization: Resident

Postal Address: Kirkney

Email Address: Moloko.m@icloud.com

Tel: 065 707 5357 Fax:

Comments/ Issues/ Concerns:

Supported

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: GOSAME MOKAPE

Organization: RESIDENT

Postal Address: 1110 MGCURUMGICULA (RESIDENT)
KIRINET EXT 44
0182

Email Address: letlapeg@gmail.com

Tel: 062 001 9585 Fax: N/A

Comments/ Issues/ Concerns:

I APPROVE OF THE AFOREMENTIONED
PROJECT.

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Bloss Moya

Organization: Resident

Postal Address: 927 1st Corner of Alex
0192

Email Address: Moya@aimafrica.com

Tel: 0711122068 Fax: N/A

Comments/ Issues/ Concerns:

I support the project

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Calvin Motsisi

Organization: President

Postal Address: 1242 Abherato Crescent
Kurleney Bot. 45

Email Address: calvinmotsisi03@gmail.com

Tel: 083 2064671 Fax: —

Comments/ Issues/ Concerns:

I have no comment against the establishment of the proposed township.

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Stephen Mogale

Organization: Residents

Postal Address: 1264 Alhambra Crescent

Kirkwood Village

Pretoria West

Email Address: stephenmogale36@gmail.com

Tel: 072184 3537 Fax:

Comments/ Issues/ Concerns:

I agree to the establishment of the project

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Ishephini Lukhwareni

Organization: Residents

Postal Address: 1263 Kirkney village
Ext 45

Email Address: tshephini90@gmail.com

Tel: 0715123078 Fax: —

Comments/ Issues/ Concerns:

I have no comment against it.

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: Mabotse S. Mabily

Organization: Resident (Kirkney)

Postal Address: 1056 Bergnooierdijk Crescent
x 31 Kirkney Village
PTA West 0182

Email Address: mabilyms@gmail.com

Tel: 072275976 Fax: N/A

Comments/ Issues/ Concerns:

Supported

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:



I hereby wish to register as an Interested and Affected Party (I&AP) for the proposed township establishment on an extent area of 8 hectares Portion 136 (portion of portion 110) of the farm Zandfontein 317-JR for the Basic Assessment Process.

Name: K. Mefole

Organization: N/A (Self-employed)

Postal Address: KIRKMEY

N/A
Email Address: N/A

Tel: 0773374628 Fax: N/A

Comments/ Issues/ Concerns:

N/A

Do you know anyone who can be registered as an Interested and Affected Party?

If yes, kindly assist with the following:

Name and Organisation:

Postal Address:

Tel: Email:

N/A



Appendix E – Specialist Reports

Ecological Report



NALEDZANI ENVIRONMENTAL SERVICES

Promoting sustainable use of our natural resources

078 901 4833
076 388 7203

ramalivhanam@gmail.com
ramalivhanam@naledzanies.co.za

www.naledzanies.co.za

Suite 211, Elephant House
107 Albertina Sisulu Street
Johannesburg
2107

**TERRESTRIAL BIODIVERSITY REPORT TO SUPPORT THE APPLICATION
FOR TOWNSHIP ESTABLISHMENT ON PLOT 136 OF THE FARM
ZANDFONTEIN 317-JR WITHIN THE CITY OF TSHWANE DISTRICT
MUNICIPALITY IN GAUTENG PROVINCE**

PREPARED FOR:

Mokone Town Planner & Property Consultant

PREPARED BY:

Naledzani Environmental Services

DATE:

26 January 2023

PROPRIETARY INFORMATION

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Contact details - Any queries relating to this document should be addressed to:

Mpho Ramalivhana

Physical Address: 357 Visagie Street

Pretoria

0002

Mobile: +27 78 901 4833

Email: ramalivhanam@naledzanies.co.za

Document Reference :	Township establishment
Document Status :	Rev. 1
Prepared by :	Mpho Ramalivhana
Date Issued :	26 January 2023

DECLARATION OF INDEPENDENCE

I, Mpho Ramalivhana, declare that I:

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP).
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in professional capacity.
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being a member of the general public.
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse the proposed development, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data.
- I do not have any influence over decisions made by the governing authorities.
- I undertake to disclose 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 a competent authority to such a relevant authority and the applicant.
- I have expertise and experience in conducting specialist reports relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity.
- This document and all information contained herein is and will remain the intellectual property of Naledzani Environmental Services and the specialist investigator responsible for conducting the study. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigator.
- I will comply with the Act, regulations and all other applicable legislation.
- I realize that a false declaration is an offence in terms of Regulation 71 of NEMA and is punishable in terms of section 24F of the Act.



Mpho Ramalivhana Pri Sci. Nat (Hons. Bot.; SAAB; SACNASP)

SPECIALIST INFORMATION

Mpho Ramalivhana of Naledzani Environmental Services Ltd holds an Honours Degree in Botany from the University of Limpopo (Turfloop Campus) and has 12 years' professional experience in biodiversity assessment & management, and ecological research. He is a registered member for South African Council for Natural Scientist Professions (**400395/14**).

ABBREVIATIONS

BGIS	Biodiversity Geographical Information System
CARA	Conservation of Agricultural Resources
CBA	Critical Biodiversity Area
CR	Critically Endangered
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EN	Endangered
ESA	Ecological support area
MM	Millimetres
NEMA	National Environmental Management Act, 107 of 1998
NEMBA	National Environmental Management Biodiversity Act, 10 of 2004
ONA	Other Natural Area
PA	Protected Area
PRECIS	Pretoria Computerised Information System
QDGC	Quarter Degree Grid Cell
SANBI	South African National Biodiversity Institute
SARCA	Southern African Reptile Conservation Assessment
SFSD	Strategic Framework for Sustainable Development
VM	Virtual Museum
VU	Vulnerable

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1. INTRODUCTION

Naledzani Environmental Services has been appointed by Mokone Town Planner & Property Consultant to undertake a terrestrial biodiversity assessment for the proposed township establishment at plot no 136 of the farm Zandfontein 317JR within the City of Tshwane Metropolitan Municipality in the Gauteng Province, South Africa. The biodiversity study aimed at identifying the negative environmental impact that the proposed project might have on the fauna, flora as well as the sensitive faunal habitat found on the site, and subsequently produce a report that entails actions to mitigate such impacts.

1.1 Terms of reference

The terms of reference for this investigation are limited to a Terrestrial Biodiversity Assessment with the following objectives:

- To assess the proposed development in order to determine the general ecological state of the proposed project area;
- To survey and delineate environmentally sensitive areas;
- To assess the proposed development in terms of faunal and floral taxa including the potential for species to occur;
- To provide mapping of the environmentally sensitive and critical areas with respect to the proposed development;
- To assess and identify the potential impacts that may arise from the proposed project on the fauna and flora taxa;
- To provide mitigation measures to prevent and/or mitigate identified environmental impacts that may occur due to the proposed project; and
- The provision of an assessment report, indicate findings, recommendations and maps indicating sensitivities and/or no-go areas.

2. REGULATORY AND LEGISLATIVE OVERVIEW

A summary of the relevant portions of the acts that govern the activities and potential impacts to the environment associated with the development are listed below. It should be noted that these acts are only related to biodiversity studies.

Table 1: Acts and regulations relating to the project

Legislation/Policy	Description
United Nations, 1992, The Convention on Biological Diversity.	The purpose of the Convention on Biological Diversity is to conserve the variability among living organisms, at all levels (including diversity between species, within species and of ecosystems). Primary objectives include (i) conserving biological diversity, (ii) using biological diversity in a sustainable manner and (iii) sharing the benefits of biological diversity fairly and equitably.

<p>The Constitution of the Republic of South Africa Act No. 108 of 1996</p>	<p>The environment and the health and well-being of people are safeguarded under the Constitution of the Republic of South Africa, 1996 by way of section 24. Section 24(a) guarantees a right to an environment that is not harmful to human health or well-being and to environmental protection for the benefit of present and future generations. Section 24(b) directs the state to take reasonable legislative and other measures to prevent pollution, promote conservation, and secure the ecologically sustainable development and use of natural resources (including water and mineral resources) while promoting justifiable economic and social development. Section 27 guarantees every person the right of access to sufficient water, and the state is obliged to take reasonable legislative and other measures within its available resources to achieve the progressive realisation of this right. Section 27 is defined as a socioeconomic right and not an environmental right. However, read with section 24 it requires of the state to ensure that water is conserved and protected and that sufficient access to the resource is provided.</p>
<p>Strategic Framework for Sustainable Development in South Africa</p>	<p>The development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy. The Strategic Framework for Sustainable Development (SFSD) in South Africa (September 2006) is a goal orientated policy framework aimed at meeting the Millennium Development Goals. Biodiversity has been identified as one of the key crosscutting trends in the SFSD. The lack of sustainable practices in managing natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.</p>
<p>National Environmental Management Act 107 of 1998 and the associated Environmental Impact Assessment (EIA) Regulations</p>	<p>The National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the associated Environmental Impact Assessment (EIA) Regulations (GN R326 as amended in 2017 and well as listing notices 1, 2 and 3 (GN R327, R325 and R324 of 2017), state that prior to any development taking place which triggers any activity as listed within the abovementioned regulations, an environmental authorisation process needs to be followed. This could follow either the Basic Assessment process or the Environmental Impact Assessment process depending on the nature of the activity and scale of the impact</p>

<p>National Environmental Management: Biodiversity Act No 10 of 2004</p>	<p>The objectives of this act are (within the framework of NEMA) to provide for:</p> <ul style="list-style-type: none"> • The management and conservation of biological diversity within the Republic of South Africa and of the components of such diversity; • The use of indigenous biological resources in a sustainable manner; • The fair and equitable sharing among stakeholders of the benefits arising from bio prospecting involving indigenous biological resources; • To give effect to ratify international agreements relating to biodiversity which are binding to the Republic; • To provide for cooperative governance in biodiversity management and conservation; and • To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act. <p>This act alludes to the fact that management of biodiversity must take place to ensure that the biodiversity of the surrounding areas is not negatively impacted upon, by any activity being undertaken, in order to ensure the fair and equitable sharing among stakeholders of the benefits arising from indigenous biological resources.</p> <p>Furthermore, a person may not carry out a restricted activity involving either:</p> <ol style="list-style-type: none"> a) A specimen of a listed threatened or protected species; b) Specimens of an alien species; or c) A specimen of a listed invasive species without a permit.
<p>Government Notice 864 Alien and Invasive Species Regulations as published in the Government Gazette 40166 of 2016 as it relates to the National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)</p>	<p>NEMBA is administered by the Department of Environmental Affairs and aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. In terms of alien and invasive species. This act in terms of alien and invasive species aims to:</p> <ul style="list-style-type: none"> • Prevent the unauthorized introduction and spread of alien and invasive species to ecosystems and habitats where they do not naturally occur, • Manage and control alien and invasive species, to prevent or minimize harm to the environment and biodiversity; and

	<ul style="list-style-type: none"> • Eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats. <p>Alien species are defined, in terms of the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004) as:</p> <p>(a) A species that is not an indigenous species; or</p> <p>(b) An indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.</p> <p>Categories according to NEMBA (Alien and Invasive Species Regulations, 2017):</p> <ul style="list-style-type: none"> • Category 1a: Invasive species that require compulsory control; • Category 1b: Invasive species that require control by means of an invasive species management programme; • Category 2: Commercially used plants that may be grown in demarcated areas, provided that there is a permit and that steps are taken to prevent their spread; and • Category 3: Ornementally used plants that may no longer be planted.
<p>National Forest Act 84 of 1998 (as amended in September 2011)</p>	<p>Principles to guide decisions affecting forestry resources applicable to land development management are contained in the following principle:</p> <p><u>Principle 3</u></p> <p>(3) The principles are that:</p> <p>(a) natural forests must not be destroyed save in exceptional circumstances where, in the opinion of the Minister, a proposed new land use is preferable in terms of its economic, social or environmental benefits;</p> <p>(b) a minimum area of each woodland type should be conserved, and forests must be developed and managed to</p> <p>i. conserve biological diversity, ecosystems and habitats;</p>

	<p>ii. sustain the potential yield of their economic, social and environmental benefits.</p> <p>This section of the Act alludes to the fact that the conservation status of all vegetation types needs to be considered when any development is taking place to ensure that the adequate conservation of all vegetation types is ensured.</p> <p><u>Principle 6</u></p> <p>(6) Criteria and indicators may include but are not limited to, those for determining the level of maintenance and development of:</p> <ul style="list-style-type: none"> i. forest resources, ii. biological diversity in forests, iii. the health and vitality of forests, iv. the productive functions of forests, v. the protective and environmental functions of forests; and vi. the social functions of forests.
<p>The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)</p>	<p>Removal of the alien and weed species encountered in the application area must take place in order to comply with existing legislation (amendments to the regulations under the CARA, 1983 and Section 28 of the NEMA, 1998).</p>
<p>National Environmental Management: Protected Areas Act 57 of 2003</p>	<p>This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.</p>
<p>Gauteng Ridge Policy, 2006</p>	<p>Ridges are protected environments within Gauteng (GDACE, 2006). The term ridge refers to hills, koppies, mountains, kloofs and gorges and/or a landscape type or topographic feature that is characterized by two or more of the following features: a crest, plateau, cliff or footslope. Ridges are further characterized by high spatial heterogeneity due to the range of differing, slopes and altitudes all resulting in differing soil, light and</p>

	<p>hydrological conditions. Landscapes composed of spatially heterogeneous abiotic conditions provide a greater diversity of potential niches for plants and animals than do homogeneous landscapes. Many threatened species of plants and animals inhabit ridges. As such, the conservation of ridges in Gauteng will contribute significantly to the future persistence of these species. It follows that protection of the ridges of Gauteng from development pressures will significantly contribute to the conservation of 65% of threatened or protected plant species and 71% of Gauteng plant endemics. Similarly, 50% of all Near Threatened plant species (those species that are close to qualifying as Vulnerable) will be protected through the protection of ridge environments.</p>
--	--

3. LIMITATIONS AND ASSUMPTION

The following limitations should be noted for the study:

- Due to project time constraints inherent with Environmental Authorisation application processes, such long-term research is seldom feasible, and information contained within this report is based on a single field survey conducted during a wet season;
- This study has not assessed any temporal trends for the respective seasons; and
- All species included in the plant species list (Appendix A) were observed and recorded in the study area;
- Any comments or observations made in this regard are based on observations, literature review, the expert knowledge and relevant professional experience of the specialist; and
- Despite these limitations, a comprehensive desktop study was conducted, in conjunction with the detailed results from the surveys, and as such there is a high confidence in the information provided.

4. DESCRIPTION OF THE ENVIRONMENT

4.1. Project Location

The proposed project is located at plot 136 of the farm Zandfontein 317-JR under ward 55 of the Magisterial district of Tshwane, Gauteng Province. The proposed area is surrounded mainly by other plots and it is also within the Daspoortrant mountain. See locality plan below – figure1:

Township Establishment on PORTION 136 of the Farm ZANDFONTEIN 317 JR, within City of Tshwane Metropolitan Municipality, in Ward No. 55, Gauteng Province.

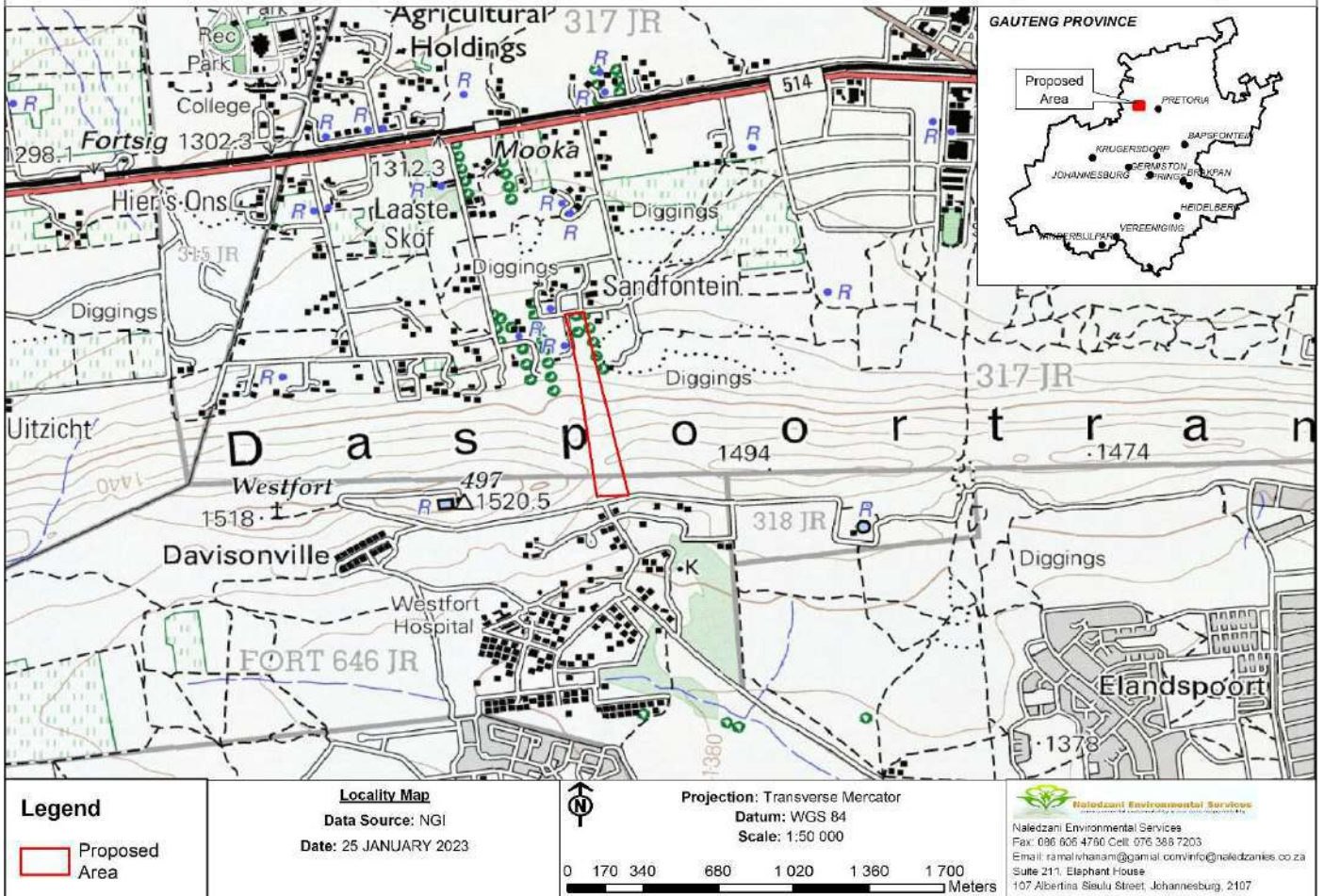


Figure 1: Site locality map

Township Establishment on PORTION 136 of the Farm ZANDFONTEIN 317 JR, within City of Tshwane Metropolitan Municipality, in Ward No. 55, Gauteng Province.

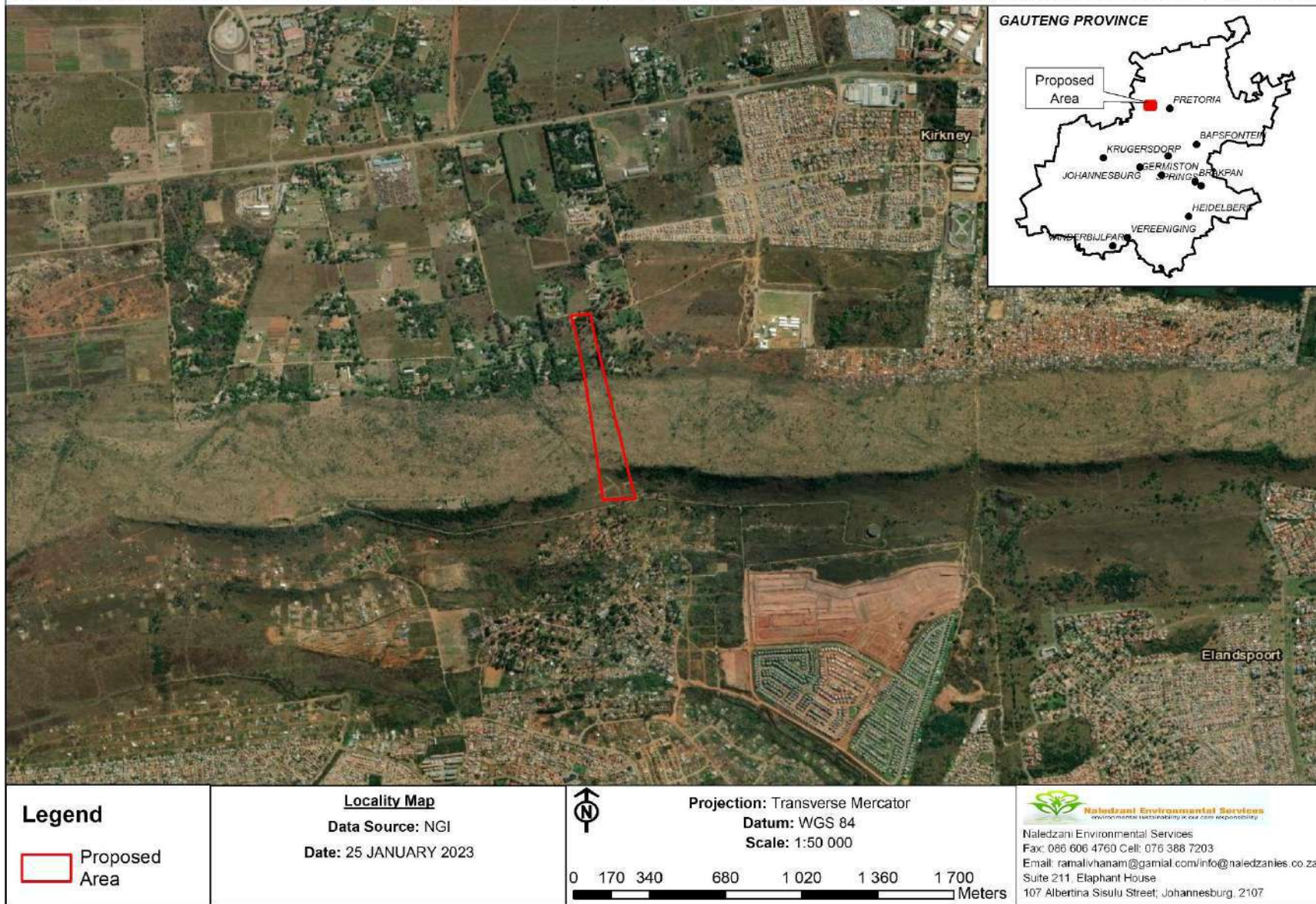


Figure 2: Google view for the site

4.2. Climate

Because of an altitude of about 1,350m above sea level, the city enjoys warm climate surrounded by hills of the Magaliesberg range with a sheltered and fertile valley. The city is bestowed with a moderate dry subtropical climate. The climate is characterised by hot and rainy summers for a long period as well as cool and dry winters over a short period. Pretoria has an average annual temperature of about 18.7°C, which is a bit high, despite the 1350m altitude. Major reason for a warm climate is because of its sheltered valley position. The valley acts as a heat trap and prevents flow of cool southerly and northern-easterly air masses throughout the year. The city receives rainfalls in the months of summer. However, the drought like situation prevails in the winter months because of unpleasant climatic condition resulting from sharp frosts. Pretoria rarely receives snowfalls, may be once or twice in a century.

Pretoria has an enjoyable climate throughout the year. However, the temperature falls in the evening as compared to daytime. The temperature in summer (October-March) is around 30°C and stays warm throughout the day. Between November-February, the city receives thunderstorm during noon, but it doesn't last for a long period. It experiences cold waves between July-August, when the temperature is around 20 °C at daytime. The evenings in winter are very cold. Therefore, it is better to stay inside and not go out without significant guidance (Pretoria.com, 2019).

4.3. Vegetation

4.3.1. Biome type

Mucina and Rutherford (2006) described the project application area as falling within the Savanna biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the Lowveld and Kalahari region of South Africa and is also the dominant vegetation in neighbouring Botswana, Namibia, and Zimbabwe. A grassy ground layer and a distinct upper layer of woody plants characterize it. Where this upper layer is near the ground vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld.

The environmental factors delimiting the biome are complex: altitude ranges from sea level to 2000 m; rainfall varies from 235 to 1000 mm per year; frost may occur from 0 to 120 days per year, and almost every major geological and soil type occurs within the biome. A major factor delimiting the biome is the lack of sufficient rainfall which prevents the upper tree layer from dominating, coupled with fires and grazing, which keep the grass layer dominant. Summer rainfall is essential for grass dominance, which, with its fine material, fuels near-annual fires. Almost all species are adapted to survive fires, usually with less than 10% of plants, both in the grass and tree layer, killed by fire. Even with severe burning, most species can re-sprout from the stem bases (Mucina and Rutherford, 2011).

The grass layer is dominated by C 4-type grasses (C4 plants are more adapted to warm or hot seasonal conditions under-moist or dry environments), which are at an advantage where the growing season is hot. But where rainfall has a stronger winter component, C 3-type grasses dominate. The shrub-tree layer may vary from 1 to 20 m in height, but in Bushveld typically varies from 3 to 7 m. The shrub-tree element may come to dominate the vegetation in areas that are being overgrazed.

Most of the Savanna vegetation types are used for grazing, mainly by cattle or game. In the southernmost Savanna types, goats are a major stock. In some areas, crops and subtropical fruit are cultivated. These mainly include the Clay Thorn Bushveld, parts of Mixed Bushveld, and Sweet Lowveld Bushveld.

The conservation status of Savanna is comparatively good, mainly due to the presence of the Kruger and Kalahari Gemsbok National Parks within the biome. However, the high area conserved in South Africa, belies the fact that half of Savanna vegetation types are inadequately conserved, in having less than 5% of their area in reserves and, much of the area is used for game-farming and can thus be considered effectively preserved, provided that sustainable stocking levels are maintained. The importance of tourism and big game hunting in the conservation of the area must not be underestimated (Mucina and Rutherford, 2006).

4.3.2. Broad-Scale vegetation patterns

The project application area is situated within the **Gold Reef Mountain Bushveld**. The Gold Reef Mountain Bushveld occurs mostly on rocky hills and ridges that are often west-east facing slopes. It occurs along with a thin band of east-west running quartzite ridges located south of the Pilanesberg National Park. The tree and shrub layers are typically continuous with a herbaceous layer dominated by grasses. The endemic succulent shrub *Aloe peglera* and the succulent herb *Frithia pulchra* are represented in this vegetation type.

Some of the representative tree species include *Cathium gilfilanii*, *Mystroxyton aethiopicum*, *Acacia caffra*, *Protea caffra*. The herbs include the *Helichrysum nudifolium*, *Pellaea calomelanos*, and *Senecio venosus*. The vegetation type is listed as least threatened with approximately 22% of the 24% conservation target conserved in the Rustenburg, Wonderboom, and Suikerbosrand Nature Reserves (Mucina & Rutherford 2006).

Township Establishment on PORTION 136 of the Farm ZANDFONTEIN 317 JR, within City of Tshwane Metropolitan Municipality, in Ward No. 55, Gauteng Province.

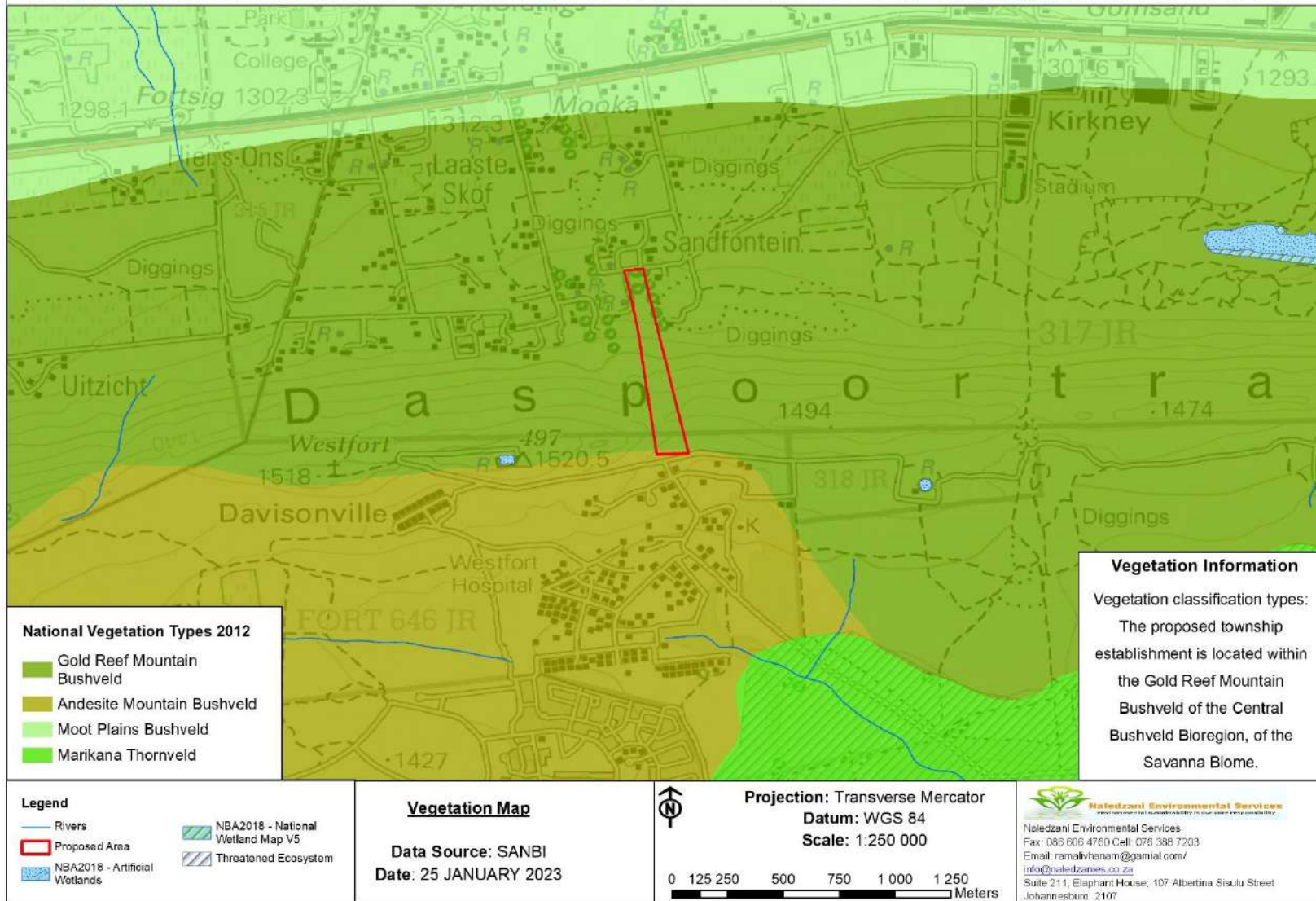


Figure 3: Broad vegetation map for the site

4.4. Description of the Critical Biodiversity Areas

Critical Biodiversity Areas (CBA's) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007). These form the key output of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision making tools.

The primary purpose of CBA's is to inform land-use planning and the land-use guidelines attached to CBA's aim to promote sustainable development by avoiding loss or degradation of important natural habitat and landscapes in these areas and the landscape as a whole. CBA's can also be used to inform protected area expansion and development plans. The use of CBA's here follows the definition laid out in the guideline for publishing bioregional plans (Anon, 2008):

- **“Critical biodiversity areas (CBAs)** are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses”.
- **“Ecological support areas (ESA's)** are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.”

Table 2: A framework for linking spatial planning categories (CBAs) to land-use planning and decision-making guidelines based on a set of high-level land biodiversity management objectives. Adapted from the guideline for bioregional plans (Anon, 2008).

CBA category	Land Management Objective
PA & CBA 1	<p>Natural landscapes:</p> <ul style="list-style-type: none"> • Ecosystems and species fully intact and undisturbed • These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity

CBA category	Land Management Objective
	<p>features targeted in these areas are lost then targets will not be met</p> <ul style="list-style-type: none"> • These are landscapes that are at or past their limits of acceptable change
CBA 2	<p>Near-natural landscapes:</p> <ul style="list-style-type: none"> • Ecosystems and species largely intact and undisturbed. • Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets. • These are landscapes that are approaching but have not passed their limits of acceptable change.
Ecological Support Areas (ESA)	<p>Functional landscapes:</p> <ul style="list-style-type: none"> • Ecosystems moderately to significantly disturbed but still able to maintain basic functionality. • Individual species or other biodiversity indicators may be severely disturbed or reduced. • These are areas with low irreplaceability with respect to biodiversity pattern targets only.
Other Natural Areas (ONA) and Transformed	<p>Production landscapes: manage land to optimize sustainable utilization of natural resources.</p>

According to the Gauteng Conservation Plan part of the site falls within an area as an Ecological Support Areas (ESA). This is because that portion of the site is within a ridge classified as class 2. Class 2 ridges are ridges in respect of which more than 5%, but less than 35%, of the ridge has been transformed by human activity and development activities and uses that have a high environmental impact are not permitted as these areas act as corridor for species (plant and animal).

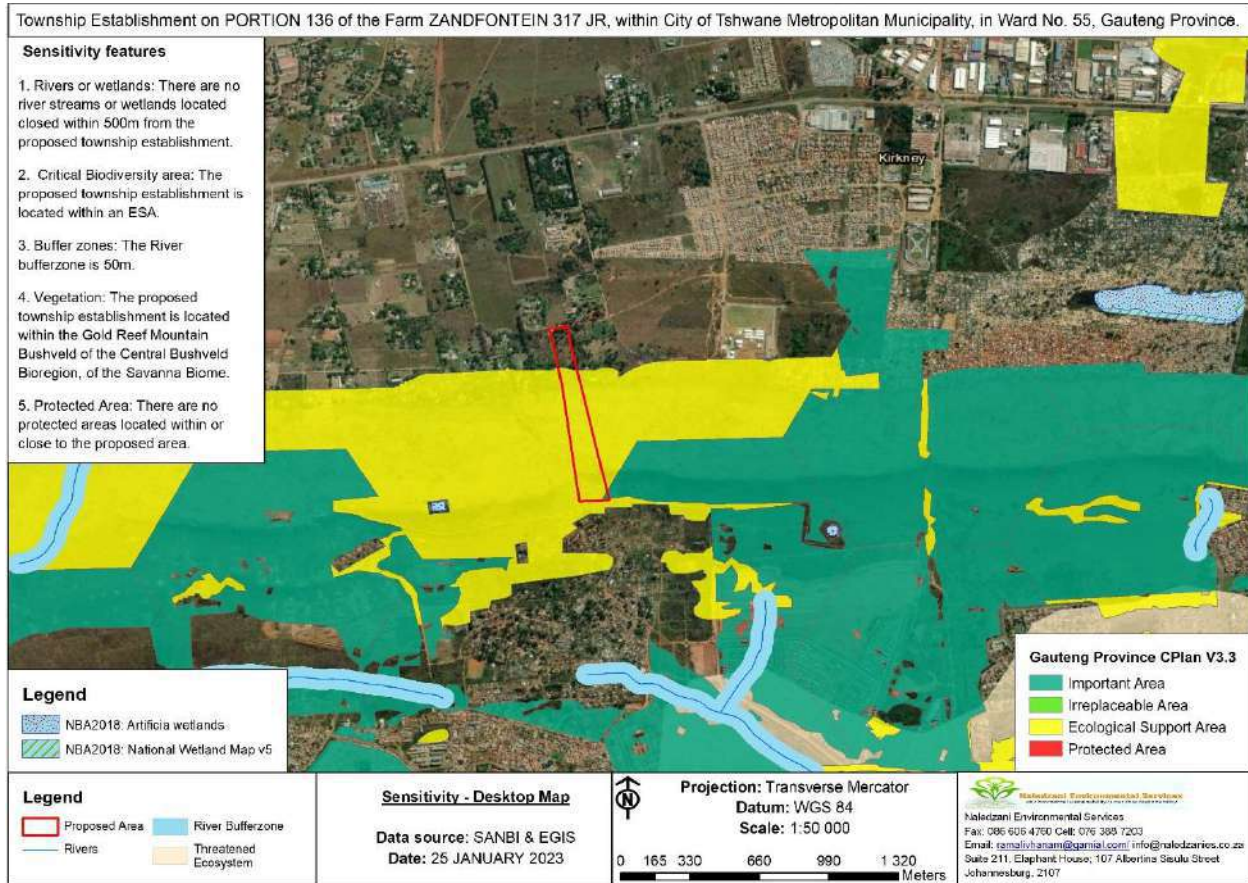


Figure 4: ESA and CBA map for the site

5. METHODOLOGY AND REPORTING

The information provided in this terrestrial biodiversity report is based mainly on the observations that were made during the field survey and a review of the available reports that contain known and predicted biodiversity information regarding the project application area. A wide range of spatial data sets were interrogated and relevant information was extracted for the project application area. A basic ecological sensitivity analysis was performed to identify areas of special interest or concern. The various approaches used and aspects taken into account are detailed below:

5.1. General

A desktop survey utilising aerial images and photography was undertaken to assemble background information regarding the different features and vegetation type present within the proposed project footprint including the buffer

area. The site was then assessed from the 24 January 2023 to ensure that the true floristic and faunal reflection of the project application area is recorded.

5.2. Vegetation

The PRECIS list of plants recorded in the quarter degree grid square within which the project application lies were obtained from SANBI. This list was consulted to verify the record of occurrence of the plant species seen on the site. A desk-top study of the habitats of the red-listed and orange-listed species known to occur in the area was done prior to site assessment. Visual assessment was used to assess the abundance of floral and faunal species. The vegetation types of Mucina & Rutherford (2006) were also used as reference but where necessary communities are named according to the recommendations for a standardized South African syntaxonomic nomenclature system (Brown, L.R., Du Preez, P.J., Bezuidenhout, H., Bredenkamp, G.J., Mostert, T.H.C., and Collins, N.B. 2013). By combining the available literature with the survey results, stratification of vegetation communities was possible.

5.3. Fauna survey

The majority of mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds) or prefer specific habitat so sampling and identification was limited.

5.4. Mammals

Records of all mammal species recorded in the four quarter degree grid squares were obtained from the Virtual Museum (VM) website of the Animal Demographic Unit of University of Cape Town prior to the site visits. The site assessment was conducted for mammal species diversity by direct and indirect methods using mammal sightings, burrows, holes and also verified by mammal book (Skinner and Chimimba, 2005). No trapping was conducted during the field survey.

5.5. Methodology Adapted in Assessing the Impacts

The significance of the impacts will be assessed considering the following descriptors:

Table 3: Impact Assessment Table

Nature of the impact		
Positive	+	Impact will be beneficial to the environment (a benefit).

Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
Magnitude		
Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly, and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been moderately modified, and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent		
Site only	1	Effect limited to the site and its immediate surroundings.

Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.

High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) \times \text{Probability}$$

The significance of the heritage impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the Table 4 below.

Table 4: Definition of significance rating

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.

Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

6. FINDINGS OF THE ASSESSMENT

6.1. Vegetation

The site is located in the Andesite Mountain Bushveld which is regarded as Least Threatened but from the site assessment, it can be seen that part of the site is situated within a sensitive environment that requires protection as indicated on the sensitivity map depicted on Appendix C below. Two vegetation unit were noticed on site and these are: The Eucalyptus woodland at the bottom and the ridge area.

Ridges and rocky outcrops are usually characterized by high biodiversity due to the spatial heterogeneity owing to the range of differing aspects (north, south, east, west and variations thereof), slopes and altitudes all resulting in differing soil (e.g. depth, moisture, temperature, drainage, nutrient content), light and hydrological conditions (GDACEL, 2001), supporting therefore a higher variety of plant species. Part of the site is situated within a ridge. The species recorded on the ridge *Vangueria infusta*, *Cathium gilfilanii*, *Mystroxydon aethiopicum*, *Burkea africana*, *Pterocarpus angolensis*, *Protea caffra*, *Ficus Salicifolia* *Ziziphus mucronata*, *Vangueria infusta*, *Combretum molle*, *Peltophorum africanum*, *Croton gratissimus*. The herb layer includes *Commelina africana*, *Sida cordifolia*, *bidens bipinnata*, *Pinus pilata*, *Tagetes minuta*, *Helichrysum nudifolium*, *Pellaea calomelanos* and *Senecio venosus*. The grass layer on this *Elionurus muticus*, *Eragrostis lehmanniana*, *Setaria sphacelata*, *Themeda triandra*, *Aristida scabrivalvis subsp. scabrivalvis*, *Fingerhuthia Africana*, *Heteropogon contortus*, *Hyperthelia dissoluta*, *Melinis nerviglumis*, and *Pogonarthria squarrosa*.

Sensitivity aspects

- The overall ecological functioning of this community is considered high.

- Only one species of protected plant species was recorded in the area.
- Accordingly, the conservation importance this vegetation unit is considered very high.
- No development should take place on this section of the site as per appendix C.



Figure 5: Indication of the ridge vegetation

On the foot of the hill species such as *Melinis repens*, *Paspalum dilatatum*, *Pennisetum thunbergii*, *Pogonarthria squarrosa*, *Asparagus spp.*, *Asclepias syriaca*, *Solanum mauriantanum*, *Lippia javanica*, *Agave sisalana*, *Opuntia ficus-indica*, *Ecalyptus globulus* *Lantana camara*, *Jacaranda mimosifolia*, *Acacia mearnsii*, *Asparagus laricinus*, *Euclea crispa*, *Searsia pyroides*, *Diospyros lycioides*, *Gymnosporia polyantha*, *Lippia javanica*, *Rhamnus prinoides*, *Asparagus suaveolens*, *Searsia rigida*, *Teucrium trifidum*, *Rhoicissus tridentata*, *Eragrostis curvula*, *Hyparrhenia hirta*, *Setaria sphacelata*, *Themeda triandra*, *Cymbopogon pospischillii*, *Digitaria erianthe*, *Elionurus muticus*, *Eragrostis racemosa*, *Eragrostis superba*, *Panicum maximum*, *Commelina africana*, *Vernonia galpinii*, *Vernonia oligocephala* and *Aloe greatheadii* were recorded.

Sensitivity aspects

- Due to the complete transformation fields by the plantation on eucalyptus trees these areas have negligible or low ecological functioning.
- No endemic, Red Data or protected species were recorded and the probability of such species occurring in this vegetation community is considered low.
- Accordingly, the conservation importance of mined area/land is considered low.



Figure 6: *Eucalyptus globulus* dominating the foot of the hill



Figure 7: *Melinis repens* dominating the grass layer.



Figure 8: Aloe greatheadii on the foot of the hill

6.2. Alien invasive plants

Declared weeds and invaders have the tendency to dominate or replace the herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these transformers be eradicated and controlled by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001).

According to the published Alien and Invasive Species regulations in terms of section 97(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) four categories of problem plants are identified as:

- **Category 1a** plants are high-priority emerging species requiring compulsory control. All breeding, growing, moving and selling are banned.
- **Category 1b** plants are widespread invasive species controlled by a management programme.
- **Category 2** plants are invasive species controlled by area. Can be grown under permit conditions in demarcated areas. All breeding, growing, moving, and selling are banned without a permit.
- **Category 3** plants are ornamental and other species that are permitted on a property but may no longer be planted or sold.

Numerous alien plant species were recorded in the study area at the time of the survey; most notably the extensive invasions by species such as *Acacia mearnsii* also have the potential to form dense stands. Table 5 lists the alien species as well as the various NEMBA categories for the alien species recorded during the survey.

Table 5: Alien species recorded in the study area (all the proposed pits)

Scientific name	Common name	Category
<i>Acacia mearnsii</i>	Black wattle	1
<i>Eucalyptus globulus</i>	Saligna gum	1b
<i>Ricinus communis</i>	Castor oil	1
<i>Melia azedarach</i>	Syringa	1b
<i>Lantana camara</i>	Common lantana	1b
<i>Solanum mauritianum</i>	Bug weed	1b
<i>Jacaranda mimosifolia</i>	Jacaranda	3

6.3. Nationally Protected Trees

The National Forest Act, 1998 (Act No. 84 of 1998) enforces the protection of several indigenous trees. This national list of protected trees was developed through the application of objective scientific criteria which was supported by a computerised scoring system.

Criteria for listing the trees as protected included:

- The rarity of the species;
- Importance of the species in the maintenance of an ecosystem, also known as keystone species;
- The utilization pressure on a species;
- Cultural or spiritual value (including landscaping) of the species; and
- The degree to which a species is already protected under provincial legislation.

Only one protected plant species was recorded on site dominating the ridge section of the site and that is *Pterocarpus angolensis*.



Figure 9: *Pterocarpus angolensis* recorded as the only protected/listed plant species on site

6.4. Medicinal Plants

The demand for medicinal plants is increasing while the frequently used species and the communal land that it is harvested from are on the decline. With an increase in the country’s population and the high rate of infectious diseases, this will put an even higher strain on the already scarce natural medicinal resources (Emery *et al.*, 2002). Areas of high biodiversity are thus important for the conservation and sustainable use of these resources and should be protected. The medicinal plant species recorded in the study area was an invasive species.

Table 6: Medicinal plants recorded in the study areas

Scientific name	Common name	Conservation Status
<i>Opuntia ficus-indica</i>	Prickly pear	Exotic
<i>Searsia leptodictya</i>	Mountain karee	Indigenous
<i>Ziziphus mucronata</i>	Buffalo thorn	Indigenous
<i>Bidens pilosa</i>	Blackjack	Indigenous
<i>Lippia javanica</i>	Lemon bush	Indigenous

6.5. Faunal Communities

This faunal survey focused mainly on mammals, and birds of the study area. The survey focused on the current status of threatened animal species occurring, or likely to occur within the study area, describing the available and sensitive habitats. Faunal data was supplemented by previous surveys conducted in similar habitats, literature investigations, and historic data. Different habitats were explored to identify any sensitive or endangered species. Mammal names are as used by Stuart & Stuart (1998) & Skinner & Chimimba (2005), and bird names by Hockey et al. (2005).

Lists of potential mammal species in the proposed transmission line routes were compiled from a desktop survey from Virtual Museum of African Mammals (http://vmus.adu.org.za/vm_view_db.php). This list is therefore based on all historical recordings of mammalian species relevant to the area and recorded in grid cells 2528CA and 2528CB. Due to the fact that the grid cells cover greater area than the proposed area, the list is likely to overestimate the occurrence of mammal species in the area and thus should be viewed as a guideline for further investigation. The probability of occurrence is based on suitable habitat and the associated threats

Table 7: Large mammals which could be found on the study area (Virtual Museum of African Mammals).

Common name	Scientific name
Impala	<i>Aepyceros melampus</i>
Kudu	<i>Tragelaphus strepsiceros</i>
Black-backed Jackal	<i>Canis mesomelas</i>
Scrub hare	<i>Lepus saxatilis</i>
African Mole-rat	<i>Cryptomys hottentotus</i>
Springhare	<i>Pedetes capensis</i>
Bushveld Gerbil	<i>Tatera leucogaster</i>
Yellow Mongoose	<i>Cynictis penicillata</i>
Common Duiker	<i>Sylvicapra grimmia</i>

Honey Badger*	<i>Mellivora capensis</i>
Chacma Baboon	<i>Papio ursinus</i>
Vervet Monkey	<i>Cercopithecus aethiops pygerythrus</i>
Blesbok	<i>Damaliscus pygargus phillipsi</i>
Warthog	<i>Phacochoerus africanus</i>

6.6. Avi-fauna

Birds can be viewed as good ecological indicators, since their presence or absence tends to represent conditions pertaining to the proper functioning of the ecosystem. Bird communities and ecological condition are linked to land cover, as the land cover changes so do the types of birds in the area. The project area has the propensity to harbour Red Data Bird Species however none were observed during the field surveys.

Desktop assessment showed that about 551 bird species have been confirmed within the QDGCs. The area considered during the desktop study is thus much larger than the area likely to be affected by the project. This approach is adopted to ensure that all species potentially occurring at the site, whether resident, nomadic, or migratory, are identified. Many avifaunal species are adaptable as they are habitat generalists and can therefore accommodate a certain degree of habitat degradation and transformation (Harrison *et al.*, 1997). Other species are extremely habitat specific and have to rely on certain habitat units for breeding, hunting or foraging and roosting. It is the survival of these species that become threatened as they cannot adapt to changes to the habitat. Habitat-specific species are sensitive to environmental change, with destruction of habitat being the leading cause of species decline worldwide (Barnes, 2000).

It is widely accepted that vegetation structure, rather than the actual plant species, influences bird species' distribution and abundance (Harrison *et al.*, 1997). Therefore, the vegetation description used in the Bird Atlas does not focus on lists of plant species, but rather on factors which are relevant to bird distribution.

7. DISCUSSION AND IMPACT ASSESSMENT

7.1. Assessment and significance criteria

The assessment criteria used in the assessment are described below and are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989 as well as from Brownlie (2005).

For each impact the following are described:

- **Nature of the impact.** A description of positive or negative effect of the project on the affected environment, or vice versa. The description includes who or what would be affected, and how.
- **Extent of the impact.** This includes assessing the spatial scale of the impact using the following scale:
 - **On-site** – impacts that are limited to the site boundaries.
 - **Local** – impacts that affect an area in a radius of 5km around the site.
 - **Regional** – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.
 - **National** – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences.
 - **Trans-boundary/International** – impacts that affect internationally important resources such as areas protected by international conventions.
- **Duration of the impact.** The lifespan of the impact is assessed as follows:
 - **Temporary** – impacts are predicted to be of short duration and intermittent/occasional.
 - **Short-term** – impacts that are predicted to last only for the duration of the construction period.
 - **Long-term** – impacts that will continue for the life of the Project, but ceases when the Project stops operating.
 - **Permanent** – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the Project lifetime.

Certain impacts can also be discontinuous or intermittent (where the impact may only occur during specific climatic conditions or during a particular season of the year).

Intensity or magnitude of the impact: The intensity or severity of the impact would be indicated as either

- **Negligible** – the impact on the environment is not detectable.
- **Low** – the impact affects the environment in such a way that natural functions and processes are not affected.

- **Medium** – where the affected environment is altered but natural functions and processes continue, albeit in a modified way.
- **High** – where natural functions or processes are altered to the extent that it will temporarily or permanently cease.

Potential for impact on irreplaceable resources: This refers to the potential for an environmental resource to be replaced, should it be impacted. A resource could possibly be replaced by natural processes (e.g. by natural colonization from surrounding areas), through artificial means (e.g. by reseeding disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems substitutes are often possible (e.g. by constructing new social facilities for those that are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable e.g. red data species that are restricted to a particular site or habitat of very limited extent.

Probability of occurrence: The likelihood of the impact actually occurring would be indicated as either Improbable (the possibility of the impact materializing is very low as a result of design or historic experience), Probable (there is a distinct possibility that the impact will occur), Highly probable (it is most likely that the impact will occur), or Definite (the impact will occur regardless of the implementation of any prevention measures).

- **Significance of the impact.** Based on a synthesis of the information contained in the criteria above, the potential impact would then be described according to following significance criteria:
- **No significance:** the impacts do not influence the proposed development and/or environment in anyway.
- **Low/Minor significance:** the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance:** the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance:** the impacts will have a major influence on the proposed development and/or environment and will result in the “no-go” option on the development or portions of the development regardless of any mitigation measures that could be implemented. This level of significance must be well motivated.

The following table is used to determine significance based on the likelihood and magnitude of the assessed impact:

	Likelihood	Unlikely	Likely	Definite
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Magnitude	Negligible	Negligible	Negligible	Minor
	Negligible	Negligible	Minor	Minor
	Minor	Minor	Moderate	Moderate
	Moderate	Moderate	Major	Major

Confidence: The level of confidence in predicting the impact can be described as:

- **low**, where there is little confidence in the prediction, due to inherent uncertainty about the likely response of the receiving ecosystem, or inadequate information;
- **medium**, where there is a moderate level of confidence in the prediction;
- or **high**, where the impact can be predicted with a high level of confidence.

Cumulative Impact

Consideration is given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts are evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

Mitigation

The objective of mitigation is to firstly avoid and minimize impacts where possible and where these cannot be completely avoided, to compensate for the negative impacts of the development on vegetation and animal habitats and to maximize re-vegetation and rehabilitation of disturbed areas. For each impact identified, appropriate mitigation measures to reduce or otherwise avoid the potential impacts are suggested. All impacts are assessed without mitigation and with the mitigation measures as suggested appropriately implemented.

In order to ensure that impacts are avoided as far as possible and to implement effective mitigation at the site, the following mitigation hierarchy is used to prioritize mitigation actions:

- **Avoidance:** Avoiding or reducing at source is essentially 'designing' the project so that a feature causing an impact is designed out (e.g. a waste stream is eliminated) or altered (e.g. reduced waste volume). Often called minimization (most preferred)
- **Reduction:** impact is reduced in magnitude and/or significance

- **Abate on Site:** This involves adding something to the basic design to abate the impact - pollution controls fall within this category. Often called 'end-of-pipe'.
- **Rectification:** impact is mitigated after it has occurred e.g. rehabilitation of areas disturbed by construction
- **Compensation:** providing a substitute resource for a resource that has been lost because of the project (e.g. "conservation offsets")
- **No action** (least preferred)

Table 8: Environmental Impacts assessed by combining the consequences (extent, duration, intensity) with the probability of occurrence before and after mitigation for the proposed project

Impacts and Mitigation measures relating to the proposed project										
Activity/Aspect	Impact	Stage	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Mitigation measures	Significance after mitigation
Vegetation Clearing for the construction of the buildings	Removal of the natural vegetation	Construction	Negative	Moderate (6)	Site only (1)	Long term (4)	Definite (5)	Medium (55)	<ul style="list-style-type: none"> • Areas designated for vegetation clearing should be identified and visibly marked off. • Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only. • Exposed areas should be rehabilitated with indigenous plants to the project area as soon as construction is finished. • All protected plant species should not be disturbed as they are within an area marked as high sensitive • Development should only take place in the area marked as low-medium sensitive • No development should take place within a high sensitive area as indicated on Appendix C of this report 	Low
	Destruction of protected plant species	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Medium (45)	<ul style="list-style-type: none"> • Supervision by an ecologist to ensure success of the rescue operation • Place drilling holes away from any red listed and/or protected plant species • Use already available farm roads to avoid trampling red listed plant species 	Low
	Disturbance to animals on site	Construction	Negative	Low (4)	Local (2)	Long term (4)	High (4)	Medium (40)	<ul style="list-style-type: none"> • Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees. • No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. • Severe contractual fines must be imposed and immediate dismissal on any contract employee who is found attempting to snare or otherwise harms remaining faunal species. • Contract employees must be educated about the value of wild animals and the importance of their conservation. 	Low

									<ul style="list-style-type: none"> Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage. 	
	Increased soil erosion, increase in silt loads and sedimentation	Construction	Negative	Low (4)	Local (2)	Long term (4)	Definite (5)	Medium (50)	<ul style="list-style-type: none"> Following construction, rehabilitation of disturbed areas is required; especially next to the drainage lines. Avoid areas with sensitive soils, steep slopes during rain or windy season. 	Low
	Establishment and spread of declared weeds	Construction and Rehabilitation	Negative	Moderate (6)	Site only (1)	Long term (4)	Definite (5)	Medium (55)	<ul style="list-style-type: none"> The best mitigation measure for alien and invasive species is the early detection and eradication of these species which will be ensured with the use of a monitoring programme. An alien invasive management programme should be developed and implemented in order to control alien invasive species 	Low
Waste generation	Pollution due to oil and fuel spills, erosion, and ablation facilities.	Construction and operation	Negative	High (8)	Local (2)	Long term (4)	Definite (5)	High (70)	<ul style="list-style-type: none"> Constant rehabilitation of erosion problems. Proper storage facilities of construction materials. Waste management is very important. Proper storage and removal strategy must be in place.. 	Low
	Pollution due to construction waste (such as cement paper, steel and rubble)	Construction and operation	Negative	High (8)	Local (2)	Medium Term (3)	Medium (4)	Medium (52)	<ul style="list-style-type: none"> Use a licensed waste contractor to dispose of any waste generated on site, or disposes them off at a licenced landfill site. Do not bury or burn waste on-site. 	Low

8. CONCLUSION

Based on Mucina & Rutherford's (2006) classification of South Africa's vegetation, the proposed area falls in the Andesite Mountain Bushveld which is regarded as Least Threatened. According to the Gauteng Conservation Plan part of the site is within an area classified as Ecological Sensitive Area. Part of the site is also within a ridge which is classified as class 2. Class 2 ridges are ridges in respect of which more than 5%, but less than 35%, of the ridge has been transformed by human activity and development activities and uses that have a high environmental impact are not permitted as these areas act as corridor for species (plant and animal).

Other measures to be implemented include:

- Ensuring that the disturbed footprint is kept to a minimum,
- Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only.
- Exposed areas should be rehabilitated with indigenous plants to the project area as soon as construction is finished.
- All protected plant species should not be disturbed as they are within an area marked as high sensitive
- Development should only take place in the area marked as low-medium sensitive
- No development should take place within a high sensitive area as indicated on Appendix C of this report
- Ensure that no protected plant species is disturbed, removed or translocated without a permit for such.

Ensuring compliance to the recommended mitigation measures by any contractors (project proponent) used on the project. Provided that the mitigation measures as suggested can be implemented, then the overall impact of the development components would be of low overall significance. Should all the mitigation and recommendations on this report be applied Naledzani Environmental Services does approve that the establishment of the township be granted but care should be taken not to destroy plant species unnecessarily.

9. REFERENCES

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APPENDIX A: PLANT SPECIES LIST RECORDED

Acacia mearnsii

Agave sisalana

Aloe greatheadii

Aristida scabrivalvis

Asclepias syriaca

Asparagus laricinus

Asparagus suaveolens

Bidens bipinnata

Burkea africana

Cathium gilfilanii

Cereus jamacaru

Combretum molle

Commelina africana

Commelina africana

Croton gratissimus.

Cymbopogon pospischilii

Digitaria erianthe

Diospyros lycioides

Ecalyptus globulus

Elionurus muticus

Eragrostis curvula

Eragrostis lehmanniana

Eragrostis racemosa

Eragrostis superba

Euclea crispa

Ficus Salicifolia

Fingerhuthia Africana

Gymnosporia polycantha

Helichrysum nudifolium

Heteropogon contortus
Hyparrhenia hirta
Hyperthelia dissolute
Jacaranda mimosifolia
Lantana camara
Lippia javanica
Melinis nerviglumis
Melinis repens
Mystroxyton aethiopicum,
Opuntia ficus-indica
Panicum maximum
Paspalum dilatatum
Pellaea calomelanos
Peltophorum africanum
Pennisetum thunbergii
Pinus pilata,
Pogonarthria squarrosa
Protea caffra
Pterocarpus angolensis
Rhamnus prinoides
Rhoicissus tridentate
Searsia pyroides
Senecio venosus
Setaria sphacelata
Setaria sphacelata
Sida cordifolia
Solanum mauriantanum
Tagetes minuta
Teucrium trifidum
Themeda triandra

Vangueria infusta,

Vernonia galpinii

Vernonia oligocephala

Ziziphus mucronata

APPENDIX B: BIRDS SPECIES RECORDED ON THE QUARTER DEGREE GRID CELL

Common name	Taxonomic name
Apalis, Bar-throated	<i>Apalis thoracica</i>
Avocet, Pied	<i>Recurvirostra avosetta</i>
Babbler, Arrow-marked	<i>Turdoides jardineii</i>
Babbler, Southern Pied	<i>Turdoides bicolor</i>
Barbet, Acacia Pied	<i>Tricholaema leucomelas</i>
Barbet, Black-collared	<i>Lybius torquatus</i>
Barbet, Crested	<i>Trachyphonus vaillantii</i>
Batis, Chinspot	<i>Batis molitor</i>
Bee-eater, Blue-cheeked	<i>Merops persicus</i>
Bee-eater, European	<i>Merops apiaster</i>
Bee-eater, Little	<i>Merops pusillus</i>
Bee-eater, Southern Carmine	<i>Merops nubicoides</i>
Bee-eater, Swallow-tailed	<i>Merops hirundineus</i>
Bee-eater, White-fronted	<i>Merops bullockoides</i>
Bishop, Southern Red	<i>Euplectes orix</i>

Common name	Taxonomic name
Bishop, Yellow-crowned	<i>Euplectes afer</i>
Bittern, Dwarf	<i>Ixobrychus sturmii</i>
Bittern, Eurasian	<i>Botaurus stellaris</i>
Bittern, Little	<i>Ixobrychus minutus</i>
Boubou, Southern	<i>Laniarius ferrugineus</i>
Brownbul, Terrestrial	<i>Phyllastrephus terrestris</i>
Brubru, Brubru	<i>Nilaus afer</i>
Buffalo-weaver, Red-billed	<i>Bubalornis niger</i>
Bulbul, African Red-eyed	<i>Pycnonotus nigricans</i>
Bulbul, Dark-capped	<i>Pycnonotus tricolor</i>
Bunting, Cape	<i>Emberiza capensis</i>
Bunting, Cinnamon-breasted	<i>Emberiza tahapisi</i>
Bunting, Golden-breasted	<i>Emberiza flaviventris</i>
Bush-shrike, Grey-headed	<i>Malaconotus blanchoti</i>
Bush-shrike, Orange-breasted	<i>Telophorus sulfureopectus</i>
Bustard, Denham's	<i>Neotis denhami</i>

Common name	Taxonomic name
Buttonquail, Kurrichane	<i>Turnix sylvaticus</i>
Buzzard, Jackal	<i>Buteo rufofuscus</i>
Buzzard, Lizard	<i>Kaupifalco monogrammicus</i>
Buzzard, Steppe	<i>Buteo vulpinus</i>
Camaroptera, Green-backed	<i>Camaroptera brachyura</i>
Camaroptera, Grey-backed	<i>Camaroptera brevicaudata</i>
Canary, Black-throated	<i>Crithagra atrogularis</i>
Canary, Yellow-fronted	<i>Crithagra mozambicus</i>
Chat, Anteating	<i>Myrmecocichla formicivora</i>
Chat, Familiar	<i>Cercomela familiaris</i>
Cisticola, Cloud	<i>Cisticola textrix</i>
Cisticola, Desert	<i>Cisticola aridulus</i>
Cisticola, Lazy	<i>Cisticola aberrans</i>
Cisticola, Levaillant's	<i>Cisticola tinniens</i>
Cisticola, Rattling	<i>Cisticola chiniana</i>
Cisticola, Tinkling	<i>Cisticola rufilatus</i>

Common name	Taxonomic name
Cisticola, Wing-snapping	<i>Cisticola ayresii</i>
Cisticola, Zitting	<i>Cisticola juncidis</i>
Cliff-chat, Mocking	<i>Thamnolaea cinnamomeiventris</i>
Cliff-swallow, South African	<i>Hirundo spilodera</i>
Coot, Red-knobbed	<i>Fulica cristata</i>
Cormorant, Reed	<i>Phalacrocorax africanus</i>
Cormorant, White-breasted	<i>Phalacrocorax carbo</i>
Coucal, Burchell's	<i>Centropus burchellii</i>
Coucal, White-browed	<i>Centropus superciliosus</i>
Courser, Bronze-winged	<i>Rhinoptilus chalcopterus</i>
Courser, Temminck's	<i>Cursorius temminckii</i>
Crake, African	<i>Crecopsis egregia</i>
Crake, Baillon's	<i>Porzana pusilla</i>
Crake, Black	<i>Amauornis flavirostris</i>
Crake, Corn	<i>Crex crex</i>
Crake, Spotted	<i>Porzana porzana</i>

Common name	Taxonomic name
Crake, Striped	<i>Aenigmatolimnas marginalis</i>
Crane, Blue	<i>Anthropoides paradiseus</i>
Crombec, Long-billed	<i>Sylvietta rufescens</i>
Crow, Cape	<i>Corvus capensis</i>
Crow, Pied	<i>Corvus albus</i>
Cuckoo, African	<i>Cuculus gularis</i>
Cuckoo, Black	<i>Cuculus clamosus</i>
Cuckoo, Common	<i>Cuculus canorus</i>
Cuckoo, Diderick	<i>Chrysococcyx caprius</i>
Cuckoo, Great Spotted	<i>Clamator glandarius</i>
Cuckoo, Jacobin	<i>Clamator jacobinus</i>
Cuckoo, Klaas's	<i>Chrysococcyx klaas</i>
Cuckoo, Levillant's	<i>Clamator levillantii</i>
Cuckoo, Red-chested	<i>Cuculus solitarius</i>
Cuckoo-shrike, Black	<i>Campephaga flava</i>
Darter, African	<i>Anhinga rufa</i>

Common name	Taxonomic name
Dove, Laughing	<i>Streptopelia senegalensis</i>
Dove, Namaqua	<i>Oena capensis</i>
Dove, Red-eyed	<i>Streptopelia semitorquata</i>
Dove, Rock	<i>Columba livia</i>
Drongo, Fork-tailed	<i>Dicrurus adsimilis</i>
Duck, African Black	<i>Anas sparsa</i>
Duck, Fulvous	<i>Dendrocygna bicolor</i>
Duck, Knob-billed	<i>Sarkidiornis melanotos</i>
Duck, Maccoa	<i>Oxyura maccoa</i>
Duck, White-backed	<i>Thalassornis leuconotus</i>
Duck, White-faced	<i>Dendrocygna viduata</i>
Duck, Yellow-billed	<i>Anas undulata</i>
Eagle, Booted	<i>Aquila pennatus</i>
Eagle, Long-crested	<i>Lophaetus occipitalis</i>
Eagle, Martial	<i>Polemaetus bellicosus</i>
Eagle, Steppe	<i>Aquila nipalensis</i>

Common name	Taxonomic name
Eagle, Tawny	<i>Aquila rapax</i>
Eagle, Verreaux's	<i>Aquila verreauxii</i>
Eagle, Wahlberg's	<i>Aquila wahlbergi</i>
Eagle-owl, Cape	<i>Bubo capensis</i>
Eagle-owl, Spotted	<i>Bubo africanus</i>
Eagle-owl, Verreaux's	<i>Bubo lacteus</i>
Egret, Cattle	<i>Bubulcus ibis</i>
Egret, Great	<i>Egretta alba</i>
Egret, Little	<i>Egretta garzetta</i>
Egret, Slaty	<i>Egretta vinaceigula</i>
Egret, Yellow-billed	<i>Egretta intermedia</i>
Eremomela, Burnt-necked	<i>Eremomela usticollis</i>
Eremomela, Green-capped	<i>Eremomela scotops</i>
Eremomela, Yellow-bellied	<i>Eremomela icteropygialis</i>
Falcon, Amur	<i>Falco amurensis</i>
Falcon, Lanner	<i>Falco biarmicus</i>

Common name	Taxonomic name
Falcon, Red-footed	<i>Falco vespertinus</i>
Falcon, Sooty	<i>Falco concolor</i>
Finch, Cuckoo	<i>Anomalospiza imberbis</i>
Finch, Cut-throat	<i>Amadina fasciata</i>
Finch, Red-headed	<i>Amadina erythrocephala</i>
Finch, Scaly-feathered	<i>Sporopipes squamifrons</i>
Firefinch, African	<i>Lagonosticta rubricata</i>
Firefinch, Jameson's	<i>Lagonosticta rhodopareia</i>
Firefinch, Red-billed	<i>Lagonosticta senegala</i>
Fiscal, Common (Southern)	<i>Lanius collaris</i>
Fish-eagle, African	<i>Haliaeetus vocifer</i>
Flufftail, Red-chested	<i>Sarothrura rufa</i>
Flufftail, Streaky-breasted	<i>Sarothrura boehmi</i>
Flycatcher, Ashy	<i>Muscicapa caerulescens</i>
Flycatcher, Fairy	<i>Stenostira scita</i>
Flycatcher, Fiscal	<i>Sigelus silens</i>

Common name	Taxonomic name
Flycatcher, Marico	<i>Bradornis mariquensis</i>
Flycatcher, Pale	<i>Bradornis pallidus</i>
Flycatcher, Southern Black	<i>Melaenornis pammelaina</i>
Flycatcher, Spotted	<i>Muscicapa striata</i>
Francolin, Coqui	<i>Peliperdix coqui</i>
Francolin, Crested	<i>Dendroperdix sephaena</i>
Francolin, Shelley's	<i>Scleroptila shelleyi</i>
Gallinule, Allen's	<i>Porphyrio alleni</i>
Go-away-bird, Grey	<i>Corythaixoides concolor</i>
Goose, Egyptian	<i>Alopochen aegyptiacus</i>
Goose, Spur-winged	<i>Plectropterus gambensis</i>
Goshawk, African	<i>Accipiter tachiro</i>
Goshawk, Gabar	<i>Melierax gabar</i>
Goshawk, Southern Pale Chanting	<i>Melierax canorus</i>
Grass-owl, African	<i>Tyto capensis</i>
Grassbird, Cape	<i>Sphenoeacus afer</i>

Common name	Taxonomic name
Grebe, Great Crested	<i>Podiceps cristatus</i>
Grebe, Little	<i>Tachybaptus ruficollis</i>
Green-pigeon, African	<i>Treron calvus</i>
Greenbul, Yellow-bellied	<i>Chlorocichla flaviventris</i>
Greenshank, Common	<i>Tringa nebularia</i>
Guineafowl, Helmeted	<i>Numida meleagris</i>
Hamerkop, Hamerkop	<i>Scopus umbretta</i>
Harrier, Montagu's	<i>Circus pygargus</i>
Harrier, Pallid	<i>Circus macrourus</i>
Harrier-Hawk, African	<i>Polyboroides typus</i>
Hawk, African Cuckoo	<i>Aviceda cuculoides</i>
Hawk-eagle, African	<i>Aquila spilogaster</i>
Helmet-shrike, White-crested	<i>Prionops plumatus</i>
Heron, Black	<i>Egretta ardesiaca</i>
Heron, Black-headed	<i>Ardea melanocephala</i>
Heron, Goliath	<i>Ardea goliath</i>

Common name	Taxonomic name
Heron, Green-backed	<i>Butorides striata</i>
Heron, Grey	<i>Ardea cinerea</i>
Heron, Purple	<i>Ardea purpurea</i>
Heron, Rufous-bellied	<i>Ardeola rufiventris</i>
Heron, Squacco	<i>Ardeola ralloides</i>
Hobby, Eurasian	<i>Falco subbuteo</i>
Honeybird, Brown-backed	<i>Prodotiscus regulus</i>
Honeyguide, Greater	<i>Indicator indicator</i>
Honeyguide, Lesser	<i>Indicator minor</i>
Hoopoe, African	<i>Upupa africana</i>
Hornbill, African Grey	<i>Tockus nasutus</i>
Hornbill, Damara	<i>Tockus damarensis</i>
Hornbill, Hybrid Damara/Red-billed	<i>Tockus damarensis/erythrorhynchus</i>
Hornbill, Red-billed	<i>Tockus erythrorhynchus</i>
Hornbill, Southern Yellow-billed	<i>Tockus leucomelas</i>
House-martin, Common	<i>Delichon urbicum</i>

Common name	Taxonomic name
Ibis, African Sacred	<i>Threskiornis aethiopicus</i>
Ibis, Glossy	<i>Plegadis falcinellus</i>
Ibis, Hadedda	<i>Bostrychia hagedash</i>
Indigobird, Dusky	<i>Vidua funerea</i>
Indigobird, Purple	<i>Vidua purpurascens</i>
Indigobird, Village	<i>Vidua chalybeata</i>
Jacana, African	<i>Actophilornis africanus</i>
Jacana, Lesser	<i>Microparra capensis</i>
Kestrel, Greater	<i>Falco rupicoloides</i>
Kestrel, Lesser	<i>Falco naumanni</i>
Kestrel, Rock	<i>Falco rupicolus</i>
Kingfisher, Brown-hooded	<i>Halcyon albiventris</i>
Kingfisher, Giant	<i>Megaceryle maximus</i>
Kingfisher, Grey-headed	<i>Halcyon leucocephala</i>
Kingfisher, Half-collared	<i>Alcedo semitorquata</i>
Kingfisher, Malachite	<i>Alcedo cristata</i>

Common name	Taxonomic name
Kingfisher, Pied	<i>Ceryle rudis</i>
Kingfisher, Striped	<i>Halcyon chelicuti</i>
Kingfisher, Woodland	<i>Halcyon senegalensis</i>
Kite, Black	<i>Milvus migrans</i>
Kite, Black-shouldered	<i>Elanus caeruleus</i>
Kite, Yellow-billed	<i>Milvus aegyptius</i>
Korhaan, Northern Black	<i>Afrotis afraoides</i>
Korhaan, Red-crested	<i>Lophotis ruficrista</i>
Korhaan, White-bellied	<i>Eupodotis senegalensis</i>
Lapwing, African Wattled	<i>Vanellus senegallus</i>
Lapwing, Blacksmith	<i>Vanellus armatus</i>
Lapwing, Crowned	<i>Vanellus coronatus</i>
Lark, Agulhas Clapper	<i>Mirafrja marjoriae</i>
Lark, Cape Clapper	<i>Mirafrja apiata</i>
Lark, Eastern Clapper	<i>Mirafrja fasciolata</i>
Lark, Fawn-coloured	<i>Calendulauda africanoides</i>

Common name	Taxonomic name
Lark, Flappet	<i>Mirafrā rufocinnamomea</i>
Lark, Red-capped	<i>Calandrella cinerea</i>
Lark, Rufous-naped	<i>Mirafrā africana</i>
Lark, Sabota	<i>Calendulauda sabota</i>
Longclaw, Cape	<i>Macronyx capensis</i>
Mannikin, Bronze	<i>Spermestes cucullatus</i>
Marsh-harrier, African	<i>Circus ranivorus</i>
Marsh-harrier, Western	<i>Circus aeruginosus</i>
Martin, Banded	<i>Riparia cincta</i>
Martin, Brown-throated	<i>Riparia paludicola</i>
Martin, Rock	<i>Hirundo fuligula</i>
Martin, Sand	<i>Riparia riparia</i>
Masked-weaver, Lesser	<i>Ploceus intermedius</i>
Masked-weaver, Southern	<i>Ploceus velatus</i>
Moorhen, Common	<i>Gallinula chloropus</i>
Moorhen, Lesser	<i>Gallinula angulata</i>

Common name	Taxonomic name
Mousebird, Red-faced	<i>Urocolius indicus</i>
Mousebird, Speckled	<i>Colius striatus</i>
Mousebird, White-backed	<i>Colius colius</i>
Myna, Common	<i>Acridotheres tristis</i>
Neddicky, Neddicky	<i>Cisticola fulvicapilla</i>
Night-Heron, Black-crowned	<i>Nycticorax nycticorax</i>
Nightjar, European	<i>Caprimulgus europaeus</i>
Nightjar, Fiery-necked	<i>Caprimulgus pectoralis</i>
Nightjar, Freckled	<i>Caprimulgus tristigma</i>
Nightjar, Rufous-cheeked	<i>Caprimulgus rufigena</i>
Nightjar, Square-tailed	<i>Caprimulgus fossii</i>
Oriole, African Golden	<i>Oriolus auratus</i>
Oriole, Black-headed	<i>Oriolus larvatus</i>
Oriole, Eurasian Golden	<i>Oriolus oriolus</i>
Osprey, Osprey	<i>Pandion haliaetus</i>
Ostrich, Common	<i>Struthio camelus</i>

Common name	Taxonomic name
Owl, Barn	<i>Tyto alba</i>
Owl, Marsh	<i>Asio capensis</i>
Owlet, Pearl-spotted	<i>Glaucidium perlatum</i>
Oxpecker, Red-billed	<i>Buphagus erythrorhynchus</i>
Painted-snipe, Greater	<i>Rostratula benghalensis</i>
Palm-swift, African	<i>Cypsiurus parvus</i>
Paradise-flycatcher, African	<i>Terpsiphone viridis</i>
Paradise-whydah, Long-tailed	<i>Vidua paradisaea</i>
Parrot, Meyer's	<i>Poicephalus meyeri</i>
Penduline-tit, Cape	<i>Anthoscopus minutus</i>
Penduline-tit, Grey	<i>Anthoscopus caroli</i>
Petronia, Yellow-throated	<i>Petronia superciliaris</i>
Phalarope, Red	<i>Phalaropus fulicaria</i>
Pigeon, Speckled	<i>Columba guinea</i>
Pipit, African	<i>Anthus cinnamomeus</i>
Pipit, Buffy	<i>Anthus vaalensis</i>

Common name	Taxonomic name
Pipit, Bushveld	<i>Anthus caffer</i>
Pipit, Long-billed	<i>Anthus similis</i>
Pipit, Plain-backed	<i>Anthus leucophrys</i>
Pipit, Striped	<i>Anthus lineiventris</i>
Pipit, Tree	<i>Anthus trivialis</i>
Plover, Common Ringed	<i>Charadrius hiaticula</i>
Plover, Kittlitz's	<i>Charadrius pecuarius</i>
Plover, Three-banded	<i>Charadrius tricollaris</i>
Pochard, Southern	<i>Netta erythrophthalma</i>
Pratincole, Black-winged	<i>Glareola nordmanni</i>
Prinia, Black-chested	<i>Prinia flavicans</i>
Prinia, Tawny-flanked	<i>Prinia subflava</i>
Puffback, Black-backed	<i>Dryoscopus cubla</i>
Pygmy-Goose, African	<i>Nettapus auritus</i>
Pygmy-Kingfisher, African	<i>Ispidina picta</i>
Pytilia, Green-winged	<i>Pytilia melba</i>

Common name	Taxonomic name
Quail, Common	<i>Coturnix coturnix</i>
Quail, Harlequin	<i>Coturnix delegorguei</i>
Quailfinch, African	<i>Ortygospiza atricollis</i>
Quelea, Red-billed	<i>Quelea quelea</i>
Rail, African	<i>Rallus caerulescens</i>
Reed-warbler, African	<i>Acrocephalus baeticatus</i>
Reed-warbler, Great	<i>Acrocephalus arundinaceus</i>
Robin-chat, Cape	<i>Cossypha caffra</i>
Robin-chat, White-throated	<i>Cossypha humeralis</i>
Roller, European	<i>Coracias garrulus</i>
Roller, Lilac-breasted	<i>Coracias caudatus</i>
Roller, Purple	<i>Coracias naevius</i>
Ruff, Ruff	<i>Philomachus pugnax</i>
Rush-warbler, Little	<i>Bradypterus baboecala</i>
Sandpiper, Common	<i>Actitis hypoleucos</i>
Sandpiper, Curlew	<i>Calidris ferruginea</i>

Common name	Taxonomic name
Sandpiper, Green	<i>Tringa ochropus</i>
Sandpiper, Marsh	<i>Tringa stagnatilis</i>
Sandpiper, Wood	<i>Tringa glareola</i>
Scimitarbill, Common	<i>Rhinopomastus cyanomelas</i>
Scops-owl, African	<i>Otus senegalensis</i>
Scops-owl, Southern White-faced	<i>Ptilopsis granti</i>
Scrub-robin, Kalahari	<i>Cercotrichas paena</i>
Scrub-robin, White-browed	<i>Cercotrichas leucophrys</i>
Secretarybird, Secretarybird	<i>Sagittarius serpentarius</i>
Seedeater, Streaky-headed	<i>Crithagra gularis</i>
Shikra, Shikra	<i>Accipiter badius</i>
Shoveler, Cape	<i>Anas smithii</i>
Shrike, Crimson-breasted	<i>Laniarius atrococcineus</i>
Shrike, Lesser Grey	<i>Lanius minor</i>
Shrike, Magpie	<i>Urolestes melanoleucus</i>
Shrike, Red-backed	<i>Lanius collurio</i>

Common name	Taxonomic name
Shrike, Southern White-crowned	<i>Eurocephalus anguitimens</i>
Skimmer, African	<i>Rynchops flavirostris</i>
Snake-eagle, Black-chested	<i>Circaetus pectoralis</i>
Snake-eagle, Brown	<i>Circaetus cinereus</i>
Snipe, African	<i>Gallinago nigripennis</i>
Sparrow, Cape	<i>Passer melanurus</i>
Sparrow, Great	<i>Passer motitensis</i>
Sparrow, House	<i>Passer domesticus</i>
Sparrow, Northern Grey-headed	<i>Passer griseus</i>
Sparrow, Southern Grey-headed	<i>Passer diffusus</i>
Sparrow-weaver, White-browed	<i>Plocepasser mahali</i>
Sparrowhawk, Black	<i>Accipiter melanoleucus</i>
Sparrowhawk, Little	<i>Accipiter minullus</i>
Sparrowhawk, Ovambo	<i>Accipiter ovampensis</i>
Sparrowlark, Chestnut-backed	<i>Eremopterix leucotis</i>
Spoonbill, African	<i>Platalea alba</i>

Common name	Taxonomic name
Spurfowl, Natal	<i>Pternistis natalensis</i>
Spurfowl, Swainson's	<i>Pternistis swainsonii</i>
Starling, Burchell's	<i>Lamprotornis australis</i>
Starling, Cape Glossy	<i>Lamprotornis nitens</i>
Starling, Red-winged	<i>Onychognathus morio</i>
Starling, Violet-backed	<i>Cinnyricinclus leucogaster</i>
Starling, Wattled	<i>Creatophora cinerea</i>
Stilt, Black-winged	<i>Himantopus himantopus</i>
Stint, Little	<i>Calidris minuta</i>
Stonechat, African	<i>Saxicola torquatus</i>
Stork, Abdim's	<i>Ciconia abdimii</i>
Stork, Black	<i>Ciconia nigra</i>
Stork, Marabou	<i>Leptoptilos crumeniferus</i>
Stork, Saddle-billed	<i>Ephippiorhynchus senegalensis</i>
Stork, White	<i>Ciconia ciconia</i>
Stork, Yellow-billed	<i>Mycteria ibis</i>

Common name	Taxonomic name
Sunbird, Amethyst	<i>Chalcomitra amethystina</i>
Sunbird, Greater Double-collared	<i>Cinnyris afer</i>
Sunbird, Malachite	<i>Nectarinia famosa</i>
Sunbird, Marico	<i>Cinnyris mariquensis</i>
Sunbird, White-bellied	<i>Cinnyris talatala</i>
Swallow, Barn	<i>Hirundo rustica</i>
Swallow, Greater Striped	<i>Hirundo cucullata</i>
Swallow, Grey-rumped	<i>Pseudhirundo griseopyga</i>
Swallow, Lesser Striped	<i>Hirundo abyssinica</i>
Swallow, Pearl-breasted	<i>Hirundo dimidiata</i>
Swallow, Red-breasted	<i>Hirundo semirufa</i>
Swallow, White-throated	<i>Hirundo albigularis</i>
Swamp-warbler, Lesser	<i>Acrocephalus gracilirostris</i>
Swamphen, African Purple	<i>Porphyrio madagascariensis</i>
Swift, African Black	<i>Apus barbatus</i>
Swift, Alpine	<i>Tachymarptis melba</i>

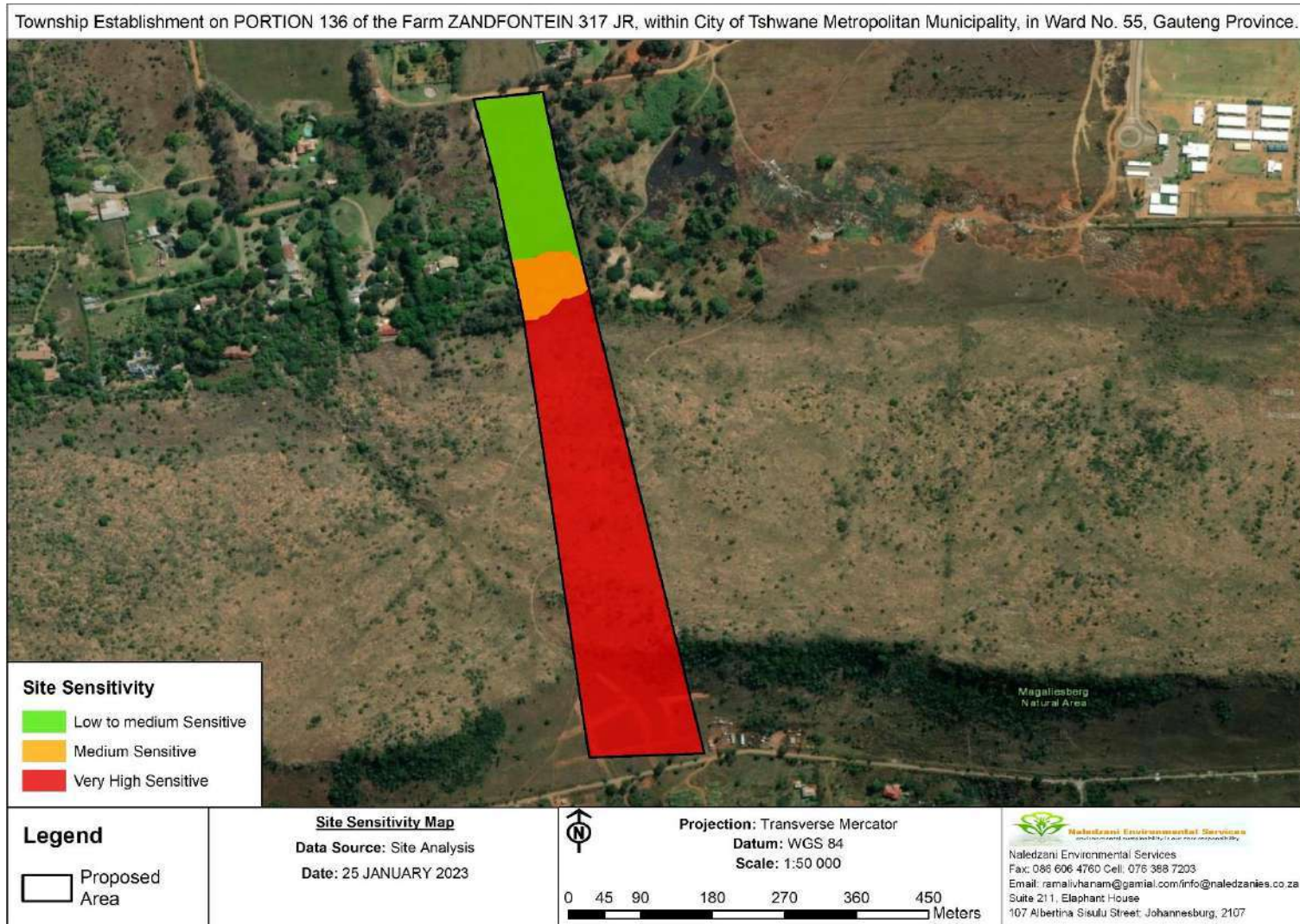
Common name	Taxonomic name
Swift, Common	<i>Apus apus</i>
Swift, Horus	<i>Apus horus</i>
Swift, Little	<i>Apus affinis</i>
Swift, White-rumped	<i>Apus caffer</i>
Tchagra, Black-crowned	<i>Tchagra senegalus</i>
Tchagra, Brown-crowned	<i>Tchagra australis</i>
Teal, Cape	<i>Anas capensis</i>
Teal, Hottentot	<i>Anas hottentota</i>
Teal, Red-billed	<i>Anas erythrorhyncha</i>
Tern, Whiskered	<i>Chlidonias hybrida</i>
Tern, White-winged	<i>Chlidonias leucopterus</i>
Thick-knee, Spotted	<i>Burhinus capensis</i>
Thrush, Groundscraper	<i>Psophocichla litsipsirupa</i>
Thrush, Karoo	<i>Turdus smithi</i>
Thrush, Kurrichane	<i>Turdus libonyanus</i>
Thrush, Olive	<i>Turdus olivaceus</i>

Common name	Taxonomic name
Tinkerbird, Yellow-fronted	<i>Pogoniulus chrysoconus</i>
Tit, Ashy	<i>Parus cinerascens</i>
Tit, Southern Black	<i>Parus niger</i>
Tit-babbler, Chestnut-vented	<i>Parisoma subcaeruleum</i>
Tit-flycatcher, Grey	<i>Myioparus plumbeus</i>
Turtle-dove, Cape	<i>Streptopelia capicola</i>
Vulture, Cape	<i>Gyps coprotheres</i>
Vulture, Lappet-faced	<i>Torgos tracheliotus</i>
Vulture, White-backed	<i>Gyps africanus</i>
Wagtail, African Pied	<i>Motacilla aguimp</i>
Wagtail, Cape	<i>Motacilla capensis</i>
Wagtail, Mountain	<i>Motacilla clara</i>
Wagtail, Yellow	<i>Motacilla flava</i>
Warbler, Garden	<i>Sylvia borin</i>
Warbler, Icterine	<i>Hippolais icterina</i>
Warbler, Marsh	<i>Acrocephalus palustris</i>

Common name	Taxonomic name
Warbler, Olive-tree	<i>Hippolais olivetorum</i>
Warbler, River	<i>Locustella fluviatilis</i>
Warbler, Sedge	<i>Acrocephalus schoenobaenus</i>
Warbler, Willow	<i>Phylloscopus trochilus</i>
Waxbill, Black-faced	<i>Estrilda erythronotos</i>
Waxbill, Blue	<i>Uraeginthus angolensis</i>
Waxbill, Common	<i>Estrilda astrild</i>
Waxbill, Orange-breasted	<i>Amandava subflava</i>
Waxbill, Swee	<i>Coccygia melanotis</i>
Waxbill, Violet-eared	<i>Granatina granatina</i>
Weaver, Cape	<i>Ploceus capensis</i>
Weaver, Red-headed	<i>Anaplectes rubriceps</i>
Weaver, Thick-billed	<i>Amblyospiza albifrons</i>
Weaver, Village	<i>Ploceus cucullatus</i>
Wheatear, Capped	<i>Oenanthe pileata</i>
Wheatear, Mountain	<i>Oenanthe monticola</i>

Common name	Taxonomic name
White-eye, Cape	<i>Zosterops virens</i>
White-eye, Orange River	<i>Zosterops pallidus</i>
Whitethroat, Common	<i>Sylvia communis</i>
Whydah, Pin-tailed	<i>Vidua macroura</i>
Whydah, Shaft-tailed	<i>Vidua regia</i>
Widowbird, Long-tailed	<i>Euplectes progne</i>
Widowbird, Red-collared	<i>Euplectes ardens</i>
Widowbird, White-winged	<i>Euplectes albonotatus</i>
Wood-dove, Emerald-spotted	<i>Turtur chalcospilos</i>
Wood-hoopoe, Green	<i>Phoeniculus purpureus</i>
Woodpecker, Bearded	<i>Dendropicos namaquus</i>
Woodpecker, Bennett's	<i>Campethera bennettii</i>
Woodpecker, Cardinal	<i>Dendropicos fuscescens</i>
Woodpecker, Golden-tailed	<i>Campethera abingoni</i>
Wren-warbler, Barred	<i>Calamonastes fasciolatus</i>

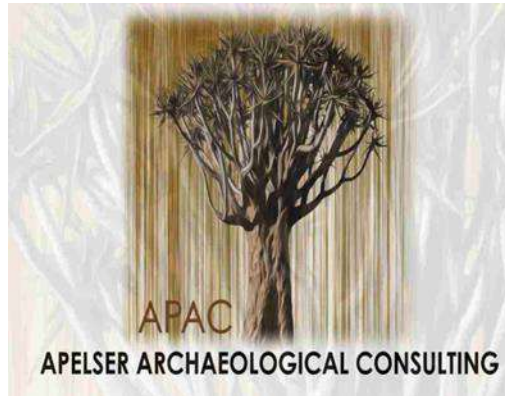
APPENDIX C: SENSITIVITY MAP



NB:

- Shapefiles, KMZ or KML files used to draw the sensitivity map (Appendix C) can be provided to be able to determine the boundary of the sensitive area

Heritage Report



Comprehensive and Professional Solutions for all Heritage Related Matters
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**A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR
PROPOSED TOWNSHIP DEVELOPMENT ON PORTION 136
OF THE FARMS ZANDFONTEIN 317JR
NEAR KIRKNEY, GREATER TSHWANE MUNICIPALITY
GAUTENG PROVINCE**

For:

***Mokone Consulting
Town Planners & Property Consultants***

REPORT: **APAC023/09**

by:

***A.J. Pelsler
Accredited member of ASAPA
Member No. 106***

January 2023

**P.O.BOX 73703
LYNNWOOD RIDGE
0040
Tel: 083 459 3091
Fax: 086 695 7247
Email: apac.heritage@gmail.com**

Member: AJ Pelsler BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]

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APELSE ARCHAEOLOGICAL CONSULTING

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DISCLAIMER:

Although all efforts are made to identify all sites of cultural heritage (archaeological and historical) significance during an assessment of study areas, the nature of archaeological and historical sites are as such that it is always possible that hidden or subterranean sites, features or objects could be overlooked during the study. APELSE Archaeological Consulting can't be held liable for such oversights or for costs incurred as a result thereof.

Clients & Developers should not continue with any development actions until SAHRA or one of its subsidiary bodies has provided final comments on this report. Submitting the report to SAHRA is the responsibility of the Client unless required of the Heritage Specialist as part of their appointment and Terms of Reference

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SUMMARY

APelser Archaeological Consulting (APAC) was appointed by Mokone Consulting to conduct a Phase 1 Heritage Impact Assessment for proposed Township Development on Portion 136 of the farm Zandfontein 317JR. The study & proposed development area is located near Kirkney (in the north of Pretoria) in the Greater Tshwane Municipality of Gauteng.

The literature review indicates that there are some cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls. Some sites & features of recent cultural heritage origin were identified and recorded in the study and proposed development area during the January 2023 field assessment. These are however deemed of low significance. This report discusses the results of both the background literature research and physical assessment and provides recommendations on the way forward.

From a Cultural Heritage point of view, it was determined that the proposed Portion 136 Zandfontein 317JR Township Development should be allowed to continue provided that the recommendations made in the report are implemented.

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1. INTRODUCTION

APelser Archaeological Consulting (APAC) was appointed by Mokone Consulting to conduct a Phase 1 Heritage Impact Assessment for proposed Township Development on Portion 136 of the farm Zandfontein 317JR. The study & proposed development area is located near Kirkney (in the north of Pretoria) in the Greater Tshwane Municipality of Gauteng.

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The focus of the Heritage Impact Assessment was within the location and boundaries of the study & development area as indicated by the client.

2. TERMS OF REFERENCE

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

Aspects are dealt with mainly in. The National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998) are the two main legislations concerning the conservation of cultural resources, used as guidelines when conducting the Heritage Impact Assessment.

3.1. The National Heritage Resources Act (Act 25 of 1999)

According to the National Heritage Resources Act (Act 25 of 1999) (NHRA), the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures, and sites older than 100 years
- b. Ethnographic art objects (e.g., prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures, and sites older than 75 years
- e. Historical objects, structures, and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures, and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g., archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

The Heritage Impact Assessment (HIA) process is done to determine whether there are any heritage resources located within the area to be developed as well as to determine the possible impacts of the proposed development. An Archaeological Impact Assessment (AIA) only looks at archaeological resources, such as material remains of human life or activities which are at least 100 years of age, and which are of archaeological interest. A HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34(1) of the Act state that no person may demolish any structure or part thereof that is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure refers to any building, works, device or other facility made by people, and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

To alter means any action taken that affects the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology, and Meteorites

Section 35(4) of the Act deals with archaeology, palaeontology, and meteorites. The Act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

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

- i. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

- ii. destroy, damage, alter, exhume, or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- iii. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province, and local police. Furthermore, permission must also be gained from the various landowners (i.e., where the graves are located and where they are to be relocated to) before exhumation can take place.

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

3.2. The National Environmental Management Act (No. 107 of 1998)

This Act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

The specific requirements that specialist studies and reports must adhere to are contained in Appendix 6 of the EIA Regulations.

4. METHODOLOGY

4.1. Review of literature

A review of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography. These include Bergh (1999), Huffman (2007) & Lombard et.al (2012).

4.2. Field survey

The field assessment component of the study was conducted on the 26th of January 2023 according to generally accepted HIA practices and aimed at locating all possible objects, sites, and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

4.3. Documentation

All sites, objects, features, and structures identified are documented according to a general Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. DESCRIPTION OF THE AREA

The study & proposed development area is located on Portion 136 of the farm Zandfontein 317JR. This is situated close to Kirkney to the north of Pretoria (Greater Tshwane Municipality) in Gauteng.

The topography of the main development area is relatively flat, with some rocky outcrops and tree cover (bluegum/other). Parts of the study area is located on a ridge that forms part of the Magaliesberg Mountain range. Dense vegetation growth (mostly grass cover) limited visibility on the ground. Parts of the larger surrounding area would have been impacted in the past by agricultural activities, while residential and related developments border the development site as well. To some extent the original and natural landscape of the study & development area have been extensively altered by these activities, and if any significant cultural heritage sites and features did exist here in the past it would have been heavily impacted or even destroyed as a result.

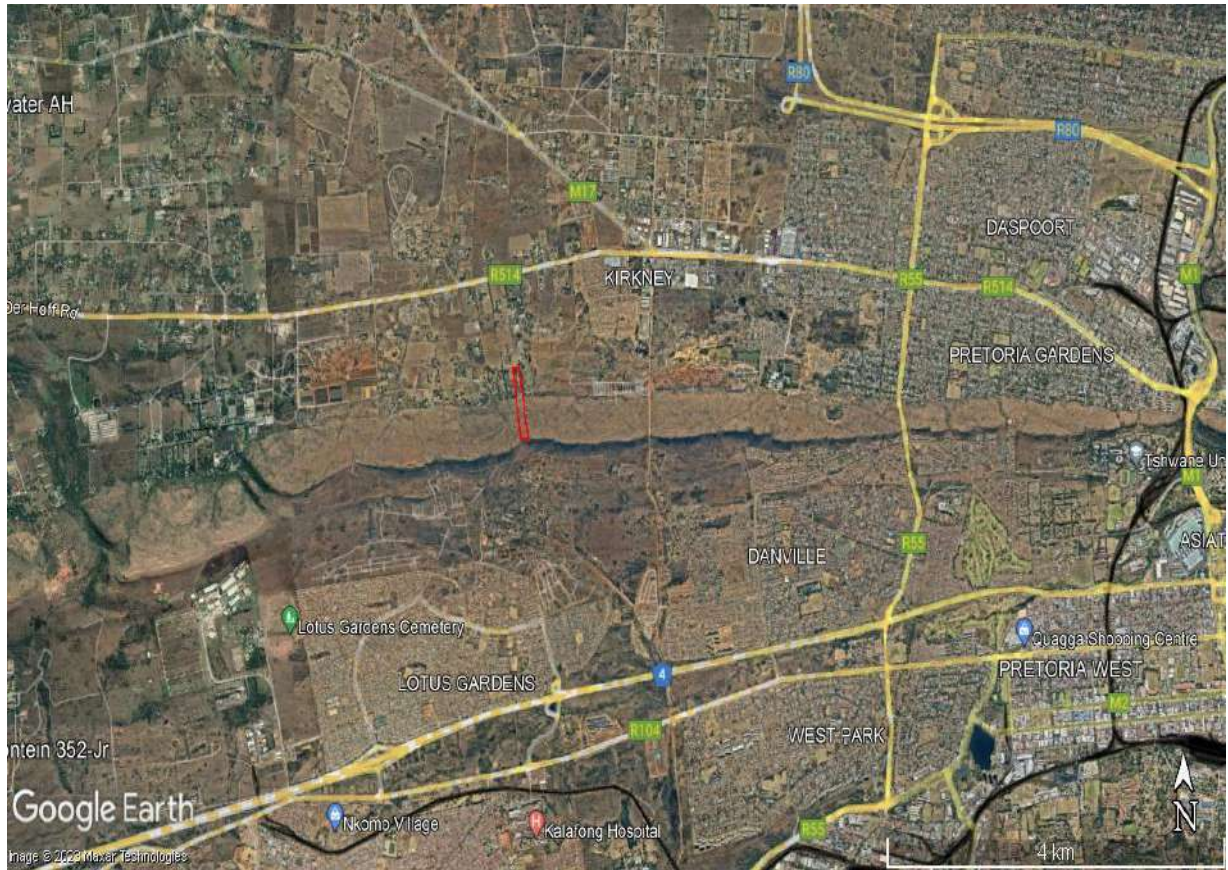


Figure 1: General location of the study & proposed development area indicated by the red polygon (Google Earth 2023).

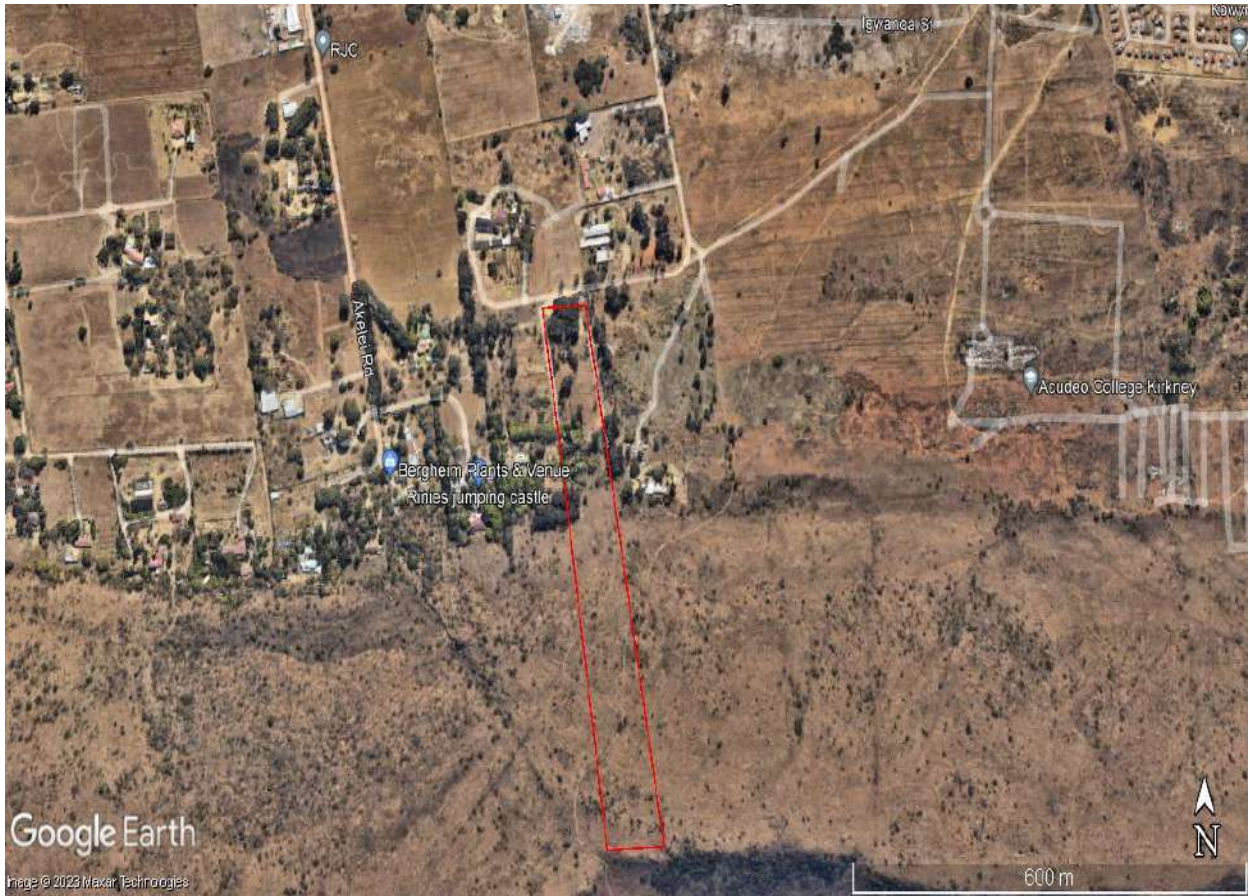


Figure 2: Closer view of the study & development area footprint (Google Earth 2023).

Ptn 136 of the Farm Zandfontein 317-JR

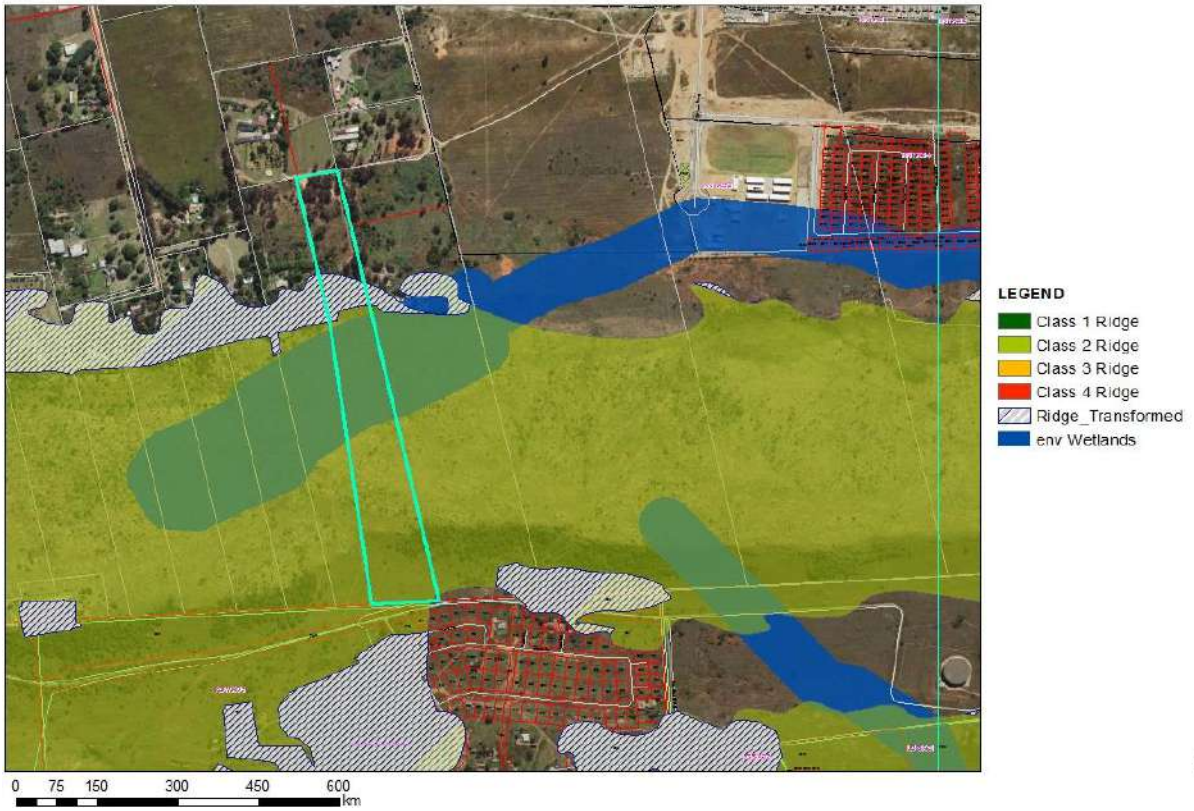


Figure 3: Location of the study and development area showing the ridges and position of wetland sections (courtesy Mokone Consulting).

Ptn 136 of the Farm Zandfontein 317-JR

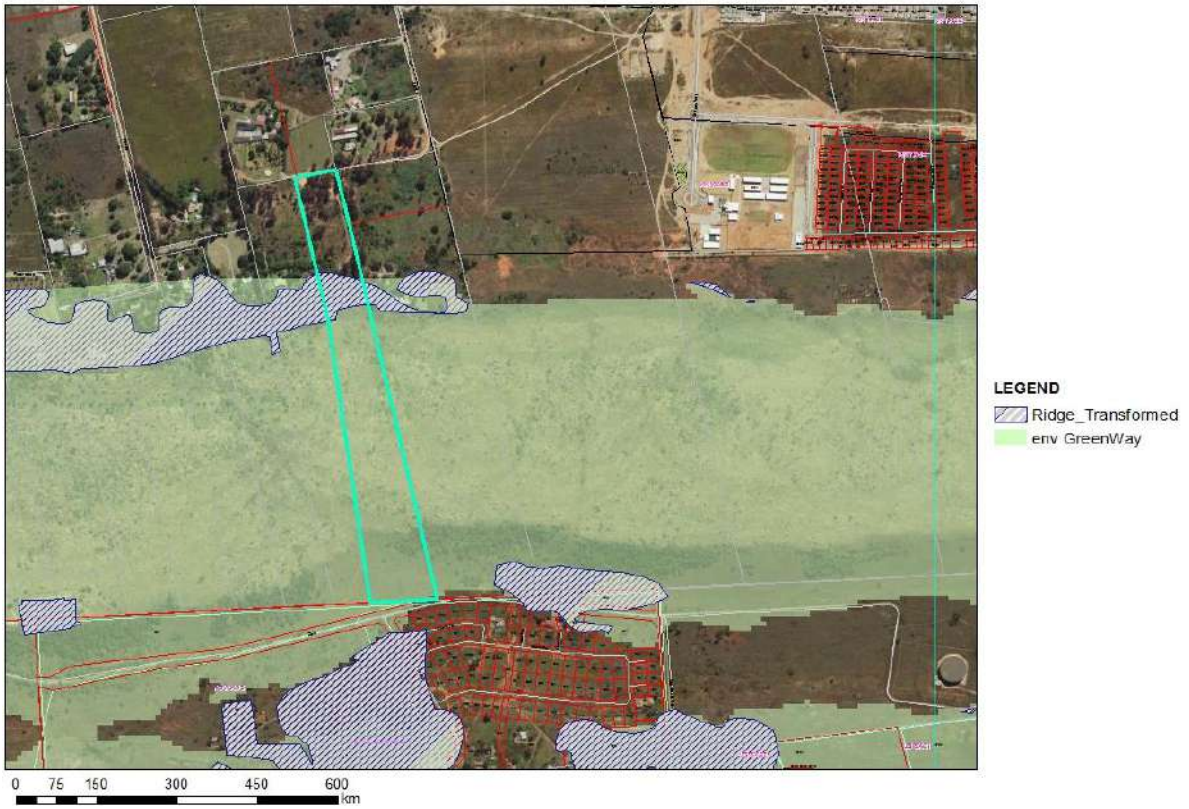


Figure 4: Another map showing the study and development area. Most of the ridge is indicated as an Environmental Greenway (courtesy Mokone Consulting).

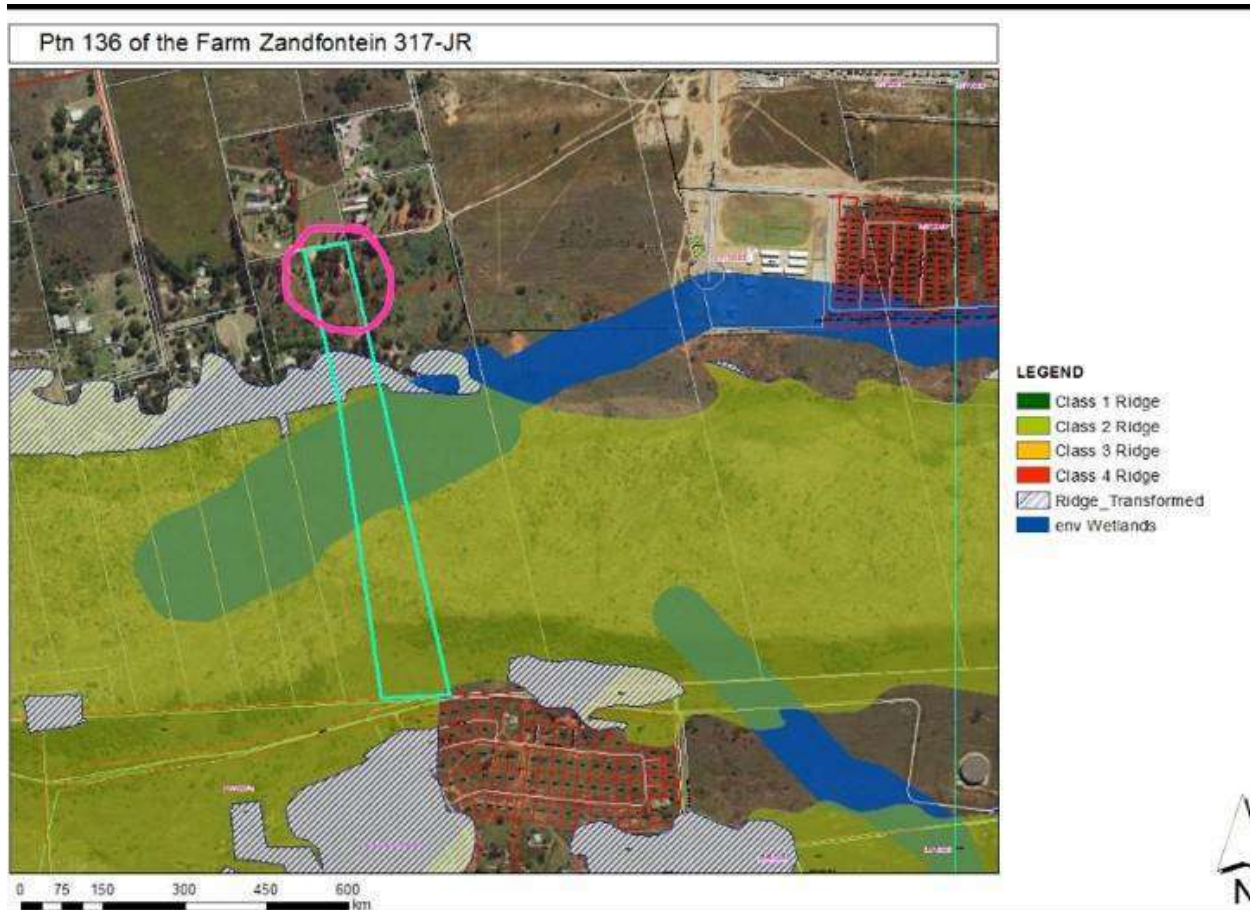


Figure 5: Map of the study & development area. The area encircled is where the development will focus (courtesy Mokone Consulting).

6. DISCUSSION

6.1 Stone age

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided into three periods as listed below. It is important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

- Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago
- Middle Stone Age (MSA) less than 300 000 – 20 000 years ago
- Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites in the study area, and no artifacts from that period were identified during the site assessment. The closest known Stone Age sites are those of the well-known Early Stone Age site at Wonderboompoort and a number of sites in the

Magaliesberg area (Bergh 1999: 4). Middle Stone Age material has been identified at Erasmusrand and the Groenkloof Nature Reserve (Van Vollenhoven 2006: 183). At the Erasmusrand cave some Late Stone Age tools were also identified as well as at Groenkloof (Van Vollenhoven 2006: 184). LSA material has also been found at Zwartkops and Hennops River (Bergh 1999: 4). This last phase of the Stone Age is associated with the San people.

If any Stone Age artifacts are to be found in the area, then it would more than likely be single, out of context, stone tools. Urbanization over the last 150 years or so would have destroyed any evidence if indeed it did exist.

No Stone Age sites or material were identified in the study area during the January 2023 field assessment.

6.2 Iron age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts. In South Africa it can be divided in two separate phases (Bergh1999: 96-98), namely:

- Early Iron Age (EIA) 200 – 1000 A.D
- Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

- Early Iron Age (EIA) 250 – 900 A.D.
- Middle Iron Age (MIA) 900 – 1300 A.D.
- Late Iron Age (LIA) 1300 – 1840 A.D.

Iron Age people started to settle in southern Africa from around AD 300, with one of the oldest known sites at Broederstroom, dating to AD 470, located south of Hartebeespoort Dam. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior Highveld area. The occupation of the region by Iron Age communities did not start much before the 1500s. Due to climatic fluctuations, bringing about colder and drier conditions, people were forced to avoid this area. Following a dry spell that ended just before the turn of the millennium, the climate became better again until about AD 1300. This coincided with the arrival of the ancestors of the present-day Sotho-, Tswana- and Nguni speakers in southern Africa, forcing them to avoid large sections of the interior.

During the early decades of the 19th century, the Tswana- and Ndebele-speakers were dislodged by the Matabele of Mzilikazi. Internal strife caused Mzilikazi, a general of King Shaka, and his followers to move away from the area between the Thukela and Mfolozi River (KwaZulu-Natal). Eventually, after spending some time in the Sekhukhuneland area, followed by a short stay in the middle reaches of the Vaal River, they settled north of the Magaliesberg. One of three main settlements established by them, eKungwini, was on the

banks of the Apies River, just north of Wonderboompoort. However, no remains of this settlement have ever been identified (Van Schalkwyk 2012: 6-7).

APAC cc was contracted in 2013 to conduct a Phase 2 Archaeological Investigation of stonewalled Late Iron Age (LIA) sites located close to the area proposed for the Fort West Extension 4 Township Development. These sites were identified and recorded by Dr. Johnny van Schalkwyk as part of a 2012 HIA. Seven areas containing stone walled settlements dating to the Late Iron Age were identified (Pelser 2013: 19). Although stone-walled LIA sites are not known for the Portion 136 Zandfontein study & development area, it is therefore evident that these types of sites occur in the larger geographical area.

Although no Iron Age sites, features or material were physically identified in the area during the January 2023 assessment, a possible LIA feature (stone-walled enclosure) was noted on an aerial image of the area.

6.3 Historic age

It was during the Matabele's stay along the Apies River that the first white people entered the area: travelers and hunters such as Cornwallis Harris and Andrew Smith, traders Robert Schoon and Andrew McLuckie, and missionaries James Archbell and Robert Moffat. It is known from oral history that Robert Schoon sent Mzilikazi huge quantities of glass trade beads, rather than the guns that the latter coveted so much (Van Schalkwyk 2012: 6-7).

White settlers started to occupy huge tracts of land, claiming it as farms from the late 1840's onwards. Of these, some of the earliest were Lucas Bronkhorst (Groenkloof), David Botha (Hartebeestpoort – Silverton) and Doors Erasmus (Wonderboom). With the establishment of Pretoria (1850's) services such as roads started to develop. An increase in population also demanded more food, which stimulated development of farming on the alluvial soils on the banks of the Apies River, close to the water. With the increased fear of British domination, the government of the ZAR had four forts built in the vicinity of Pretoria to protect the capital city in case of war. One of them, known as Fort Daspoortrand or Wes Fort, occurs to the north of the study area (Van Vollenhoven 1999).

The oldest map for Portion 136 of the farm Zandfontein 317JR obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za – CSG Document: 10BRY01) dates to 1951 & indicates that the farm was then located in the District of Pretoria and in the Province of Transvaal. This portion of the farm (a portion of portion 110) was surveyed in November 1951. No historical sites or features are shown on this specific map.

L.G. KANTON 1008

L.G. No. A 8049/51

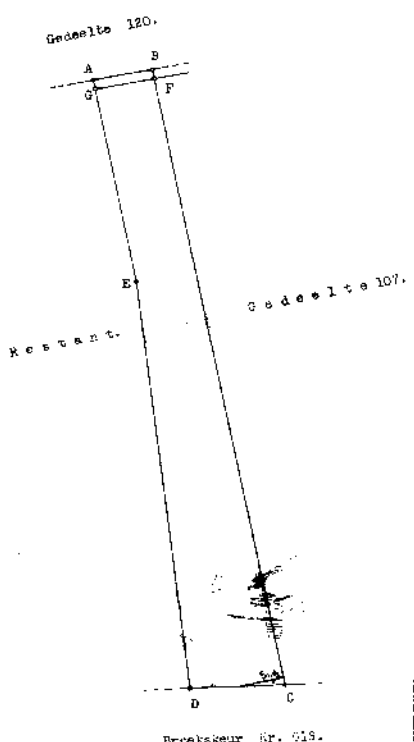
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Landmeter-Generaal 1951

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C D	327.9	87 56 25	C - 27 820.6	+ 43 247.6
D E	1 754.3	172 57 10	D - 27 425.0	+ 43 251.9
E A	887.4	167 55 30	E - 27 197.8	+ 41 521.5
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F G	250.0	75 59 50	G - 27 021.04	+ 40 692.75
G A	40.00	167 55 30		



Die figuur 107 is die oorspronklike van die oorspronklike stel in Reg van oerpad 40.0 Kaapse voet wyd voor.

Bakenbeskrywing.

- A, D, E, F, G. - 1 1/2" Isterpen en 1/2" spitsel.
- B. - Heutdraandpaal.
- C. - 3/8" Isterpen en klipstapel.

Vir Servuulte
Aftrekkings en
Endossements
Sien A-kaart

Landmeter-Generaal
No. 317
REGISTRASIE AFDELING
REGISTRATION DIVISION

Skaal 1: 5000.

Die figuur A B C D E
3.2012 Morge grond. svnde Gedeelte 136 (in Gedeelte van Gedeelte 107) stel voor
van die plaas 267-1951/2

ZANDFONTEIN Nr. 92
geleë in die DISTRIK Pretoria.
PROVINSIE TRANSVAAL
Gemert in November 1951 deur my
Landmeter.

Hierdie kaart is geheg aan Akte van No. gedateer ten gunste van Registrateur van Aktes	Die oorspronklike kaart is No A 8049/51 geheg aan Transportakte No. 3095/45 gedateer ten gunste van	L.G. Lëer No. Meerstukke No. Kompilasie No. Suiderbreedte Oosterlengte T.P.S. (P.T.A. REGION)
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Figure 6: The 1951 map for Portion 136 of Zandfontein 317JR (www.csg.dla.gov.za).

Some recent historical sites and features were identified and recorded in and close to the study & development area in January 2023.



Figure 7: General view of a section of the study & development area, with the ridge in the background.



Figure 8: Another view. Note the fairly dense vegetation.

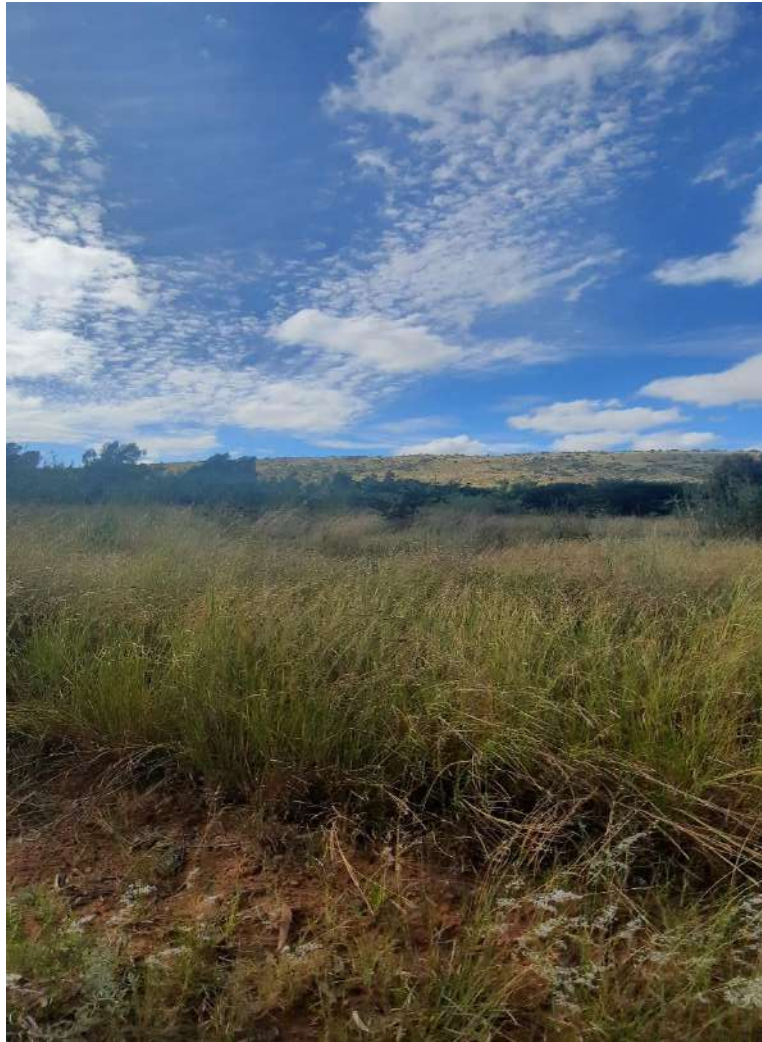


Figure 9: Sections of the study area is relatively flat and open although the grass cover is dense on the ground.



Figure 10: Another section of the study area.



Figure 11: Residential developments border the study and proposed development area.

Results of the January 2023 Field Assessment

During the January 2023 field assessment some remains (foundations and rubble mostly) of recent homesteads and other unidentified related structures was found in the study and development area footprint. These are however most likely not older than 60 years of age, and have been demolished and vandalized to such an extent that they have no cultural heritage significance. The Phase 1 assessment and recording is therefore seen as sufficient and these remains can be removed as part of the proposed development actions.

GPS Location: S25 43 35.77 E28 05 21.04



Figure 12: One of the recent homestead ruins in the study area.



Figure 13: The foundations of another recent structure/homestead in the area.



Figure 14: All the recent structures identified have been reduced to foundations and rubble.



Figure 15: A view of the study & proposed development are showing the location of the recent structural remains identified (Google Earth 2023).

Although the ridge will not be developed as it is demarcated as an Environmental Greenway, and was therefore not extensively surveyed during the fieldwork, there is always a possibility of cultural heritage sites and features being located here. This is especially true for Late Iron Age stone-walled sites that are known to occur in the larger area on these ridges. One such site was identified from an aerial image (Google Earth) and could represent a typical livestock (cattle kraal) enclosure. If the proposed development moves onto the ridge these features will have to be properly investigated, mapped and drawn before demolition. It is however unlikely that the development will encroach onto the ridge area.

Approximate GPS Location: S25 43 43.67 E28 05 24.05



Figure 16: Possible Late Iron Age stone-walled remains on the ridge (Google Earth 2023).

Although it is possible that sites, features or material could have been missed as a result of many factors, it is more likely that if any are to be found in the proposed development area these would not be of any high significance. If any are to be found during the proposed development, care should be taken to avoid any possible negative impacts on these sites. A Heritage Specialist should then also be contacted to undertake a site visit to investigate the finds and to provide recommendations on the way forward.

It should also be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) in an area that there is always a possibility that some might have been missed as a result of grass cover and other factors.

Impact Assessment and Mitigation Measures

The significance of impacts is determined using the following criteria:

Probability: describes the likelihood of the impact actually occurring

- **Improbable:** the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- **Probable:** there is a probability that the impact will occur to the extent that provision must be made therefore.

- **Highly probable:** it is most likely that the impact will occur at some stage of the development.
- **Definite:** the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures or contingency plans to contain the effect.

Duration: the lifetime of the impact

- **Short Term:** the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- **Medium Term:** the impact will last up to the end of the phases, where after it will be negated.
- **Long Term:** the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent:** the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: the physical and spatial size of the impact

- **Local:** the impacted area extends only as far as the activity, e.g. footprint
- **Site:** the impact could affect the whole or measurable portion of the abovementioned property.
- **Regional:** the impact could affect the area including the neighboring residential areas.

Magnitude/Severity: Does the impact destroy the environment, or alter its function

- **Low:** the impact alters the affected environment in such a way that natural processes are not affected.
- **Medium:** the affected environment is altered, but functions and processes continue in a modified way.
- **High:** function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- **Negligible:** the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- **Low:** the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- **Moderate:** the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

- **High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

With no sites, features and material of cultural heritage origin and High significance found in the area during the assessment, the current site layout provided will not have an impact. The impact of the proposed development on recorded and known heritage sites is therefore deemed as Low.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short Term	1
	Medium Term	3
	Long Term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude)	x Probability
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

Results: 1+1+2x1 = 4 i.e. ≤20

The impact of the proposed development on cultural heritage sites in the area is therefore deemed as Negligible based on the Impact Assessment criteria used. However, there is always a possibility of sites, features and material being missed as a result of various factors such as vegetation cover hampering visibility on the ground, as well as the often-subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves). These factors need to be taken into consideration and it is therefore recommended that a Chance Finds Protocol be drafted and implemented for the proposed Portion 136 of Zandfontein 317JR Development.

7. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting (APAC) was appointed by Mokone Consulting to conduct a Phase 1 Heritage Impact Assessment for proposed Township Development on Portion 136 of the farm Zandfontein 317JR. The study & proposed development area is located near Kirkney (in the north of Pretoria) in the Greater Tshwane Municipality of Gauteng.

The literature review indicates that there are some cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls. During the January 2023 field assessment some remains of recent homesteads and other unidentified related structures was found in the study and development area footprint. These are however most likely younger than 60 years of age, and have been demolished and vandalized to such an extent that they have no cultural heritage significance. The Phase 1 assessment and recording can therefore be seen as sufficient and these remains can be removed as part of the proposed development actions.

Although the ridge will not be developed as it is demarcated as an Environmental Greenway there is always a possibility of cultural heritage sites and features being located here. A possible Late Iron Age feature was identified from an aerial image (Google Earth) and could represent a typical livestock (cattle kraal) enclosure. Should the proposed development move onto the ridge, the site will have to be properly investigated, mapped and drawn before demolition. It is however unlikely that the development will encroach onto the ridge area.

From a Cultural Heritage point of view, it can therefore be concluded that the proposed Portion 136 Zandfontein 317JR Township Development should be allowed to continue provided that the recommendations made above are implemented.

The often-subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or buried sites, features or material be uncovered during any development actions then an Archaeological expert should be contacted to investigate and provide recommendations on the way forward.

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APPENDIX A: DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B: DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE

Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C: SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D: PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, paleontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, paleontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E: HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.

Geotechnical Report

**PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT FOR KIRKNEY
DEVELOPMENT IN FARM ZANDFONTEIN 317 JR PORTION 136 HOUSING
DEVELOPMENT IN THE CITY OF TSHWANE – GAUTENG PROVINCE**

DATE: FEBRUARY 2023



Prepared For:



Document Prepared by:

Davhana Geotech Solutions (Pty) Ltd

76 Garsfontein Road

Alphen Park

Pretoria

0181

C-- (073) 033 8921

E—vincent@dgeo.co.za

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Client	Mokone Town Planners	Client contact Person	Mr Kgaogelo Mokone
Date	Report Compiler		
8 February 2023	Vincent Tshingwala & Vhangani Mugeru		
Rev	00		

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EXECUTIVE SUMMARY

Mokone Town Planners appointed Davhana Geotech Solutions to carry out a geotechnical investigation for the formalisation of Farm Zandfontein 317 JR in the City of Tshwane Municipality (CoT) of Gauteng Province. To meet the requirements for a township establishment investigation, the investigation was carried out by Davhana in accordance with the specification for geotechnical site investigations for housing developments (National Department of Housing specification GFSH- 2).

The geotechnical investigation revealed that the profile across the site is uniform, comprising of the following horizons:

- Topsoil
- Transported
- Pedogenic
- Residual Sandy Clay

No adverse conditions prohibiting the development of the site were observed and the site has two zones, which can be described as follows:

Zone S2/H1: This zone covers the entire site and is characterised by relatively thick compressible soil profile with S2 (total normal settlement >20mm). These transported soils are underlain by relatively thick fine-grained soils with moderate plasticity (clays, silty clays, clayey silts and sandy clays) with total expected movements between 7.5 mm and 15 mm.

Zone R (Rock): This zone is characterised by rock (the outcropping sandstone rock on the mountain).

The site is considered suitable for the proposed development provided that the recommendations made in this report are adhered to. A concrete raft placed on top of the engineered fill prepared as described above would be suitable for founding the proposed development.

1. INTRODUCTION

Mokone Town Planners appointed Davhana Geotech Solutions to carry out a geotechnical investigation for the formalisation of Farm Zandfontein 317 JR in the City of Tshwane Municipality (CoT) of Gauteng Province.

To meet the requirements for a township establishment investigation, the investigation was carried out by Davhana in accordance with the specification for geotechnical site investigations for housing developments (National Department of Housing specification GFSH- 2).

Davhana Geotech Solutions geotechnical team carried out the fieldwork. The project team comprised of engineering geologists and geotechnical engineers.

This report presents the interpretive findings of the investigations, i.e. the geological profiles as confirmed by test pitting, laboratory analysis, geotechnical recommendations as well as geotechnical zoning of the site. The purpose of this construction report is to confirm or adapt the zoning of the site, and to provide more accurate information regarding the founding conditions.

2. AVAILABLE INFORMATION

- 1:250 000 scale geological map of PRETORIA 2528. Geological Survey, printed by the Government Printer, Pretoria, 1986.
- 1:50. 000 scale 2528 CB Topographical Sheet
- Google Earth® Satellite Imagery
- Available geological and geotechnical information and reports in surrounding areas

3. SITE LOCALITY AND DESCRIPTION

3.1 Locality

The site is located on portion 136 of Farm Zandfontein 317 JR at Kirkney west of Pretoria in the City of Tshwane Municipality Gauteng Province. The site is bounded by plots on the north, east and west, on the south is the Magaliesburg mountain. The site is not yet developed there is no any infrastructure. The site can be accessed via R514 regional road.

Figure 1 indicates the locality of Farm Zandfontein 317 JR together with the respective plot boundaries in this area.



Figure 1: Showing the investigated area in Chris Hani indicated with a red outline. (created with data from Google Earth)

3.2 Topography

The topography of Kirkney contains only modest variations in elevation, with a maximum elevation change of 44.4 m and an average elevation above sea level of 1437m.

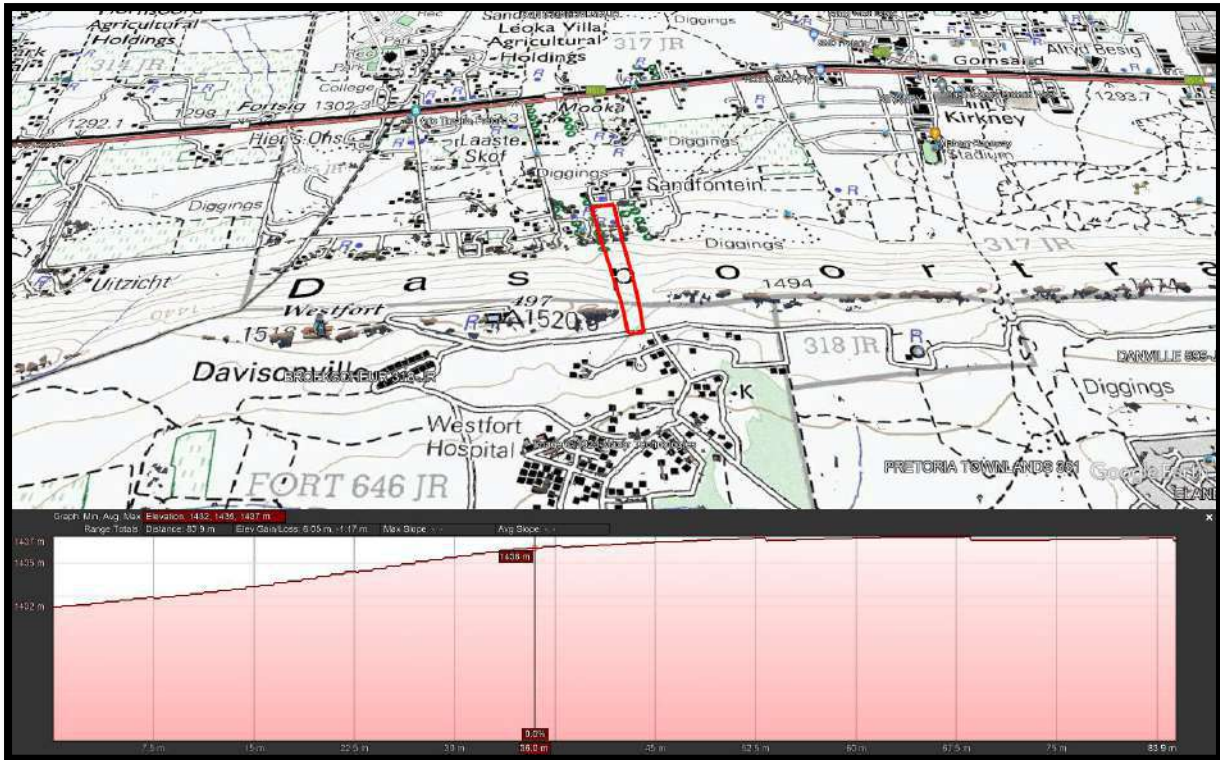


Figure 2: Showing topography and elevation of the study area

3.3 Climate

The climate is characterised by summer rainfall and dry winters. The mean annual rainfall is approximately 660 mm. The mean annual temperature is 15.6°C (Mucina and Rutherford, 2006). Summer months are warm to hot and frost is frequent in winter.

The Weinert Climatic N-number for the area (Weinert, 1980) which is <5 indicating that the climate is semi-humid and chemical weathering processes are dominant.

4. INVESTIGATION METHODOLOGY

To meet the requirements for a residential development; the investigation was carried out in accordance with the specification for geotechnical site investigations for housing developments (National Department of Housing specification GFSH-2).

The Phase 1 investigations generally entails inspection of exposed service trenches, however as the installation of the services had not been already undertaken, test pits were excavated in every accessible area. The investigation was conducted by Davhana Geotech Solutions and comprised excavation of eight (08 No) test pits. Coordinates of the test pits were determined using a hand-held GPS on the South African grid with WGS84 coordinate system (Lo 29).

A geotechnical team carried out the test pitting in order to comply with accepted safety requirements as reflected in the South African Code of Practice (SAICE: 2007). The test pits were set out and profiled by a team of engineering geologists/ geotechnical engineers in accordance with South African standards (*Standards South Africa. South African. National Standard. Profiling, Percussion Borehole and Core Logging in Southern Africa SANS 633:2012*) as well as the standard methodology proposed by *Jennings, Brink and Williams (Jennings et al., 1973)*. The test pits were excavated to the maximum reach of the TLB machine (approximately 3 m) or refusal. The excavations were loosely backfilled after completion of soil profiling and sampling.

Test pits details are summarised below in **Error! Reference source not found.**

Table 1: Test pit summary

Test Pit No.	GPS Coordinates (UTM WGS 84 Zone 35)		Depth(m)	Remarks	Water Level (m)
	Latitude (dd mm ss)	Longitude (dd mm ss)			
KTP-1	-25.724827°	28.088832°	2.69	Refusal on a very dense residual sandy clay	-
KTP-2	-25.725078°	28.089137°	2.60	Refusal on a very dense residual sandy clay	-
KTP-3	-25.725487°	28.088747°	1.90	Refusal on a very dense residual sandy clay	-
KTP-4	-25.726037°	28.088886°	2.60	Refusal on a very dense residual sandy clay	-
KTP-5	-25.726901°	28.089055°	2.31	Refusal on a very dense residual sandy clay	-
KTP-6	-25.726541°	28.089468°	2.55	Refusal on a very dense residual sandy clay	-
KTP-7	-25.725775°	28.089176°	2.20	Refusal on a very dense residual sandy clay	-
KTP-8	-25.725515°	28.089404°	2.80	Refusal on a very dense residual sandy clay	-



Figure 3: Showing trial pits positions

Soil testing was conducted on disturbed soil samples, and the tests conducted were for:

- The determination of Foundation Indicators (comprising sieve and hydrometer grading analyses and Atterberg Limits),
- Determination of compaction characteristics (comprising Mods, i.e. maximum dry densities (MDD) and optimum moisture contents (OMC), as well as CBR's), and
- Determination of soil corrosiveness (comprising pH and conductivity).

The data gained via the aforementioned activities is presented in this report as follows:

- | | | |
|--|---|------------|
| • Summary of soil and rock profile descriptions | - | Appendix A |
| • Soil profile descriptions – test pitting- | | Appendix B |
| • Laboratory results | | Appendix C |
| • Geotechnical classification for urban development | | Appendix D |
| • Residential site class designations (NHBRC Home Building Manual) | | Appendix E |
| • Site Zonation Plan | | Appendix F |
| • Site Pictures | | Appendix G |

5. SEISMICITY ASSESSMENT

According to the published seismic hazard map of South Africa (Kijko, et. al. 2003), the value for the peak ground acceleration at the site is 0.16 m/s² (shown in figure 3 below).

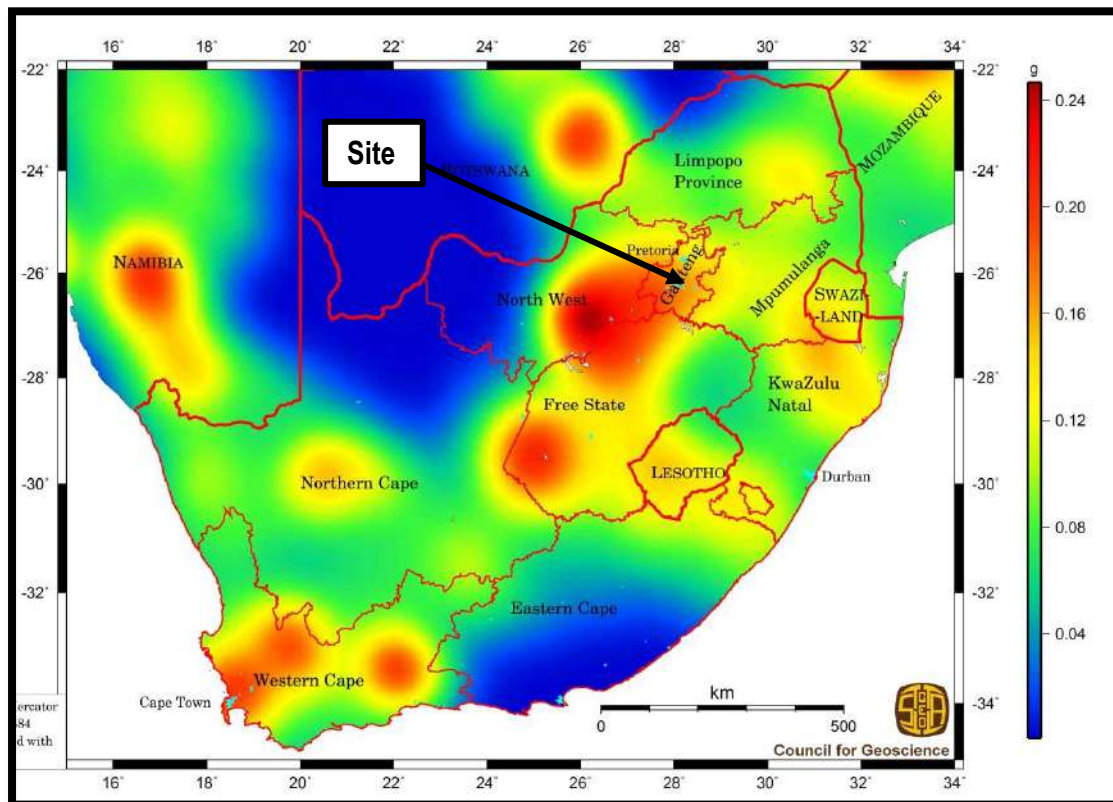


Figure 4: Peak ground acceleration (g) with 10% probability for being exceeded in a 50 year old period

The peak ground acceleration expresses the seismic hazard and the value of 0.16 m/s² may be considered moderate to high. The high seismicity may be due to the underground mining in the vicinity of the study area. A 10% probability exists that this value will be exceeded in a 50-year period.

6. GEOLOGY

According to the 1:250 000 geological map of the Pretoria Sheet 2528 (Council for Geoscience, 1986), the site is underlined by quartzite (Vdq) of the Daaspoort formation of Pretoria group. **Figure 5** below shows the geological map of the area.

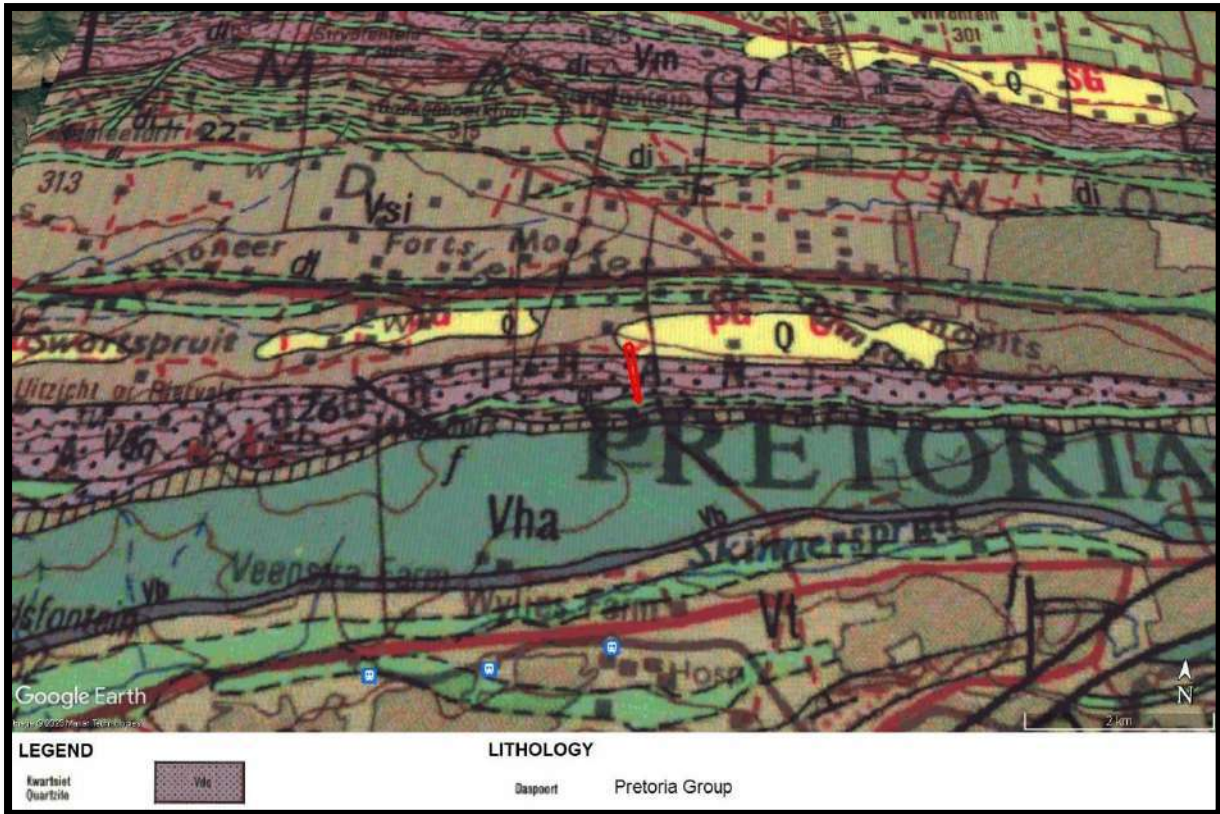


Figure 5: Showing the general geology map of the site area (highlighted in red); (Geological Survey, printed by the Government Printer, Pretoria, 1976).

7. RESULTS OF THE INVESTIGATION

The detailed descriptions of the soil profiles encountered in the test pits are presented in Appendix B; while the geological profiles are summarised below for the whole site, based on the soil profiles. The geological profiles as recorded in test pits are summarised below.

The geotechnical investigation revealed that the profile across the site is uniform, comprising of the following horizons:

- Topsoil
- Transported
- Pedogenic
- Residual Clayey Sand

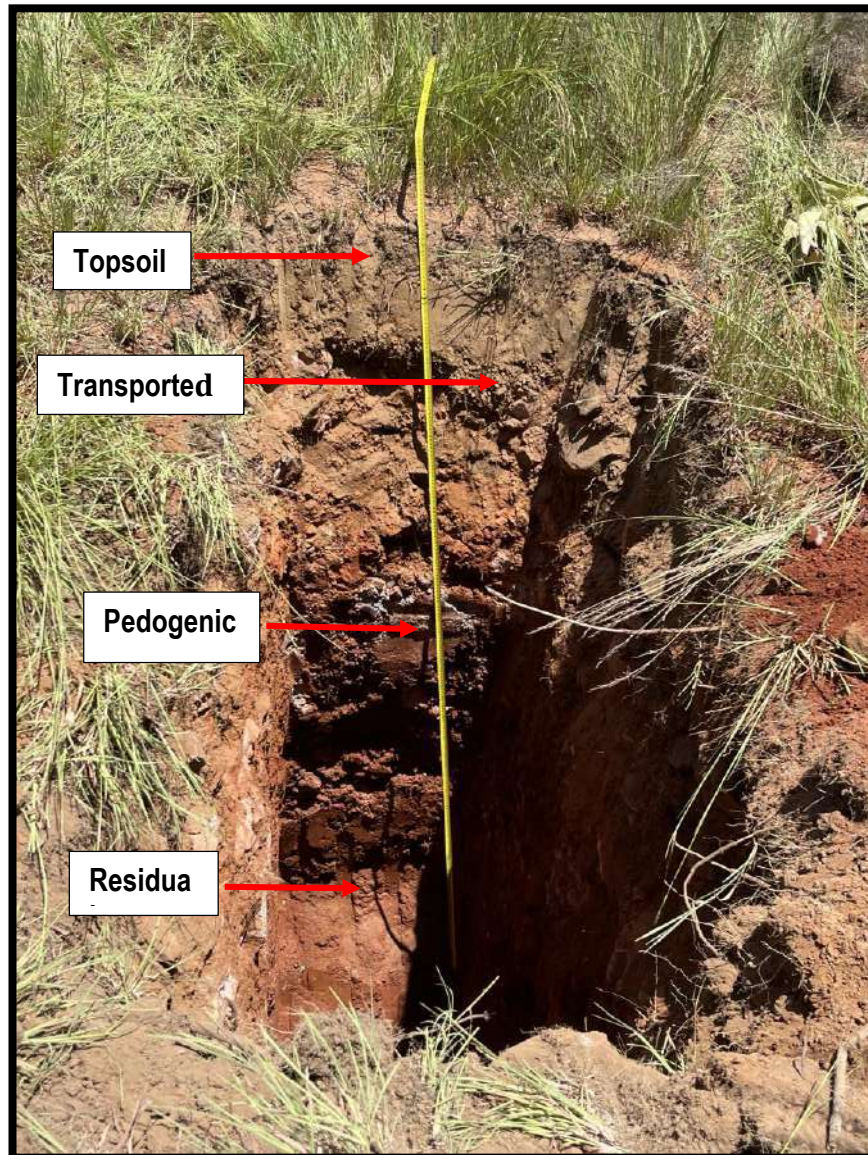


Figure 6: Showing the different soil profiles

These soil horizons are described in more detail below:

Topsoil

This layer was intersected in most of the test pits excavated and profiled on site. It comprises slightly moist, yellowish brown, loose to medium dense, intact silty sand.

Transported

The transported horizon, which occurs in all of the test pits on site, comprises slightly moist, reddish brown (yellowish orange in places), intact, clayey sand. The consistency was generally profiled as being medium dense to dense.

Pedogenic

The pedogenic horizon generally occurs as slightly moist, orangey brown; yellowish brown, dense to very dense, intact gravel in a matrix of clayey sand with nodular ferricrete. This horizon grades into a hardpan ferricrete on which refusal of the TLB occurred.

Residual

The residual shale horizon comprises slightly moist to moist, yellowish purple grey and, shattered, clayey sandy silt with minor gravels. It was profiled as having a consistency ranging from firm to very stiff. The horizon extends to depths beyond 2.20 m.

8 GROUNDWATER CONDITIONS

No groundwater seepage was intercepted in all the test pits excavated and profiled at the site. Ferruginization was noted in all the test pits profiled at the site, which indicates that a changing water regime can be expected. Problems due to groundwater seepage are therefore anticipated, especially during and after a very wet rainy season.

9 LABORATORY TESTS

9.1 Foundation Indicators

Representative samples were collected for laboratory testing at each test pit position and submitted for foundation indicator tests. The test results are attached in Appendix C and summarised in Table 2.

Table 2: Foundation Indicators

Sample No.	Depth (m)	Soil Composition				GM	Atterberg Limits			Activity	Unified Soil Classification
		Clay (%)	Silt (%)	Sand (%)	Gravel (%)		LL (%)	PI (%)	LS (%)		
Transported Material											
KTP-2	0.0-0.50	7	7	25	61	2.09	26	9	3.5	LOW	GC
KTP-3	0.0-0.59	20	12	21	47	1.65	44	21	9.5	LOW	SC
KTP-6	0.0-0.30	9	9	24	58	2.05	26	9	4.0	LOW	SC
Residual Material											
KTP-1	0.56 – 2.69	37	28	32	3	0.31	46	17	7.5	LOW	ML
KTP-6	0.30 – 1.2	14	13	35	38	1.51	37	14	6.0	LOW	SC

Legend	GM	=	Grading modulus
	LL	=	Liquid Limit
	WPI	=	Weighted Plasticity Index
	LS	=	Linear Shrinkage

SC	=	Clayey Sand
ML	=	Silt
GC	=	Clayey Gravel
Activity	=	Potential expansiveness of the soil according to Van der Merwe's method (Van der Merwe, 1973)

Table 2 indicates that:

The **transported** horizon consists of clayey sands (**SC**) and occasionally has clayey gravel (**GC**). The horizon has a very high (1.65 to 2.09) grading moduli. The fine fractions of this material also exhibit moderate (26%) to high (44%) liquid limit and a moderate (3.5% to 9.5%) linear shrinkage, indicating that the material has a low to moderate plasticity characteristics. The material has a low potential expansiveness, according to the method proposed by Van der Merwe (1973).

The **residual clayey sand** horizon comprises of silts (**ML**) and clayey sands (CH). The horizon has low (0.31) to high (1.51) grading moduli. The fine fractions of this material also exhibit moderate (37%) to high (46%) liquid limit and a low (6.0%) to moderate (7.5) linear shrinkage, indicating a material having low to medium plasticity characteristics. The material generally has a low to medium potential expansiveness according to the method proposed by Van der Merwe (1973).

9.2 Compaction Test

Table 3: Summary of compaction test

Sample no.	Depth (m)	OMC (%)	MDD (kg/m ³)	Swell (%)	CBR at various densities					TRH14
					90%	93%	95%	98%	100%	
Transported Material										
KTP – 2	0.0 – 0.50	8.1	2127	0.4	16	22	26	35	43	G6

Where: OMC = Optimum moisture content
MDD = Maximum dry density (Mod AASHTO)
Swell = Soaked at 100% Mod AASHTO compaction

The **residual material** has a high (2127 kg/m³) maximum dry density and a low (8.1%) optimum moisture content value. The CBR swell values are low and the tests yielded very high CBR values at densities typically specified in the field (93 % to 95 %). The material is classified as G6 according to the TRH 14 guidelines (CSIR: 1987).

This material classifies as “**G6**” according to the COLTO classification. The **G6** material is considered suitable for the construction of an engineered fill in moderate stiffness of engineered fills.

9.3 Chemical Tests

The chemical test results comprising pH and conductivity are listed in Table 5 as well as Appendix C. Several environmental factors have an effect on buried metals. These factors are:

- Electrical conductivity of the soil
- Chemical properties of the soil
- Ability of the soil to support sulphide reducing bacteria
- Heterogeneity of the soil (long-line currents)
- Differential aeration
- Stray currents in the soil, and
- Bacteria attack

The conductivity of the soil has a profound influence on the rate of corrosion of buried metallic objects. Based on significance of soil resistivity on corrosivity, Duligal (1996) provides the following table for evaluation of the conductivity of soil:

Table 4: Guideline values for interpretation of soil conductivity (Duligal, 1996)

Soil conductivity		
Soil conductivity (mS/m)	Soil resistivity (Ohm.cm)	Corrosively classification
More than 50	0 – 2000	Extremely corrosive
25 – 50	2000 – 4000	Very corrosive
20 – 25	4000 – 5000	Corrosive
10 – 20	5000 – 10000	Mildly corrosive
Less than 10	>10000	Not generally corrosive

Disturbed samples of the residual material were taken and subjected to chemical (pH and conductivity) tests. The test results are summarised as follows.

Based on Evans guideline (1977), a soil pH less than 6 indicates serious corrosion potential.

Table 5: Chemical Test

Hole no.	Depth (m)	pH	Conductivity (mS/m)
Transported			
KTP-2	0.0-0.50	5.74	0.00244

KTP-3	0.0-0.59	6.58	0.0317
KTP-6	0.0-1.0.30	5.54	0.0281
Residual			
KTP-1	0.56-2.69	5.74	0.0085
KTP-6	0.30-1.12	5.63	0.0145

According to the soil conductivity guideline values in **Error! Reference source not found.** (Duligal, 1996) and the results in **Error! Reference source not found.**, the transported material and the Residual on this particular site are not corrosive. Corrosion of buried metallic elements is therefore unlikely.

10 GEOTECHNICAL CONSIDERATION

The purpose of the investigation is to provide a broad overview and classification of the suitability of the land for the proposed development and outline obvious constraints. The following constraints, as proposed by Partridge, Wood and Brink (1993), have to be considered for the classification of the sites for urban development:

- Collapsible / compressible soil profile;
- Shallow seepage or groundwater level;
- Expansive soil profile;
- Erodibility of the soil profile;
- Excavatibility;
- Undermined ground;
- Instability of areas of soluble rock;
- Steep slopes;
- Unstable natural slopes;
- Seismic activity; and
- Areas subject to flooding.
- Other considerations

Each of the above-mentioned constraints and its applicability to this specific site is discussed in the sections that follow:

10.1 Collapsible / Compressible soil profile

The transported horizon on site is generally described as predominantly clayey material (clayey sand). These horizons were generally slightly moist and it is expected that the materials will soften when inundated. From our experience and investigations carried out in the vicinity of this site these transported sandy soils are likely to be compressible. However, no laboratory tests were performed to support this consideration as explained above.

10.2 Shallow seepage or groundwater level

No groundwater seepage was intercepted in all the test pits excavated and profiled at the site. Ferruginization was noted in all the test pits profiled at the site, which indicates that a changing water regime can be expected. Problems due to groundwater seepage are therefore anticipated, especially during and after a very wet rainy season.

Not only will seepage and future wetting of the soil profile contribute to compressibility problems, but it will influence drainage conditions below structures. It may also have an effect on the stability of excavations potentially to be made in future, such as for cut and fill operations associated with platforms constructed for buildings with fairly large floor areas. Subsoil drainage should be provided to reduce permeation of water into the foundations.

10.3 Expansive Soil Profile

Most part of the site is underlain by sandy clay. The laboratory results revealed that the **residual material on this site is low to moderately expansive**.

10.4 Erodibility of the soil profile

The surface at the site is covered by clayey sand material thus possibly prone to erodibility due to the sandy nature of the covering material on site; however, it must be noted that no significant erosion channels were encountered during the investigation. Also, the proposed site is covered with grass, there is therefore a reduced risk of erodibility problems. Limited erosion problems are expected.

10.5 Excavatability

The ease at which the soil can be excavated is an important criterion in the selection of a site. The excavation characteristics of the strata have been estimated from the performance of the TLB used for the investigation as per the terms of SABS 1200D.

Refusal was encountered in all eight (8 No) of the test pits excavated on site, on hardpan ferricrete, and residual clayey sand. "Hard excavation" in terms of SABS 1200D can be expected where the TLB refused. Machine excavatability for the installation of services is therefore expected to be problematic with a backhoe where TLB refused.

10.6 Instability of areas of soluble rock

No indication of the presence of soluble rock formations was found during the desk study or field investigation.

10.7 Steep slopes

The site is characterised by a fairly steep surface. Therefore, there is no risk of slope instability.

10.8 Seismic activity

According to Kijko et. al (2003), the peak ground acceleration for the area is less than 0.16 m/s^2 , with a 10% probability of being exceeded in a 50-year period. The seismic activity in the area is therefore moderate to high. The high seismicity may be due to the mining in the vicinity of the study area

10.9 Areas subject to flooding

It is unlikely that the development will be subject to flooding seeing that there are no streams or drainage features on the property. A flood line study falls outside of our current scope of work. The site is reasonably sloppy and the draining of surface water will not be a problem.

11 ENGINEERING GEOLOGICAL ZONING

For urban planning purposes the site is zoned according to the NHBRC classification systems. Due to the presence of potentially compressible transported horizon and slightly expansive residual horizon and over the entire site and a large portion of rock, the site has been delineated into two geotechnical zone. The zonation is also shown in the zonation plan in Appendix F. The description of the zones are as follows:

Zone S2/H1: This zone covers the entire site and is characterised by relatively thick compressible soil profile with S2 (total normal settlement $>20\text{mm}$). These transported soils are underlain by relatively thick fine-grained soils with moderate plasticity (clays, silty clays, clayey silts and sandy clays) with total expected movements between 7.5 mm and 15 mm.

Zone R (Rock): This zone is characterised by rock (the outcropping sandstone rock on the mountain).

12 RECOMMENDATIONS

Recommendations are provided regarding the following:

- Development in general;
- Founding of light structures;
- Construction materials;

- Drainage measures: and
- General.

12.1 DEVELOPMENT

No adverse conditions prohibiting the construction of structures for residential development were encountered at the site. A rock, covering an area of approximately 6.2ha (as shown in Appendix G)

It is recommended that the housing development proceed subject to the following conditions:

- Special founding solutions must be implemented for all high-rise structures as per the recommendations made in this report.

12.2 Founding of structures

According to the NHBRC guidelines the following founding solutions can be implemented for the zones:

Zone H1:

- Modified normal
- Soil raft

Zone S2:

- Concrete raft
- Deep strip foundations
- Pile foundations
- Soil raft

The common solutions between the two sit classes are:

- Soil raft

The site preparation requirements identified below are aimed at preparing foundation, removal of any unsuitable materials and densification of the ground. The presence of clay material below transported material may lead to significant differential settlement and cracking or distortion of structures.

Construction of a soil raft entails the following:

- Strip all topsoil, vegetation and organic soils and stockpile. This material could be used for landscaping, but is not suitable for use as engineered fill.
- Remove the in-situ material in an area 1 m wider than the footprint of the structure to a depth of 1.5 m. The excavation must be battered at a slope of 60° Stockpile this material separately for potential re-use for landscaping.
- Backfill the excavation in 150 mm thick layers with G6 quality materials (in accordance with TRH14) in

maximum 0.15 m layers (loose spread) and compacted to not less than 98% Mod AAHSTO density within 2% of OMC. The residual material encountered on site is considered suitable for this purpose.

- concrete raft foundations should be placed at a shallow depth (0.5 m) in the soil raft.

In addition:

- Storm water must be managed such that it is kept away from earthworks. All loosened material shall be either recompacted or excavated and replaced with compacted engineered fill.
- It is recommended that the founding conditions be verified on site by a competent geotechnical engineer during construction.
- Temporary lateral supports are to be designed and installed during construction to support the excavation.

The expected contact load on the concrete raft will be in the region of 50 KPa as the load is distributed evenly on the entire raft. The expected total settlement is 23 mm on the concrete raft foundation founded ≤ 0.5 m below natural ground level. The residual materials have an ultimate bearing capacity of 501kPa, and an allowable bearing capacity of 167kPa.

A concrete raft placed on top of the engineered fill prepared as described above would be suitable for founding the proposed development. Construction of reinforced concrete rafts under the entire footprint of the structure on competent founding material. Remove all or part of expansive horizon to 1,0 m 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 to prevent differential settlements.

The final design of the recommended foundation solutions should be checked by a competent geotechnical engineer before the construction of foundations. Development can take place provided appropriate precautions against differential settlement are implemented.

Zone R:

Developing on zone R will be a challenge because the preparation of foundations will require blasting of the rock which is expensive.

12.3 Construction Material

This residual material classifies as “**G6**” according according to the TRH 14 guidelines (CSIR: 1987). The **G6** material is considered suitable for the construction of an engineered fill in moderate stiffness of engineered fills.

12.4 Stability of Excavations

It is strongly recommended that all excavations exceeding 1.5m should have a proper sidewall protection to ensure safety of workers.

It is recommended that all deeper temporary excavations and excavations experiencing seepage will require trimming the slope and ensuring that any loose materials in upper soil layers are removed before workers are allowed into the excavations. Slope angles in excavations should not exceed 30 degrees. Shoring is required for excavations extending depths of 3 m below surface level.

12.5 Drainage measures

The following drainage measures must be implemented:

- No accumulation of surface water is permitted, and the entire development must be properly drained.
- All trenches and excavations must be properly backfilled and compacted in 150 mm thick layers and compacted to 90% of modified AASHTO density.

13 GENERAL

It is important though that the guidelines given above, inspection of foundation excavations and the involvement of a competent engineer familiar with structural founding are necessary.

The preliminary recommendations included in this report relate only to the specific footprint on the site that has been investigated. Where ground conditions are at variance with those discussed in this report do occur, such conditions should be inspected by competent personnel to ensure that they do not pose a problem for the development.

The purpose of the preliminary report is to make an initial determination for an identified land as to whether or not the land is fit for human settlement with regard the founding conditions. It is furthermore recommended that the founding conditions for individual structures should be investigated.

The site is considered suitable for the proposed development provided that the recommendations made in this report are adhered too.

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Appendix A

SUMMARY OF STANDARD SOIL AND ROCK PROFILE DESCRIPTION TERMINOLOGY

STANDARD DESCRIPTIONS USED IN SOIL PROFILING

1. MOISTURE CONDITION		2. COLOUR	
Term	Description	The Predominant colours or colour combinations are described including secondary coloration described as banded, streaked, blotched, mottled, speckled or stained.	
Dry			
Slightly moist	Requires addition of water to reach optimum moisture content for compaction		
Moist	Near optimum content		
Very Moist	Requires drying to attain optimum content		
Wet	Fully saturated and generally below water table		
3. CONSISTENCY			
3.1 Non-Cohesive Soils		3.2 Cohesive Soils	
Term	Description	Term	Description
Very Loose	Crumbles very easily when scraped with geological pick	Very soft	Easily penetrated by thumb. Sharp end of pick can be pushed in 30 - 40mm. Easily moulded by fingers.
Loose	Small resistance to penetration by sharp end of geological pick	Soft	Pick head can easily be pushed into the shaft of handle. Moulded by fingers with some pressure.
Medium Dense	Considerable resistance to penetration by sharp end of geological pick	Firm	Indented by thumb with effort. Sharp end of pick can be pushed in up to 10mm. Can just be penetrated with an ordinary spade.
Dense	Very high resistance to penetration to sharp end of geological pick. Requires many blows of hand pick for excavation.	Stiff	Penetrated by thumbnail. Slight indentation produced by pushing pick point into soil. Cannot be moulded by fingers. Requires hand pick for excavation.
Very stiff	High resistance to repeated blows of geological pick. Requires power tools for excavation	Very Stiff	Indented by thumbnail. Slight indentation produced by blow of pick point. Requires power tools for excavation.
4. STRUCTURE		5. SOIL TYPE	
Term	Description	5.1 Particle Size	
		Term	Size (mm)
Intact	Absence of fissures or joints	Boulder	>200
Fissured	Presence of closed joints	Pebbles	60 – 200
Shattered	Presence of closely spaced air filled joints giving cubical fragments	Gravel	60 – 2
Micro-shattered	Small scale shattering with shattered fragments the size of sand grains	Sand	2 – 0,06
Slickensided	Polished planar surfaces representing shear movement in soil	Silt	0,06 – 0,002
Bedded Foliated	Many residual soils show structures of parent rock.	Clay	<0,002
6. ORIGIN		5.2 Soil Classification	
6.1 Transported Soils			
Term	Agency of Transportation		
Colluvium	Gravity deposits		
Talus	Scree or coarse colluvium		
Hillwash	Fine colluvium		
Alluvial	River deposits		
Aeolian	Wind deposits		
Littoral	Beach deposits		
Estuarine	Tidal – river deposits		
Lacustrine	Lake deposits		
6.2 Residual soils		<p>These are products of in situ weathering of rocks and are described as e.g. Residual Shale</p>	
<p>These are products of in situ weathering of rocks and are described as e.g. Residual Shale</p>			
6.3 Pedocretes		<p>Formed in transported and residual soils etc. calcrete, silcrete, manganocrete and ferricrete.</p>	
<p>Formed in transported and residual soils etc. calcrete, silcrete, manganocrete and ferricrete.</p>			

SUMMARY OF DESCRIPTIONS USED IN ROCK CORE LOGGING

1. WEATHERING				
Term	Symbol	Diagnostic Features		
Residual Soil	W5	Rock is discoloured and completely changed to a soil in which original rock fabric is completely destroyed. There is a large change in volume.		
Completely Weathered	W5	Rock is discoloured and changed to a soil but original fabric is mainly preserved. There may be occasional small corestones.		
Highly Weathered	W4	Rock is discoloured, discontinuities may be open and have discoloured surfaces, and the original fabric of the rock near the discontinuities may be altered; alteration penetrates deeply inwards, but corestones are still present.		
Moderately Weathered	W3	Rock is discoloured, discontinuities may be open and will have discoloured surfaces with alteration starting to penetrate inwards, intact rock is noticeably weaker than the fresh rock.		
Slightly Weathered	W2	Rock may be slightly discoloured, particularly adjacent to discontinuities, which may be open and will have slightly discoloured surfaces, the intact rock is not noticeably weaker than the fresh rock.		
Unweathered	W1	Parent rock showing no discolouration, loss of strength or any other weathering effects.		
2. HARDNESS			3. COLOUR	
Classification	Field Test	Compressive Strength Range MPa	The predominant colours or colour combination are described including secondary colouration described as banded, streaked, blotched, mottled, speckled or stained.	
Extremely Soft Rock	Easily peeled with a knife	<1		
Very Soft Rock	Can be peeled with a knife. Material crumbles under firm blows with the sharp end of a geological pick.	1 to 3		
Soft Rock	Can be scraped with a knife, indentation of 2 to 4 mm with firm blows of the pick point.	3 to 10		
Medium Hard Rock	Cannot be scraped or peeled with a knife. Hand held specimen breaks with firm blows of the pick.	10 to 25		
Hard Rock	Point load tests must be carried out in order to distinguish between these classifications	25 - 70		
Very Hard Rock	These results may be verified by uniaxial compressive strength tests on selected samples.	70 - 200		
Extremely Hard Rock		>200		
4. FABRIC				
4.1 Grain Size		4.2 Discontinuity Spacing		
Term	Size (mm)	Description for: Bedding, foliation, laminations	Spacing (mm)	Descriptions for joints, faults, etc.
Very Coarse	>2,0	Very Thickly Bedded	> 2000	Very Widely
Coarse	0,6 – 2,0	Thickly Bedded	600 – 2000	Widely
Medium	0,2 – 0,6	Medium Bedded	200 – 600	Medium
Fine	0,06 – 0,2	Thinly Bedded	60 – 200	Closely
Very Fine	< 0,06	Laminated	3 – 60	Very closely
		Thinly Laminated	<3	
5. ROCK NAME			6. STRATIGRAPHIC HORIZON	
Classified in terms of origin:				
IGNEOUS	Granite, Diorite, Gabbro, Syenite, , Dolerite, Trachyte, Andesite, Andesite.		Identification of rock type in terms of stratigraphic horizons.	
METAMORPHIC	Slate, Felsite, Gneiss, Schist, Quartzite			
SEDIMENTARY	Shale, Siltstone, Sandstone, Dolomite, Conglomerate, Tillite, Limestone.			

Appendix B

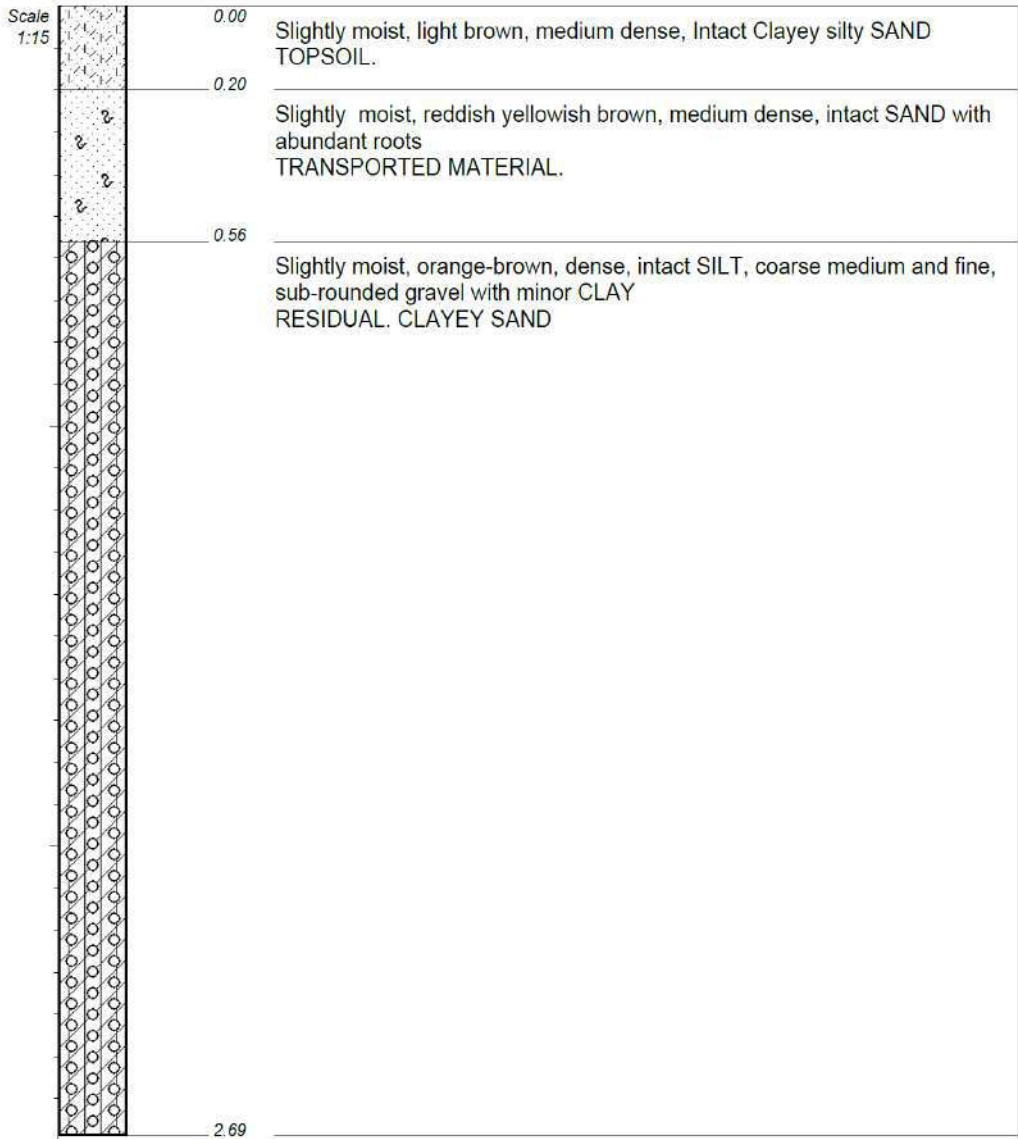
SOIL PROFILE DESCRIPTION



Kirkney Farm Zandfontein

HOLE No: **KTP-1**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS



NOTES

- 1) Sidewalls are stable.
- 2) No refusal
- 3) No groundwater or water seepage

CONTRACTOR : DGS
MACHINE : TLB
DRILLED BY :
PROFILED BY : VV
TYPE SET BY :
SETUP FILE : STANDARD.SET

INCLINATION :
DIAM :
DATE : 23/01/2023
DATE : 26/02/2023 12:10
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Y-COORD :

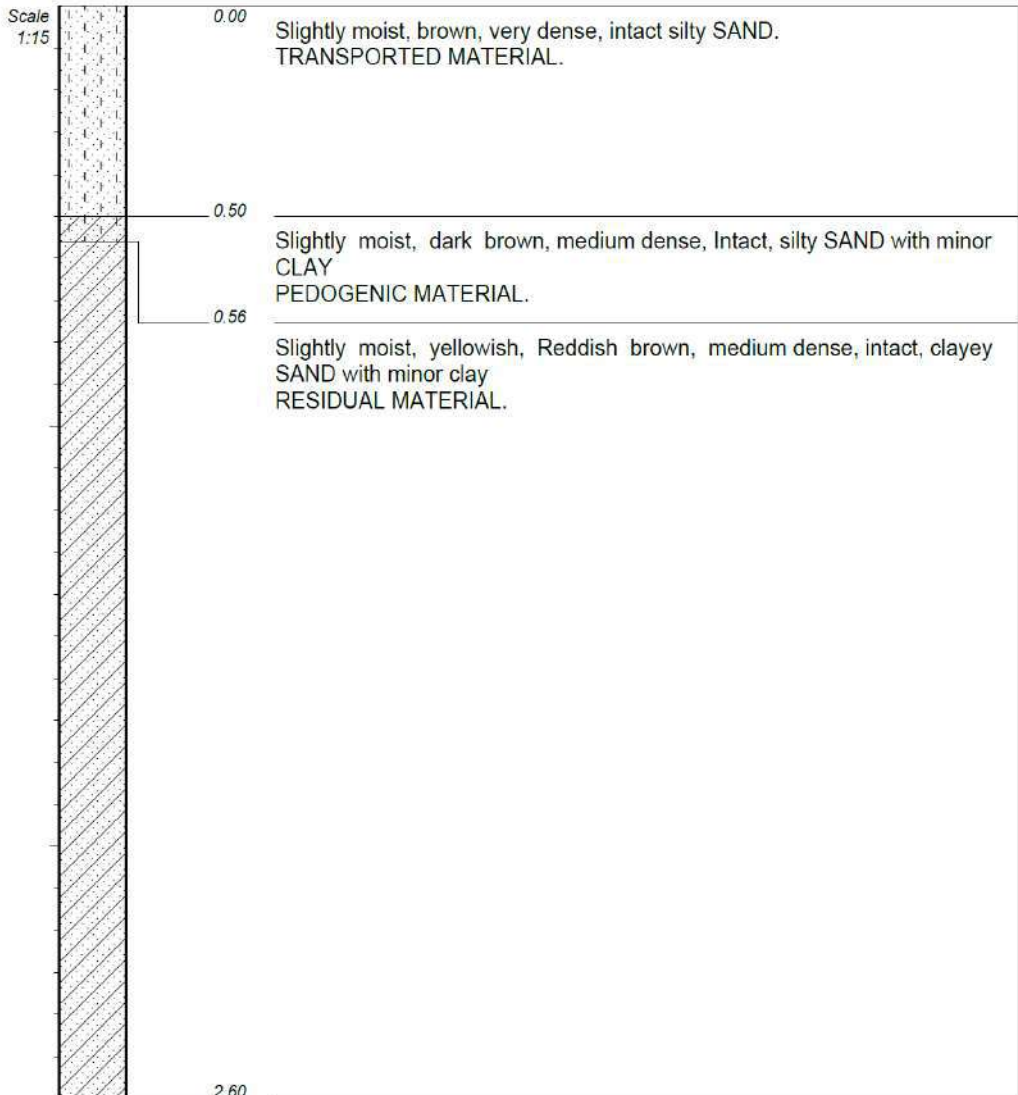
HOLE No: **KTP-1**
Kirkney



Kirkney Farm Zandfontein

HOLE No: **KTP-2**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS



END OF HOLE.

NOTES

- 1) Sidewalls are stable.
- 2) No refusal
- 3) No groundwater or water seepage.

CONTRACTOR : DGS
 MACHINE : TLB
 DRILLED BY :
 PROFILED BY : VV
 TYPE SET BY :
 SETUP FILE : STANDARD.SET

INCLINATION :
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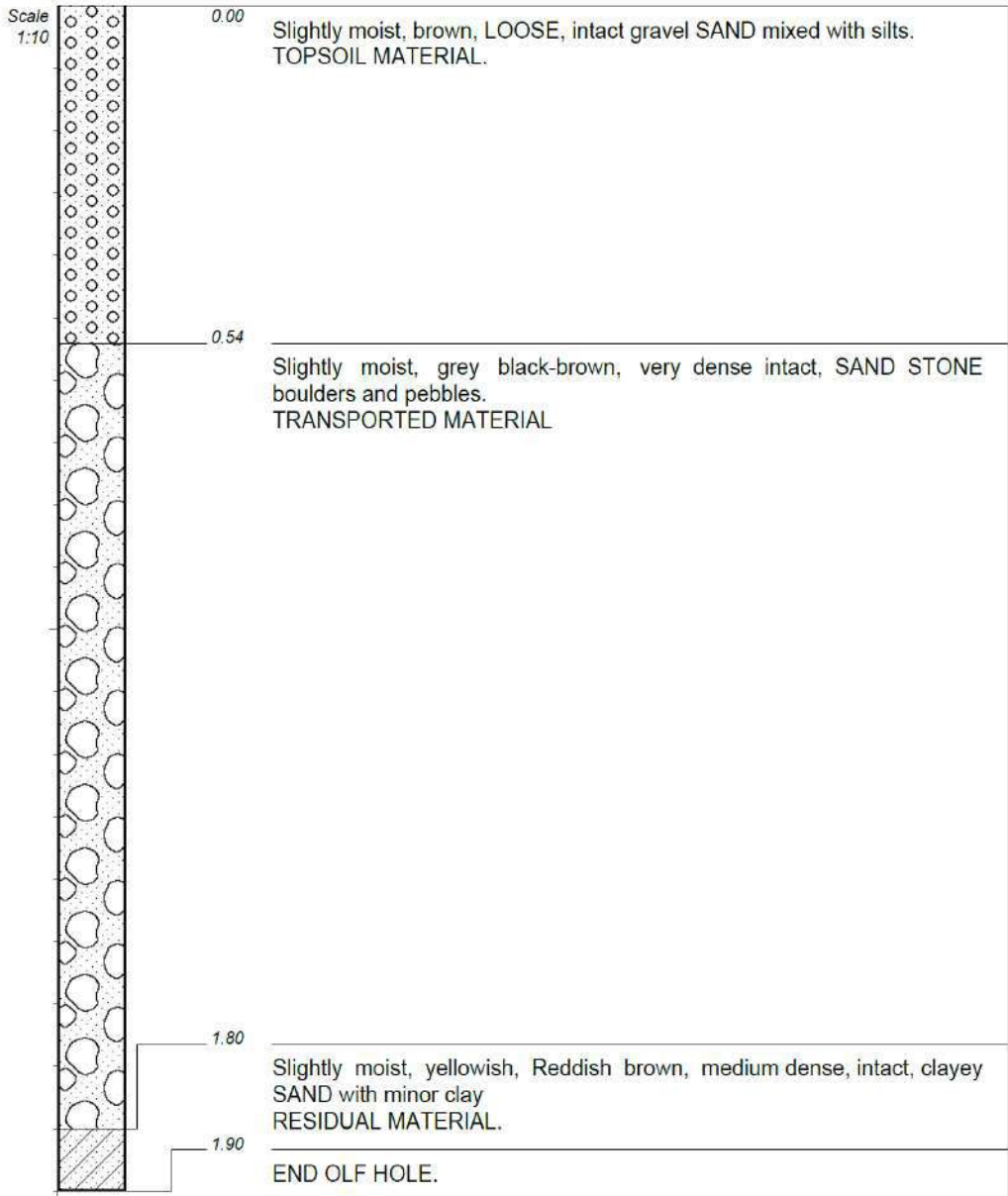
HOLE No: **KTP-2**
Kirkney



Kirkney Farm Zandfontein

HOLE No: **KTP-3**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS



- NOTES
- 1) Sidewalls are stable.
 - 2) Refusal on a very dense residual Sand Stone
 - 3) No groundwater or water seepage.

CONTRACTOR : DGS
 MACHINE : TLB
 DRILLED BY :
 PROFILED BY : VV
 TYPE SET BY :
 SETUP FILE : STANDARD.SET

INCLINATION :
 DIAM :
 DATE : 23/01/2023
 DATE : 26/02/2023 12:10
 TEXT : ..00\Examples\Examples.TXT

ELEVATION :
 X-COORD :
 Y-COORD :

HOLE No: **KTP-3**
Kirkney

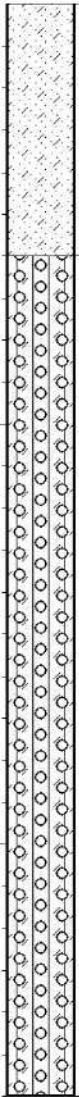


Kirkney Farm Zandfontein

HOLE No: **KTP-4**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS

Scale
1:15



0.00

Slightly moist, Light-brown, medium dense, Intact, clayey SAND.
TRANSPORTED MATERIAL.

0.60

Slightly moist, dark orange-brown, Firm, shattered clayey SILT, coarse
medium and fine, sub-rounded gravel
RESIDUAL MATERIAL.

2.60

END OF HOLE.

NOTES

- 1) Sidewalls are stable.
- 2) Refusal at a very stiff residual sandstone
- 3) No groundwater or water seepage.

CONTRACTOR : DGS
MACHINE : TLB
DRILLED BY :
PROFILED BY : VV

INCLINATION :
DIAM :
DATE : 23/01/2023

ELEVATION :
X-COORD :
Y-COORD :

TYPE SET BY :
SETUP FILE : STANDARD.SET

DATE : 26/02/2023 12:10
TEXT : ..00\Examples\Examples.TXT

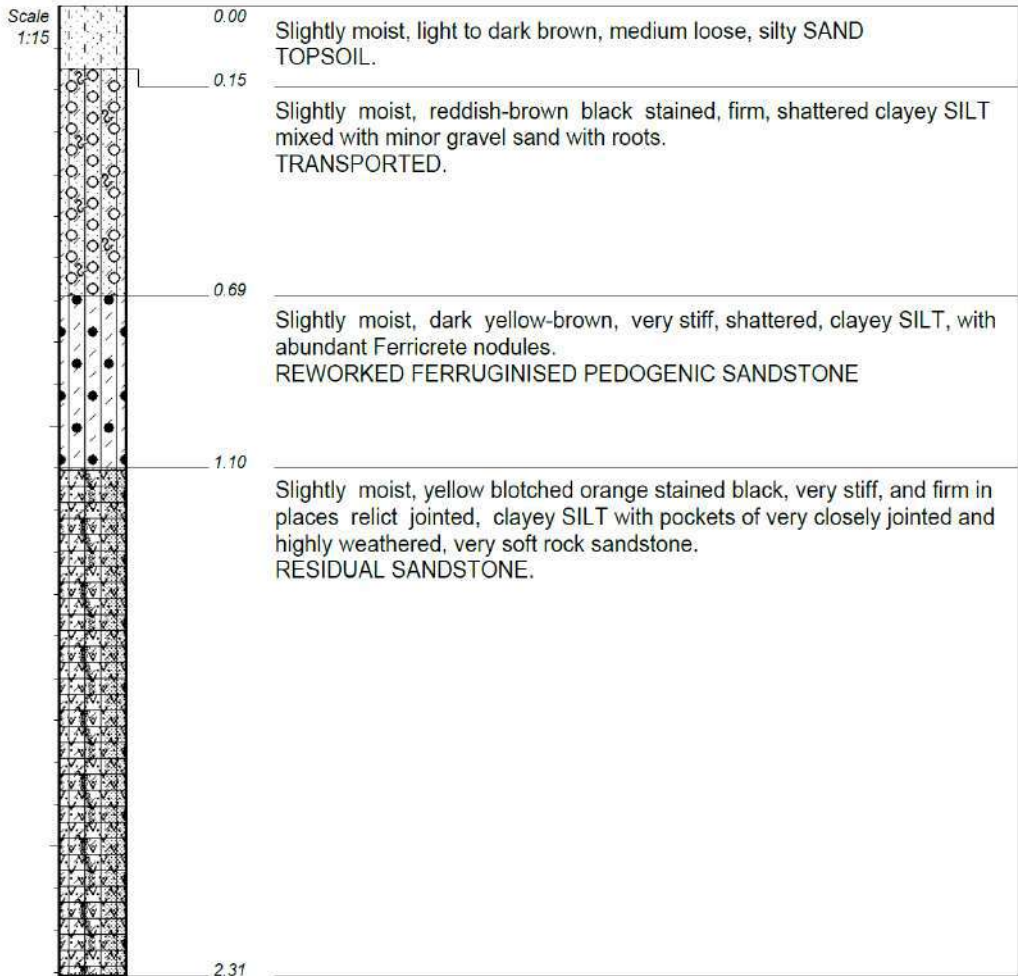
HOLE No: **KTP-4**
Kirkney



Kirkney Farm Zandfontein

HOLE No: **KTP-5**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS



NOTES

- 1) Sidewalls are stable.
- 2) Refusal at a very stiff residual sandstone.
- 3) No groundwater or water seepage.

CONTRACTOR : DGS
MACHINE : TLB
DRILLED BY :
PROFILED BY : VV
TYPE SET BY :
SETUP FILE : STANDARD.SET

INCLINATION :
DIAM :
DATE : 23/01/2023
DATE : 26/02/2023 12:10
TEXT : ..00\Examples\Examples.TXT

ELEVATION :
X-COORD :
Y-COORD :

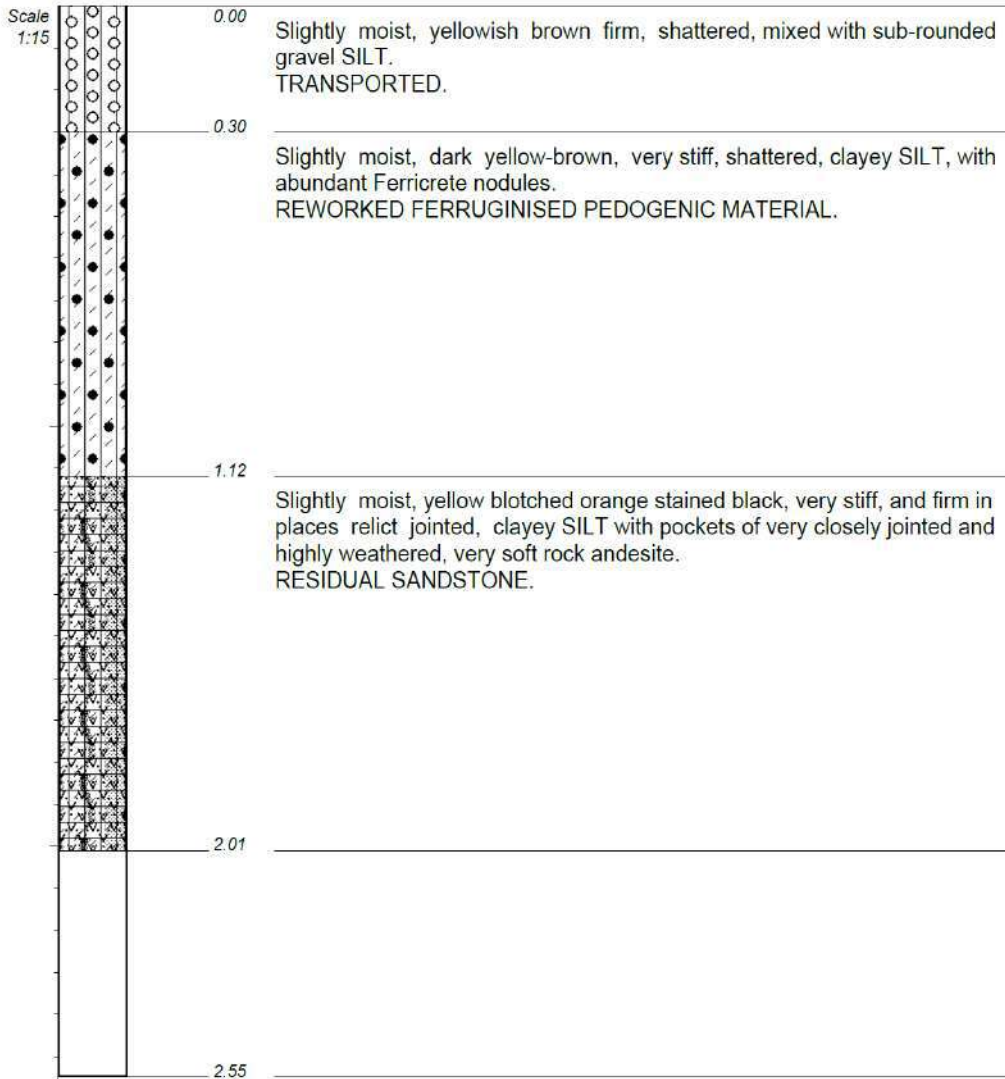
HOLE No: **KTP-5**
Kirkney



Kirkney Farm Zandfontein

HOLE No: **KTP-6**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS



- NOTES
- 1) Sidewalls are stable.
 - 2) Refusal at a very stiff residual clayey sand
 - 3) No groundwater or water seepage.

CONTRACTOR : DGS
 MACHINE : TLB
 DRILLED BY :
 PROFILED BY : VV
 TYPE SET BY :
 SETUP FILE : STANDARD.SET

INCLINATION :
 DIAM :
 DATE : 23/01/2023
 DATE : 26/02/2023 12:10
 TEXT : ..00\Examples\Examples.TXT

ELEVATION :
 X-COORD :
 Y-COORD :
 HOLE No: **KTP-6**
 Kirkney

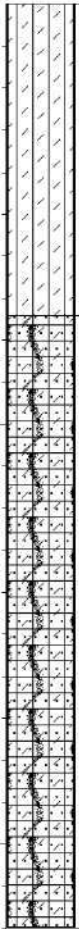


Kirkney Farm Zandfontein

HOLE No: **KTP-7**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS

Scale
1:15



0.00

Slightly moist, dark yellow-brown, very stiff, shattered, clayey SILT, with abundant nodules.
TRANSPORTED MATERIAL.

0.74

Slightly moist, yellow blotched orange stained black, very stiff, and firm in places relict jointed, clayey SILT with pockets of very closely jointed and highly weathered, very soft rock sandstone.
RESIDUAL SANDSTONE.

2.20

END OF HOLE.

NOTES

- 1) Sidewalls are stable.
- 2) Refusal at a very stiff residual clayey sand
- 3) No groundwater or water seepage.

CONTRACTOR : DGS
 MACHINE : TLB
 DRILLED BY :
 PROFILED BY : VV
 TYPE SET BY :
 SETUP FILE : STANDARD.SET

INCLINATION :
 DIAM :
 DATE : 23/01/2023
 DATE : 26/02/2023 12:10
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ELEVATION :
 X-COORD :
 Y-COORD :

HOLE No: **KTP-7**
Kirkney

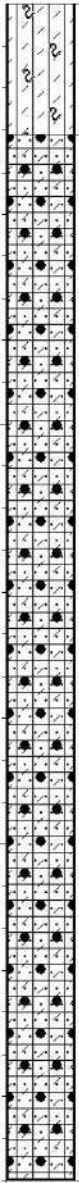


Kirkney Farm Zandfontein

HOLE No: **KTP-8**
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS

Scale
1:15



0.00

Slightly moist, dark yellow-brown, very stiff, shattered, clayey SILT, with abundant roots.
TRANSPORTED MATERIAL.

0.31

Slightly moist, dark yellow-reddish-brown, very stiff, shattered, clayey SILT, with abundant Ferricrete nodules.
REWORKED FERRUGINISED RESIDUAL SANDSTONE.

2.80

END OF HOLE.

NOTES

- 1) Sidewalls are collapsing.
- 2) Refusal at a very stiff residual sandstone
- 3) No groundwater or water seepage.

CONTRACTOR : DGS
MACHINE : TLB
DRILLED BY :
PROFILED BY : VV

INCLINATION :
DIAM :
DATE : 23/01/2023

ELEVATION :
X-COORD :
Y-COORD :

TYPE SET BY :
SETUP FILE : STANDARD.SET

DATE : 26/02/2023 12:10
TEXT : ..00\Examples\Examples.TXT

HOLE No: **KTP-8**
Kirkney



Kirkney Farm Zandfontein

LEGEND
Sheet 1 of 1

JOB NUMBER: GEOTECHNICAL INVESTIGATIONS

	BOULDERS	{SA01}
	GRAVEL	{SA02}
	SAND	{SA04}
	SILT	{SA06}
	SILTY	{SA07}
	CLAY	{SA08}
	CLAYEY	{SA09}
	SANDSTONE	{SA11}
	FERRICRETE NODULES	{SA19}{SA41}
	ROOTS	{SA24}
	POCKETS	{SA40}
		{SA60}

CONTRACTOR :
MACHINE :
DRILLED BY :
PROFILED BY :
TYPE SET BY :
SETUP FILE : STANDARD.SET

INCLINATION :
DIAM :
DATE :
DATE :
DATE : 26/02/2023 12:10
TEXT : ..00\Examples\Examples.TXT

ELEVATION :
X-COORD :
Y-COORD :
LEGEND
SUMMARY OF SYMBOLS

Appendix C

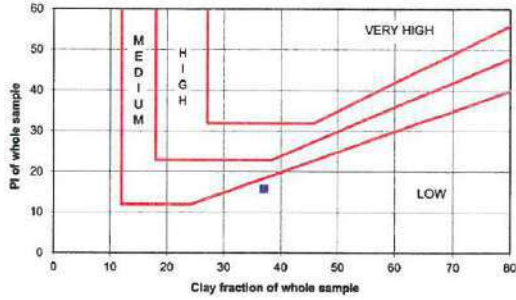
LAB RESULTS

PARTICLE SIZE ANALYSIS

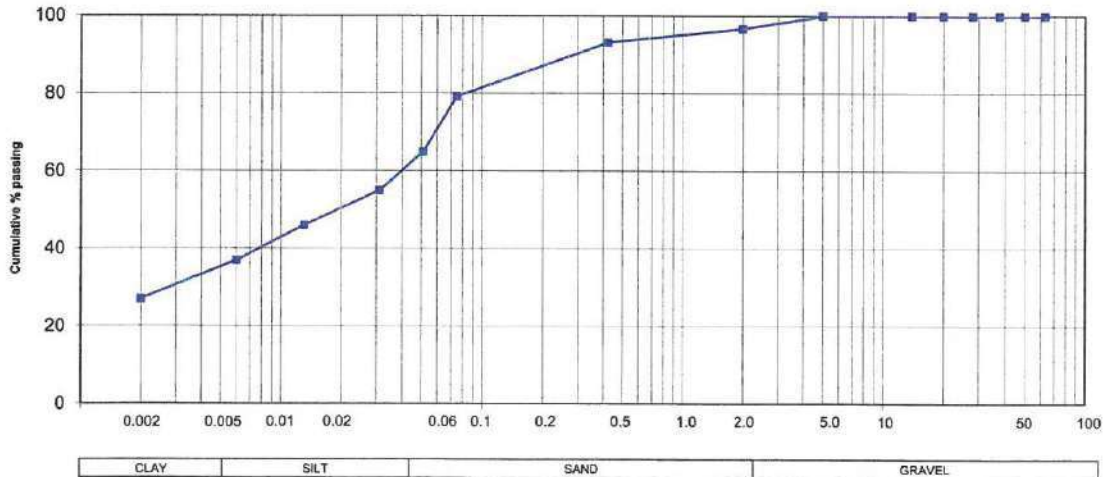
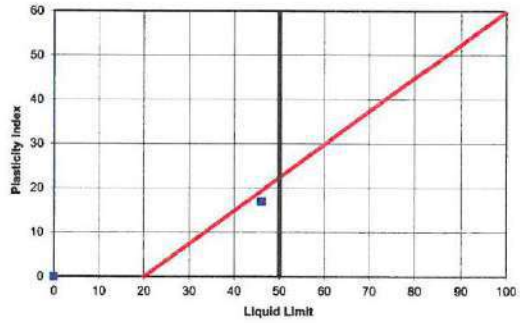
Sample No.	1
Soillab Sample No.	S20-0870-01
Depth (m)	0.56 - 2.69
Position	KTP-1
Material Description	LIGHT RED SANDY CLAY
Relative density on < 2 mm (SANS 5844)	2.65
Organic Material	
Moisture (%) / Dispersion (%)	
SCREEN ANALYSIS (% PASSING) (SANS 3001:GR1)	
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
5.0 mm	100
2.00 mm	97
0.425 mm	93
0.075 mm	79
HYDROMETER ANALYSIS (% PASSING) (SANS 3001:GR3)	
51 µm	65
31 µm	55
13 µm	46
6 µm	37
2 µm	27
% Clay	37
% Silt	28
% Sand	32
% Gravel	3
ATTERBERG LIMITS (SANS 3001:GR10)	
Liquid Limit	46
Plasticity Index	17
Linear Shrinkage (%)	7.5
Grading Modulus	0.31
Classification	A-7-6 (15)
Unified Classification	ML
Chart Reference	

PROJECT: KIRKNEY
JOB No : S20-0870
DATE: 2023-02-15

POTENTIAL EXPANSIVENESS



PLASTICITY CHART



Note: Standard Relative Density of 2.650 was used.



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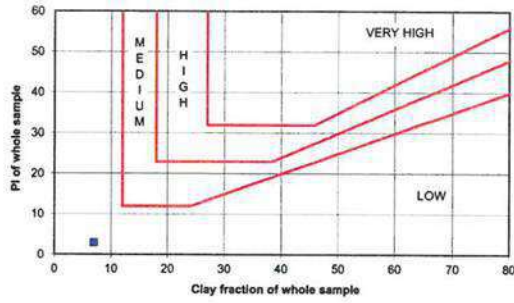
HIDROMETER/S20-0870-01 FI
Engineering Materials Laboratory
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Soillab Pretoria
www.soillab.co.za

PARTICLE SIZE ANALYSIS

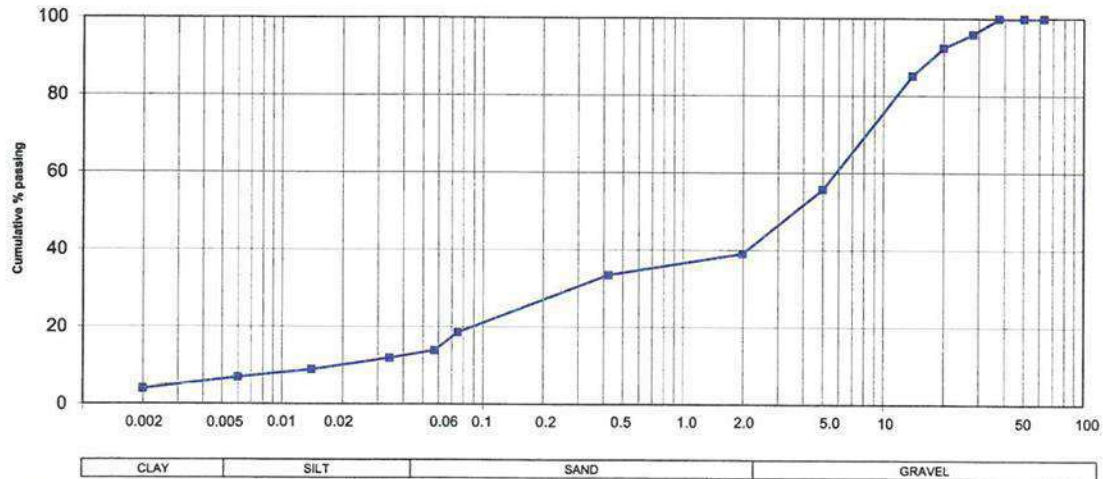
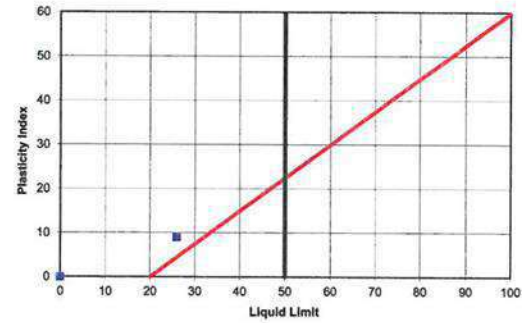
Sample No.	2
Soillab Sample No.	S20-0870-02
Depth (m)	0,0 - 0,5
Position	KTP-2
Material Description	LIGHT GREY SANDY GRAVEL
Relative density on < 2 mm (SANS 5844)	2.65
Organic Material	
Moisture (%) / Dispersion (%)	
SCREEN ANALYSIS (% PASSING) (SANS 3001:GR1)	
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	96
20.0 mm	92
14.0 mm	85
5.0 mm	56
2.00 mm	39
0.425 mm	34
0.075 mm	19
HYDROMETER ANALYSIS (% PASSING) (SANS 3001:GR3)	
57 µm	14
34 µm	12
14 µm	9
6 µm	7
2 µm	4
% Clay	7
% Silt	7
% Sand	25
% Gravel	61
ATTERBERG LIMITS (SANS 3001:GR10)	
Liquid Limit	26
Plasticity Index	9
Linear Shrinkage (%)	3,5
Grading Modulus	2,09
Classification	A-2-4 (0)
Unified Classification	GC
Chart Reference	

PROJECT: KIRKNEY
JOB No : S20-0870
DATE: 2023-02-15

POTENTIAL EXPANSIVENESS



PLASTICITY CHART



Note: Standard Relative Density of 2.650 was used.



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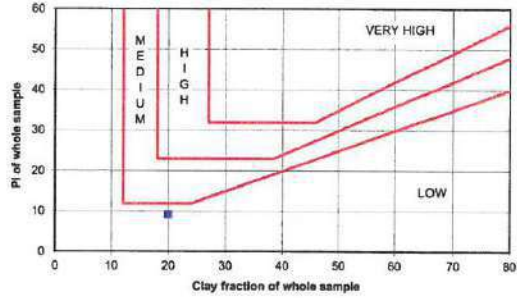
HYDROMETER/S20-0870-02 FI
Engineering Materials Laboratory
T +27 12 813 4900 E info@soillab.co.za
Soillab Pretoria
www.soillab.co.za

PARTICLE SIZE ANALYSIS

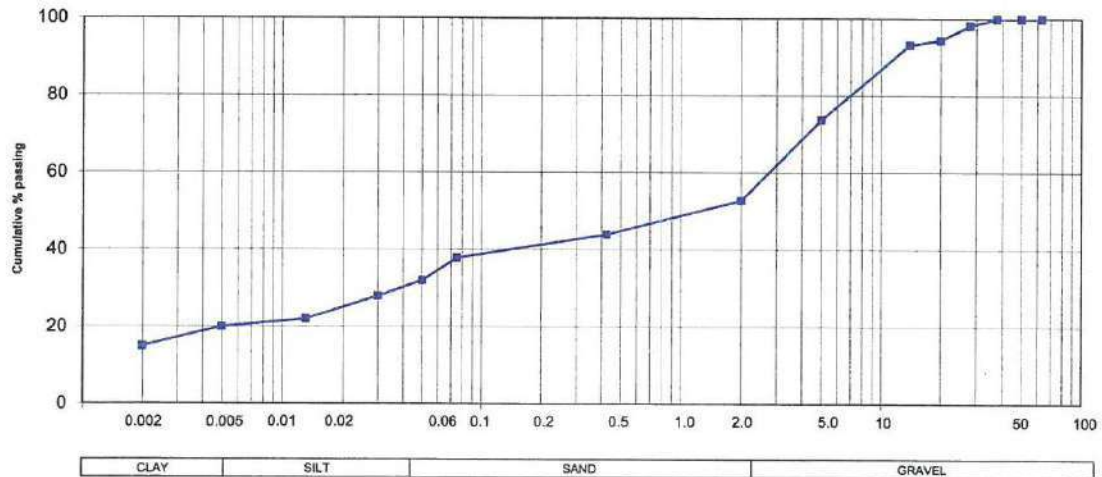
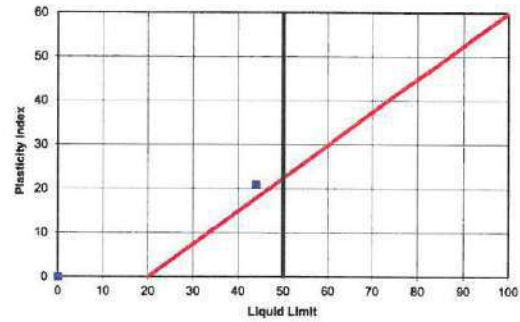
Sample No.	3
Soillab Sample No.	S20-0870-03
Depth (m)	0.0 - 0.59
Position	KTP-3
Material Description	LIGHT OLIVE SANDY GRAVEL
Relative density on < 2 mm (SANS 5844)	2.65
Organic Material	
Moisture (%) / Dispersion (%)	
SCREEN ANALYSIS (% PASSING) (SANS 3001:GR1)	
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	98
20.0 mm	94
14.0 mm	93
5.0 mm	74
2.00 mm	53
0.425 mm	44
0.075 mm	38
HYDROMETER ANALYSIS (% PASSING) (SANS 3001:GR3)	
50 µm	32
30 µm	28
13 µm	22
5 µm	20
2 µm	15
% Clay	20
% Silt	12
% Sand	21
% Gravel	47
ATTERBERG LIMITS (SANS 3001:GR10)	
Liquid Limit	44
Plasticity Index	21
Linear Shrinkage (%)	9.5
Grading Modulus	1.85
Classification	A-7-6 (3)
Unified Classification	SC
Chart Reference	

PROJECT : KIRKNEY
JOB No : S20-0870
DATE : 2023-02-15

POTENTIAL EXPANSIVENESS



PLASTICITY CHART



Note: Standard Relative Density of 2.650 was used.



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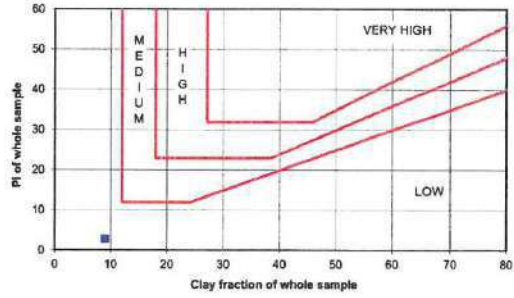
HIDROMETER/S20-0870-03 F1
Engineering Materials Laboratory
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Soillab Pretoria
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PARTICLE SIZE ANALYSIS

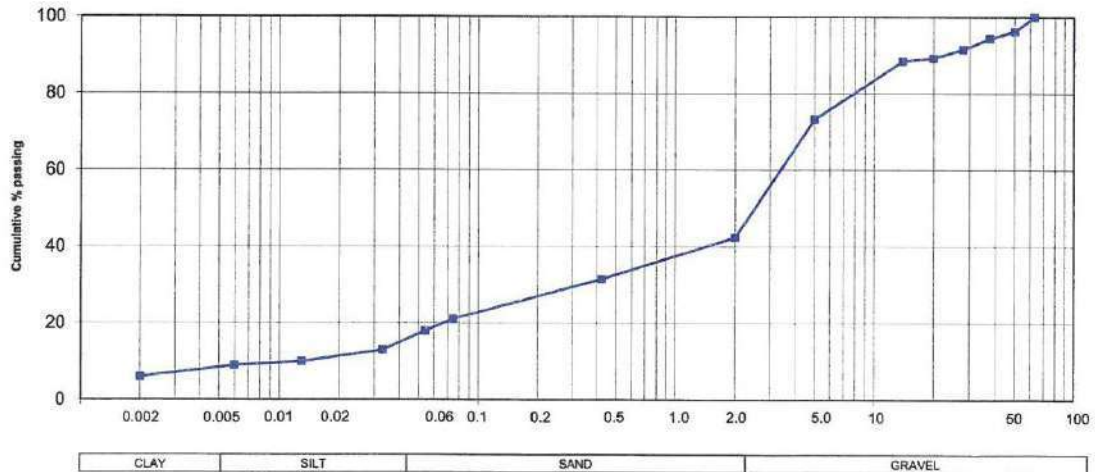
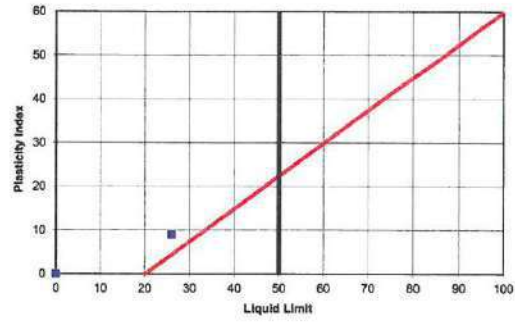
Sample No.	4
Soillab Sample No.	S20-0870-04
Depth (m)	0,0 - 3,0
Position	KTP-6
Material Description	LIGHT GREY SANDY GRAVEL
Relative density on < 2 mm (SANS 5844)	2.65
Organic Material	
Moisture (%) / Dispersion (%)	
SCREEN ANALYSIS (% PASSING) (SANS 3001:GR1)	
63.0 mm	100
50.0 mm	96
37.5 mm	94
28.0 mm	92
20.0 mm	89
14.0 mm	89
5.0 mm	73
2.00 mm	42
0.425 mm	32
0.075 mm	21
HYDROMETER ANALYSIS (% PASSING) (SANS 3001:GR3)	
54 µm	18
33 µm	13
13 µm	10
6 µm	9
2 µm	6
% Clay	9
% Silt	9
% Sand	24
% Gravel	58
ATTERBERG LIMITS (SANS 3001:GR10)	
Liquid Limit	26
Plasticity Index	9
Linear Shrinkage (%)	4.0
Grading Modulus	2.05
Classification	A-2-4 (0)
Unified Classification	SC
Chart Reference	

PROJECT : KIRKNEY
JOB No : S20-0870
DATE : 2023-02-15

POTENTIAL EXPANSIVENESS



PLASTICITY CHART



Note: Standard Relative Density of 2.650 was used.



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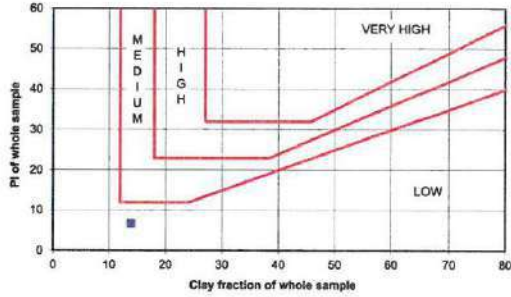
HYDROMETERS: S20-0870-04 FI
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PARTICLE SIZE ANALYSIS

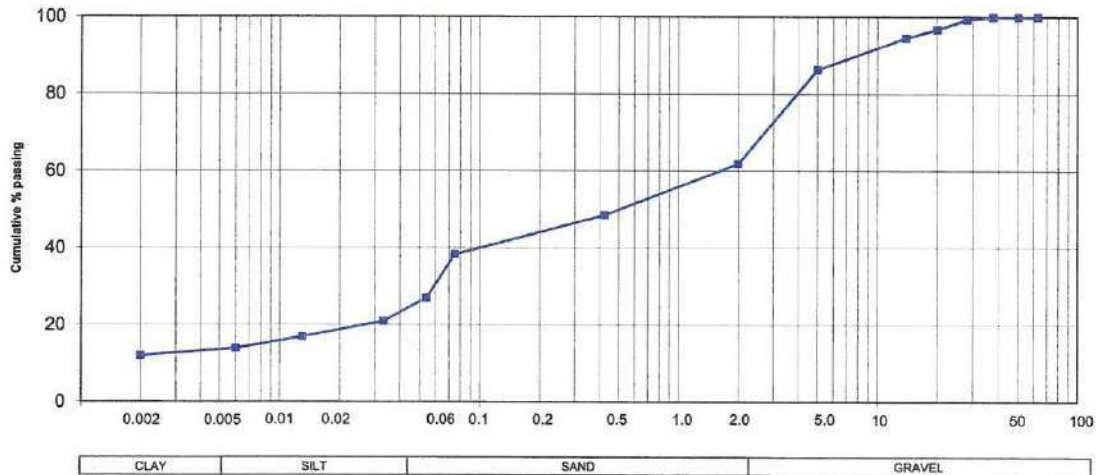
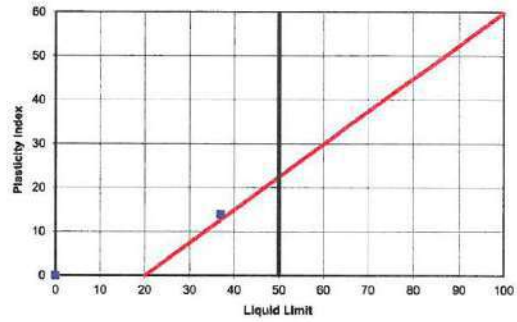
Sample No.	5
Soillab Sample No.	S20-0870-05
Depth (m)	0,3 - 1,2
Position	KTP-6
Material Description	DARK REDDISH ORANGE SANDY GRAVEL
Relative density on < 2 mm (SANS 5844)	2.65
Organic Material	
Moisture (%) / Dispersion (%)	
SCREEN ANALYSIS (% PASSING) (SANS 3001:GR1)	
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	99
20.0 mm	97
14.0 mm	95
5.0 mm	86
2.00 mm	62
0.425 mm	49
0.075 mm	38
HYDROMETER ANALYSIS (% PASSING) (SANS 3001:GR3)	
54 µm	27
33 µm	21
13 µm	17
6 µm	14
2 µm	12
% Clay	14
% Silt	13
% Sand	35
% Gravel	38
ATTERBERG LIMITS (SANS 3001:GR10)	
Liquid Limit	37
Plasticity Index	14
Linear Shrinkage (%)	6.0
Grading Modulus	1.51
Classification	A-6 (1)
Unified Classification	SC
Chart Reference	

PROJECT: KIRKNEY
JOB No : S20-0870
DATE : 2023-02-15

POTENTIAL EXPANSIVENESS



PLASTICITY CHART



Note: Standard Relative Density of 2.650 was used.



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Tel: (+27) (12) 813 4900
Email: info@soillab.co.za

Engineering Materials Laboratory

SMEC Building, 230 Albertus Street
La Montagne, Pretoria, 0184

PO Box 72928, Lynnwood Ridge,
South Africa, 0040

R26: revision 2

Client : DAVHANA GEOTECH SOLUTIONS

Project : KIRKNEY

Project No : S20-0870

Date : 2023-02-15

pH & CONDUCTIVITY - TMH 1 A20 & A21T


Sample No	Sample Position	Depth (m)	pH	Electrical Conductivity S/m
S20-0870-01	KTP-1	0.56-2.69	5.74	0.0085
S20-0870-02	KTP-2	0.0-0.5	6.58	0.0244
S20-0870-03	KTP-3	0.0-0.59	6.57	0.0317
S20-0870-04	KTP-6	0.0-3.0	5.54	0.0281
S20-0870-05	KTP-6	0.3-1.12	5.63	0.0145

Comments:

Note:

Items marked with a star (*) is Not Accredited

Soillab is a SANAS accredited Testing Laboratory according to the Accreditation Scope

 SOILLAB (PTY) LTD Registration Number 1971/000112/07 Part of the SMEC Group		Sanas Engineering Materials Laboratory T-0284 VKE CENTRE, 230 Albertus Street La Montagne, Pretoria, 0184	
		Tel: (+27) (12) 813 4900 Fax: (+27) (12) 481 3941 / 3812 Email: info@soillab.co.za PO Box 72928, Lynnwood Ridge, South Africa, 0040	
Project Description			
Client:	DAVHANA GEOTECH SOLUTIONS KIRKNEY		Soillab Job No.: 520-0870
Job Description:	2023-02-15		Contract Number:
Date:			Reference Number:
Sample Description			
Soillab Sample No.:	520-0870-02		
Sample Description:	KTP-2		
Sample Depth:	0,0 - 0,5		
Material Description:	LIGHT GREY		
Screen Analysis (% Passing) - SANS 3001-GR1			
75,00 mm	100		
63,00 mm	100		
50,00 mm	100		
37,50 mm	100		
28,00 mm	96		
20,00 mm	92		
14,00 mm	85		
5,00 mm	56		
2,000 mm	39		
0,425 mm	34		
0,075 mm	19		
Soil-mortar percentages - SANS 3001-PR5			
Coarse Sand	2.000-0.425mm	14	
Coarse Fine Sand	0.425-0.250mm	7	
Medium Fine Sand	0.250-0.150mm	14	
Fine Fine Sand	0.150-0.075mm	17	
Silt and clay	<0.075mm	48	
Constants			
Grading Modulus	SANS 3001-PR5	2.09	
Liquid Limit		26	
Plasticity Index	SANS 3001-GR10	9	
Linear Shrinkage		3.5	
MOD AASHTO - SANS 3001-GR30			
Max Dry Density (kg/m ³)	2127		
Optimum Moisture Content (%)	8.1		
CBR - SANS 3001-GR40			
MOD AASHTO			
Moulding Moisture Content (%)	8.2		
Dry Density (kg/m ³)	2110		
% of Max Dry Density	99.2		
100% MOD CBR (%)	40		
% Swell	0.4		
NRB			
Dry Density (kg/m ³)	2006		
% of Max Dry Density	94.3		
100% NRB CBR (%)	25		
% Swell	0.4		
PROCTOR			
Dry Density (kg/m ³)	1925		
% of Max Dry Density	90.5		
100% PROCTOR CBR (%)	17		
% Swell	0.4		
CBR (%)			
100% Mod AASHTO	43		
98% Mod AASHTO	35		
97% Mod AASHTO	32		
95% Mod AASHTO	26		
93% Mod AASHTO	22		
90% Mod AASHTO	16		
COLTO Classification:	G6		

Appendix D

Geotechnical Classification for Urban Development (after Partridge, Wood and Brink 1993)

CONSTRAINT		Most Favourable (1)	Intermediate (2)	Least favourable (3)
A	Collapsible Soil	Any collapsible horizon or consecutive horizons totalling a depth of less than 750mm in thickness.*	Any collapsible horizon or consecutive horizons with a depth of more than 750mm in thickness.	A least favourable situation for this constraint does not occur.
B	Seepage	Permanent or perched water table more than 1,5m below ground surface	Permanent or perched water table less than 1,5m below ground surface.	Swamps and marshes
C	Active Soil	Low soil-heave potential predicted*	Moderate soil heave potential predicted.	High soil heave potential predicted.
D	Highly compressible soil	Low soil compressibility expected *	Moderate soil compressibility expected	High soil compressibility expected
E	Erodibility of soil	Low.	Intermediate	High
F	Difficulty of excavation to 1,5m depth	Scattered or occasional boulders less than 10% of the total volume	Rock or hardpan pedocretes between 10 and 40% of the total volume.	Rock or hardpan pedocretes more than 40% of the total volume.
G	Undermined ground	Undermining at a depth greater than 100m below surface (except where total extraction mining has not occurred).	Old undermined areas to a depth of 100m below surface where stope closure has ceased	Mining within less than 100m of surface or where total extraction mining has taken place.
H	Instability in areas of soluble rock	Possibly unstable	Probably unstable	Known sinkholes and dolines
I	Steep slopes	Between 2 and 6 degrees (all regions)	Slopes between 6 and 18 degrees and less than 2 degrees (Natal and Western Cape). Slopes between 6 and 12 degrees and less than 2 degrees (all other regions)	More than 18 degrees (Natal and Western Cape) More than 12 degrees (all other regions)
J	Areas of unstable natural slopes	Low risk	Intermediate risk	High risk (especially in areas subject to seismic activity)
K	Areas subject to seismic activity	10% probability of an event less than 100 cm/s ² within 50 years	Mining-induced seismic activity more than 100 cm/s ²	Natural seismic activity more than 100 cm/s ²
L	Areas subject to flooding	A "most favourable" situation for this constraint does not occur.	Areas adjacent to a known drainage channel or floodplain with slope less than 1%.	Areas within a known drainage channel or floodplain.

Appendix E

Residential Site Class Designations (NHBRC Home Building Manual, Revision 1, February 1999)

TYPICAL FOUNDATION MATERIAL	CHARACTER OF MATERIAL	EXPECTED RANGE OF TOTAL SOIL MOVEMENTS (mm)	ASSUMED DIFFERENTIAL MOVEMENT (% OF TOTAL)	SITE CLASS
Rock (excluding mud rocks which exhibit swelling to some depth)	STABLE	NEGLECTIBLE		R
Fine-grained soils with moderate to very high plasticity (clays, silty clays, clayey silts and sandy clays)	EXPANSIVE SOILS	<7,5 7,5 – 15 15 – 30 >30	50% 50% 50% 50%	H H1 H2 H3
Silty sands, sands, sandy and gravelly soils	COMPRESSIBLE AND POTENTIALLY COLLAPSIBLE SOILS	< 5 5 – 10 > 10	75% 75% 75%	C C1 C2
Fine-grained soils (clayey silts and clayey sands of low plasticity), sands, sandy and gravelly soils	COMPRESSIBLE SOIL	<10 15-20 > 20	50% 50% 50%	S S1 S2
Contaminated soils Controlled fill Dolomitic areas Land fill Marshy areas Mine waste fill Mining subsidence Reclaimed areas Very soft silty clays Uncontrolled fill	VARIABLE	VARIABLE		p

NOTES:

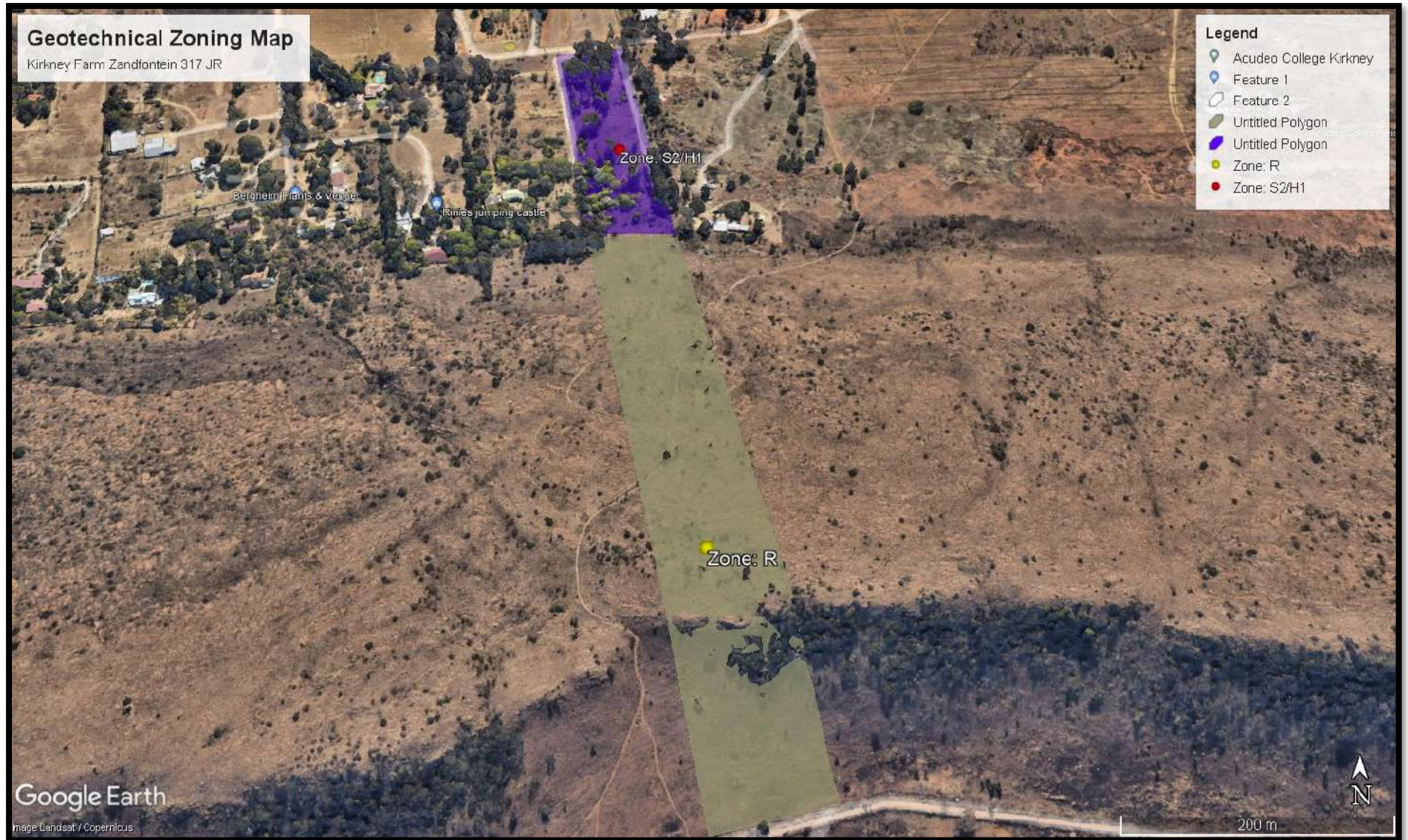
- The classifications C, H, R and S are not intended for dolomitic area sites unless specific investigations are carried out to assess the stability (risk of sinkholes and doline formation) of the dolomites. Where this risk is found to be acceptable, the site shall be designated as Class P (dolomitic areas).
- Site classes are based on the assumption that differential movements, experienced by single-storey residential buildings, expressed as a percentage of the total soil movements are equal to about 50% for soils that exhibit expansive or compressive characteristics and 75% for soils that exhibit both compressible and collapse characteristics. Where this assumption is incorrect or inappropriate, the total soil movements must be adjusted so that the resultant different movement implied by the table is equal to that which is expected in the field.
- In some instances, it may be more appropriate to use a composite description to describe a site more fully e.g. CI/H2 or SI and/or H2. Composite Site Classes may lead to higher differential movements and result in design solutions appropriate to a higher range of differential movement e.g. a Class R/SI site. Alternatively, a further site investigation may be necessary since the final design solution may depend on the location of the building on a particular site.
- Where it is not possible to provide a single site designation and a composite description is inappropriate, sites may be given multiple descriptions to indicate the range of possible conditions e.g. H-HI-H2 or CI-C2.

5. Soft silts and clays usually exhibit high consolidation and low bearing characteristics. Structures founded on these horizons may experience high settlements and such sites should be designated as Class S1 or S2 as relevant and appropriate.
6. Sites containing contaminated soils include those associated with reclaimed mine land, land down-slope of mine tailings and old land fills.
7. Where a site is designated as Class P, full particulars relating to the founding conditions on the site must be provided.
8. Where sites are designated as being Class P, the reason for such classification shall be placed in brackets immediately after the suffix - i.e. P(contaminated soils). Under certain circumstances, composite description may be more appropriate - e.g. P(dolomite areas)-Cl.

Certain fills may contain contaminants which present a health risk. The nature of such fill should be evaluated and should be clearly demarcated as such

Appendix F

SITE ZONATION PLAN



Traffic Report

TRAFFIC IMPACT STUDY

KIRKNEY EXTENSION 78

MARCH 2023

REPORT INFORMATION SHEET

REPORT TYPE	Traffic Impact Study
TITLE	Kirkney Extension 78
DATE	March 2023
VERSION	1
STUDY PROPERTY	Portion 136 (a portion of Portion 110) of the farm Zandfontein 317-JR
MUNICIPAL AREA	City of Tshwane
PROVINCE	Gauteng Province
PROJECT NUMBER	387
AUTHOR	Pieter Jooste <i>Traffic Engineer</i>

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Figure 10	Future 2028 Plus Development Traffic Volumes

DRAWING

Drawing D001	Intersection 1: Existing Intersection Layout
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APPENDICES

Appendix A	Town Planning Application
Appendix B	Trip Generation Calculations
Appendix C	Traffic Analysis Summary Table
Appendix D	Detailed Traffic Analysis Outputs

1 INTRODUCTION

SA Traffic Surveys (Pty) Ltd (Traffic Surveys), in association with NCES Consulting Engineers (Pty) Ltd (NCES), was appointed to undertake a traffic impact study for Kirkney Extension 78. The proposed township will be located on Portion 136 (a portion of Portion 110) of the farm Zandfontein 317-JR, City of Tshwane, Gauteng Province.

This report will form part of a township establishment application to allow the development of 35 single residential units on the subject property. The report will be submitted to the following authorities:

- The City of Tshwane (CoT)
- The Gauteng Department of Roads and Transport (Gautrans)

This study aims to:

- Determine feasible access to the development;
- Quantify the impact the proposed development will have on traffic operating conditions, future road planning as well as public and non-motorised transport on the surrounding road network, and
- Recommend measures to mitigate such impacts (if required).

The detailed scope of this study was determined by considering the requirements and guidelines set out in the following document:

- *The South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (TMH 16)* ⁽¹⁾

2 PROPOSED DEVELOPMENT

2.1 Location & property details

The location of the study site is shown in **Figure 1** (all figures, appendices and drawings are attached at the end of this report). An aerial view and key plan of the site are also shown in **Figure 2**.

Details of the subject property are provided in **Table 2.1.1** below.

Table 2.1.1 – Property details

Item	Detail
Property description	Portion 136 (a portion of Portion 110) of the farm Zandfontein 317-JR
Municipality	City of Tshwane
Province	Gauteng
Size	78 837 m ² (7.8837 ha)
Current zoning	Undetermined
Development status	The property is currently undeveloped

2.2 Development details

Details of the proposed development are provided in **Table 2.2.1** on the next page. The Town Planner's town planning application is attached as **Appendix A**.

Table 2.2.1 – Proposed development

Item	Detail
Proposed land-use	Residential 1
Applicable town planning scheme	City Tshwane Town Planning Scheme 2008 (Revised 2014) ⁽²⁾
Land-use extent	35 units

2.3 Expected trip generation

The expected number of development trips is determined using the guidelines in the *South African Trip Data Manual (TMH17)* ⁽³⁾.

The expected trip generation is presented in **Table 2.3.1** below, with the detailed calculations attached as **Appendix B**. No trip reduction factors were applied.

Table 2.3.1 – Expected trip generation

Peak Hour	In	Out	Total
Weekday AM	9	26	35
Weekday PM	25	10	35

3 STUDY AREA

3.1 Surrounding road network

The relevant roads surrounding the study property are indicated in **Table 3.1.1** below.

Table 3.3.1 – Surrounding road network

Road name	Road type	Road class*	Owner
Moska Street	Municipal	5 (access road)	CoT
van der Hoff Road (R514)	Provincial	2 (major arterial road)	Gautrans

* Functional classification as per the *South African Road Classification and Access Management Manual (TRH26)* ⁽⁴⁾

The CoT and Gautrans road master plans are shown in **Figure 3** and **Figure 4**.

Planned changes or upgrades to the surrounding road network are discussed in **Section 5.2.2**.

3.2 Study intersections

The following intersection has been considered for this study:

- van der Hoff Road (R514)/Moska Street

The location of this study intersection is shown in **Figure 5**.

3.3 Existing traffic conditions

To determine the existing traffic demand in the study area, traffic surveys were conducted at the study intersection on Thursday, 26 January 2023. A site visit was also conducted on the same day.

Information regarding peak hour traffic in the study area obtained from this survey is provided in **Table 3.3.1** on the follow page.

Table 3.3.1 – Peak hour traffic characteristics

Peak	Peak hour	Peak hour factor (PHF)
AM	06:30 – 07:30	0.90
PM	16:30 – 17:30	0.97

The existing 2023 traffic volumes are shown in **Figure 5**, and the current layout of the intersection shown in **Drawing D001**.

SIDRA INTERSECTION 9 traffic analysis software was used to analyse existing traffic conditions at the study intersection. A summary of the analysis results is attached as **Appendix C**, with detailed outputs attached as **Appendix D**.

The traffic analysis indicates that acceptable traffic conditions are currently experienced at the van der Hoff Road/Moska Street intersection.

4 DEVELOPMENT ACCESS

Access to the development is proposed at the existing access to the property on Moska Street, as shown in **Figure 2**. The existing two accesses will, however, be combined as one access.

Considering the road classification of Moska Street (discussed in **Section 3.1**), the proposed access position meets the requirements of the *South African Road Classification and Access Management Manual (TRH26)* ⁽⁴⁾.

An on-site investigation confirmed that sufficient shoulder sight distances and stopping sight distances are provided at the existing and proposed access.

Moska Street is a gravel road, and no road markings are therefore required at the property access.

Access control, stacking distances and access for delivery, refuse and emergency vehicles are discussed in **Section 7**.

5 TRAFFIC IMPACT

The *South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (TMH 16)* ⁽¹⁾ requires a short-term (base year) and long-term (horizon year) traffic impact assessment.

Based on the extent of the proposed development, the following assessment years were considered:

- Short-term: 2023
- Long-term: 2028

The expected distribution and assignment of the development traffic are shown in **Figure 6** and **Figure 7**.

5.1 Short-term impact

The existing 2023 PLUS development traffic volumes are shown in **Figure 8**.

SIDRA INTERSECTION 9 traffic analysis software was used to analyse the expected traffic conditions at the study intersection once the development traffic had been added to the road network. A summary of the analysis results is attached in **Appendix C**, with detailed outputs in **Appendix D**.

The traffic analysis indicates that acceptable traffic conditions are expected at the van der Hoff Road/Moska Street intersection with the development traffic added.

A summary of the parameters used for the analysis is shown in **Table 5.1.1** below.

Table 5.1.1 – Short-term impact analysis parameter summary

Intersection	Layout	Traffic volumes	PHF	Signal timings
1 – van der Hoff Road/ Moska Street	Existing	As per Figure 8	Existing	n/a

5.2 Long-term impact

5.2.1 Future traffic growth

At the time of writing this report, it was unclear if there were any approved future developments (latent rights) within the surrounding area that could have an impact on the subject development. An annual background traffic growth factor of 3.0% was applied to the existing traffic volumes over five years to accommodate any possible future developments. This is in accordance with the *South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (TMH 16)* ⁽¹⁾.

The expected future 2028 traffic volumes are shown in **Figure 9**.

5.2.2 Future roads & planned road upgrades

Considering the future planned road network in the study area (see **Figure 3** and **Figure 4**), there is no need for the subject development to make provision for future roads or accesses to adjacent land parcels crossing the subject property.

However, provision should be made for half of the required road reserve width on the northern boundary of the property for Moska Street. Considering the existing and future function and classification of Moska Street, a 13-meter-wide road reserve should be provided. The subject development will, therefore, have to provide 6.5 m of this road reserve.

Municipal road planning (see **Figure 3**) indicates that van der Hoff Road will be declassified as a class 3 road (minor arterial), and a new east-west class 2 road (major arterial) will be constructed to the south of van der Hoff Road. This is not in line with provincial road planning (see **Figure 4**), which indicates that van der Hoff Road is planned to be upgraded to a provincial K-route (route K20).

However, whether municipal or provincial road planning is implemented in the future, access to the proposed township will not be affected as Moska Street will have access to both of these future road network options. The proposed development will also have no negative impact on the planning of future route K20.

5.2.3 Future traffic conditions & development impact

By considering the previous subsections, SIDRA INTERSECTION 9 traffic analysis software was used to analyse expected future traffic conditions, excluding the proposed development, at the study intersection. A summary of the analysis results is attached in **Appendix C**, with detailed outputs in **Appendix D**.

The traffic analysis indicates that acceptable traffic conditions are expected at the van der Hoff Road/Moska Street intersection in the future.

A summary of the parameters used for the analysis is shown in **Table 5.2.3.1** below.

Table 5.2.3.1 – Future 2028 traffic conditions analysis parameter summary

Intersection	Layout	Traffic volumes	PHF	Signal timings
1 – van der Hoff Road/ Moska Street	Existing	As per Figure 9	Existing	n/a

The future 2028 PLUS development traffic volumes are shown in **Figure 10**.

SIDRA INTERSECTION 9 traffic analysis software was once again used to analyse the expected traffic conditions at the study intersection once the development traffic has been added to the road network in the future. A summary of the analysis results is attached in **Appendix C**, with detailed outputs in **Appendix D**.

The traffic analysis indicates that acceptable traffic conditions are expected at the van der Hoff Road/Moska Street intersection in the future, with the development traffic added.

A summary of the parameters used for the analysis is shown in **Table 5.2.3.2** below.

Table 5.2.3.2 – Long-term impact analysis parameter summary

Intersection	Layout	Traffic volumes	PHF	Signal timings
1 – van der Hoff Road/ Moska Street	Existing	As per Figure 10	Existing	n/a

5.3 Impact mitigation summary (road upgrades)

Considering the analysis results and discussions in the previous sections, no road upgrades are required as a result of the subject application.

From a traffic capacity point of view, current, future and development traffic volumes do not result in the need for turning lanes at the van der Hoff Road/Moska Street intersection or the surfacing of Moska Street.

6 PUBLIC & NON-MOTORISED TRANSPORT

6.1 Public transport

Public transport in the study area is mainly provided by minibus taxis and busses, which currently operate along van der Hoff Road (1 km from the subject development). However, no formal public transport facilities are located in the study area.

The proposed development is not expected to generate a significant demand for public transport. Considering this, as well as the small extent of the development, no new public transport facilities are proposed.

6.2 Non-motorised transport

The Guidelines for Human Settlement Planning and Design ⁽⁵⁾ document elaborates on the White Paper on national transport policy regarding acceptable walking distances to public transport facilities. It states that the White Paper has set a target to reduce this maximum walking distance to "less than about one (1) kilometre". This is based on a walking time of 15 minutes. Given this guideline, the above public transport services are within acceptable walking distances from the study site.

7 ON-SITE TRAFFIC

As per the *South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (TMH 16)* ⁽¹⁾, the assessment of on-site traffic is typically only dealt with in a Site Traffic Assessment (STA) at Site Development Plan (SDP) approval stage. This requirement is, however, at the discretion of the local municipality.

A high-level on-site traffic assessment was conducted to avoid any significant issues in terms of access, traffic circulation, parking or access for delivery and emergency vehicles during the development of the SDP or building plans for the proposed development.

7.1 Access

As discussed in **Section 4**, access to the development is proposed via the existing access taken directly off Moska Street, as shown in **Figure 2**.

If access control to the development is proposed, the access control system must be chosen such that the service flow rate thereof can cater for the maximum inbound peak hour traffic, without the inbound traffic queue affecting traffic flow on the adjacent public road. A queuing analysis must be conducted to determine the stacking distance to be provided at the access, which can be done as part of an STA during the SDP or building plan approval stage.

7.2 Traffic circulation

Considering the size and topography of the subject site, on-site traffic circulation is not expected to be an issue for the development. Regarding the internal road layout of the township layout plan attached as part of the town planning application (see **Appendix A**), provision should be made for a turning facility where the proposed First Street terminates.

This must be reviewed by means of an STA during the SDP or building plan approval stage.

7.3 Parking

In terms of on-site parking provision, the requirements of the *City Tshwane Town Planning Scheme 2008 (Revised 2014)* ⁽²⁾ must be met.

On-site parking provisions must be reviewed by means of an STA during the SDP or building plan approval stage.

7.4 Deliveries & refuse collection

For the proposed development, on-site deliveries and refuse collection are required.

Considering the size and topography of the subject site, on-site deliveries and refuse collection is not expected to be an issue for the development as long as provision is made for a turning facility where the proposed First Street terminates.

This must be reviewed by means of an STA during the SDP or building plan approval stage.

7.5 Emergency vehicle access

To provide access for emergency vehicles, an available width of at least 4.5 m must be provided at the development access. A minimum vertical clearance of 5.2 m must also be provided at this access lane.

Considering the size and topography of the subject site, access for emergency vehicles is not expected to be an issue for the development. This must also be reviewed by means of an STA during the SDP or building plan approval stage.

8 SUMMARY AND CONCLUSIONS

The following summary and conclusions are made regarding the proposed new Kirkney Extension 78. The proposed township will be located on Portion 136 (a portion of Portion 110) of the farm Zandfontein 317-JR, City of Tshwane, Gauteng Province:

- This report will form part of the town planning application required to obtain the land-use rights needed for the proposed development.
- The proposed development is expected to generate the following number of trips during peak traffic hours:
 - Weekday AM peak: 35 vehicles per hour
 - Weekday PM peak: 35 vehicles per hour
- The following intersection has been included in the scope of this study:
 - van der Hoff Road (R514)/Moska Street
- To determine the existing traffic demand in the study area, traffic surveys were conducted at the study intersection on Thursday, 26 January 2023.
- Acceptable traffic conditions are currently experienced at the van der Hoff Road/Moska Street intersection.
- Access to the development is proposed at the existing access to the property on Moska Street.
- Considering the extent of the proposed development, the following assessment years were considered:
 - Short-term (base year): 2023
 - Long-term (horizon year): 2028
- Acceptable traffic conditions are expected at the van der Hoff Road/Moska Street intersection with the development traffic, without any road upgrades.
- The proposed development is not expected to generate a significant demand for public transport. Considering this, as well as the small extent of the development, no new public transport facilities are proposed.

Based on the contents of this report, it is recommended that the proposed new township, namely Kirkney Extension 78, be supported from a traffic engineering and transportation planning point of view.

9 REFERENCES

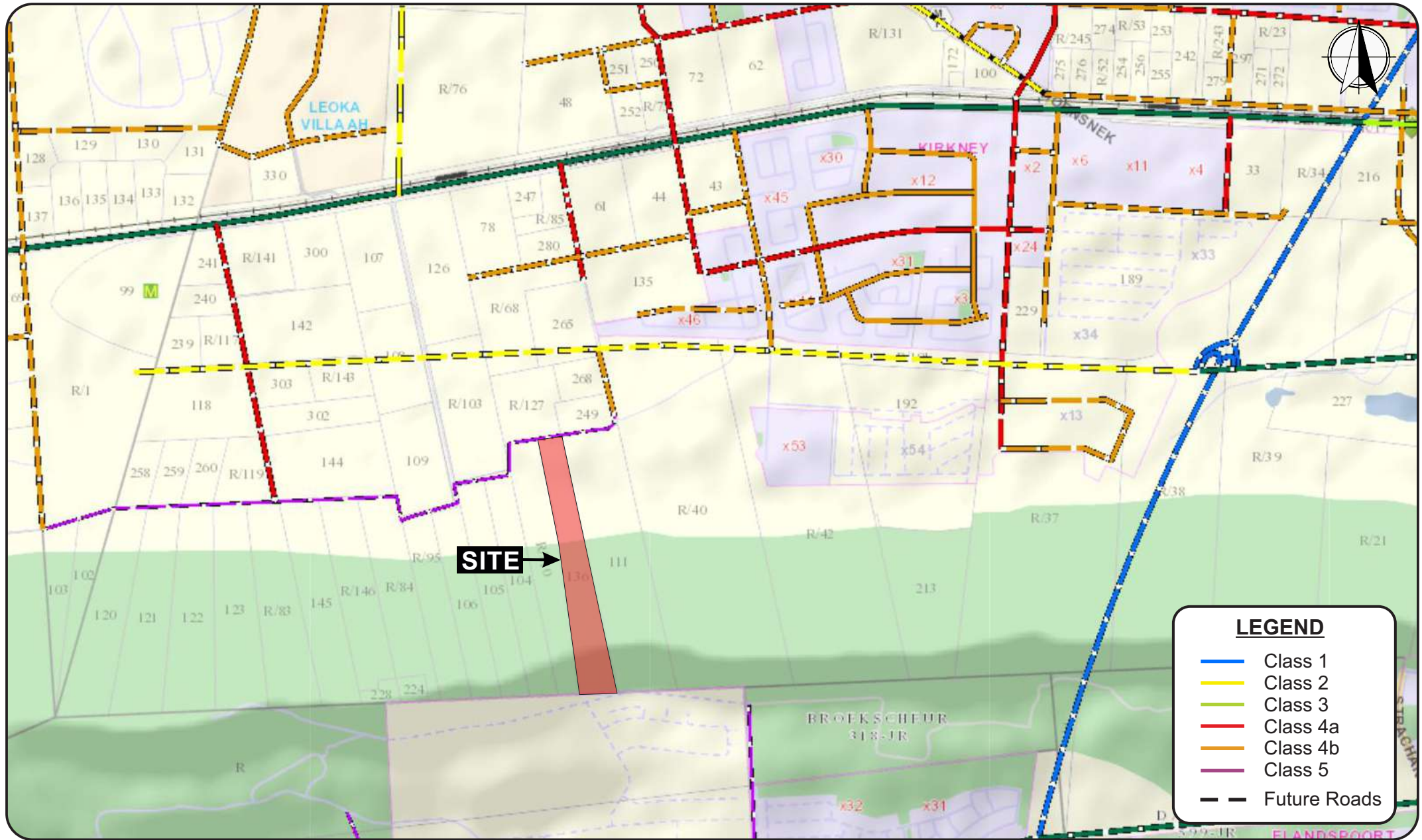
1. Committee of Transport Officials. TMH 16, South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual. Version 1.0, August 2012. (Volumes 1 & 2)
2. City Planning and Development Department, City of Tshwane Metropolitan Municipality. Tshwane Town Planning Scheme 2008 (Revised 2014). 13 November 2014.
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4. Committee of Transport Officials. TRH 26, South African Road Classification and Access Management Manual. Version 1.0, August 2012.
5. CSIR Building and Construction Technology. Guidelines for Human Settlement Planning and Design. Volume 1, 2000.

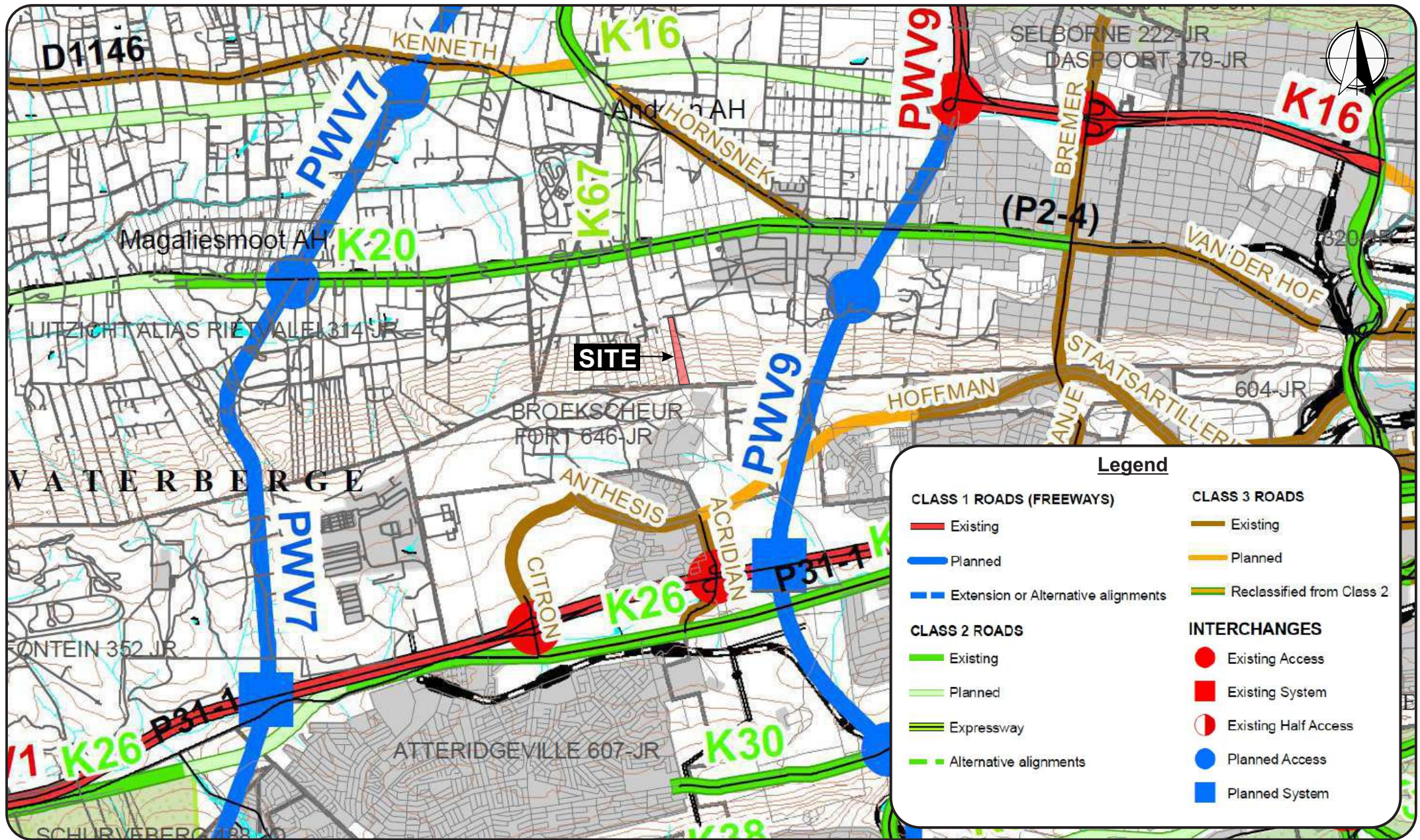
FIGURES

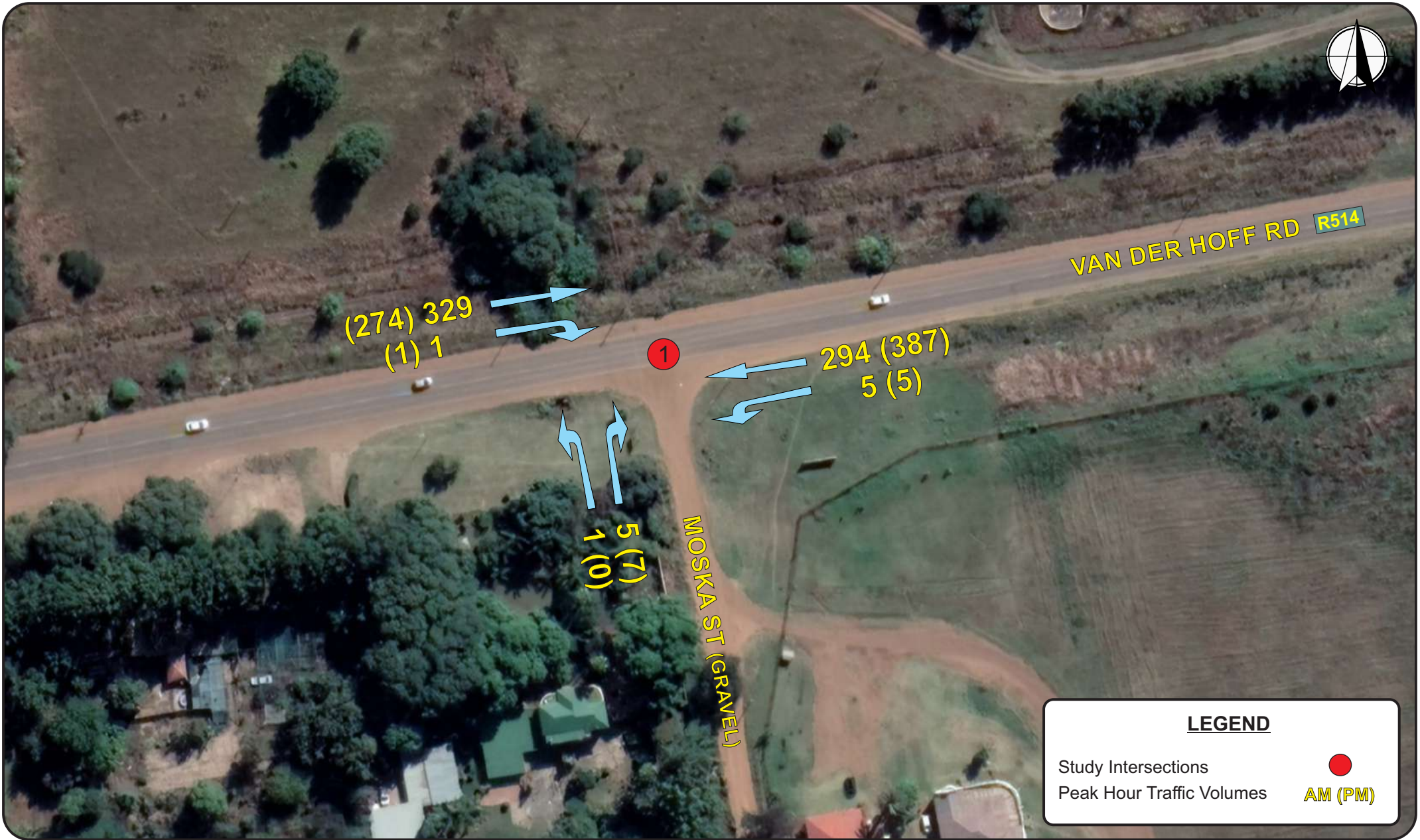
- Figure 1 Locality Map
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- Figure 9 Future 2028 Traffic Volumes
- Figure 10 Future 2028 Plus Development Traffic Volumes





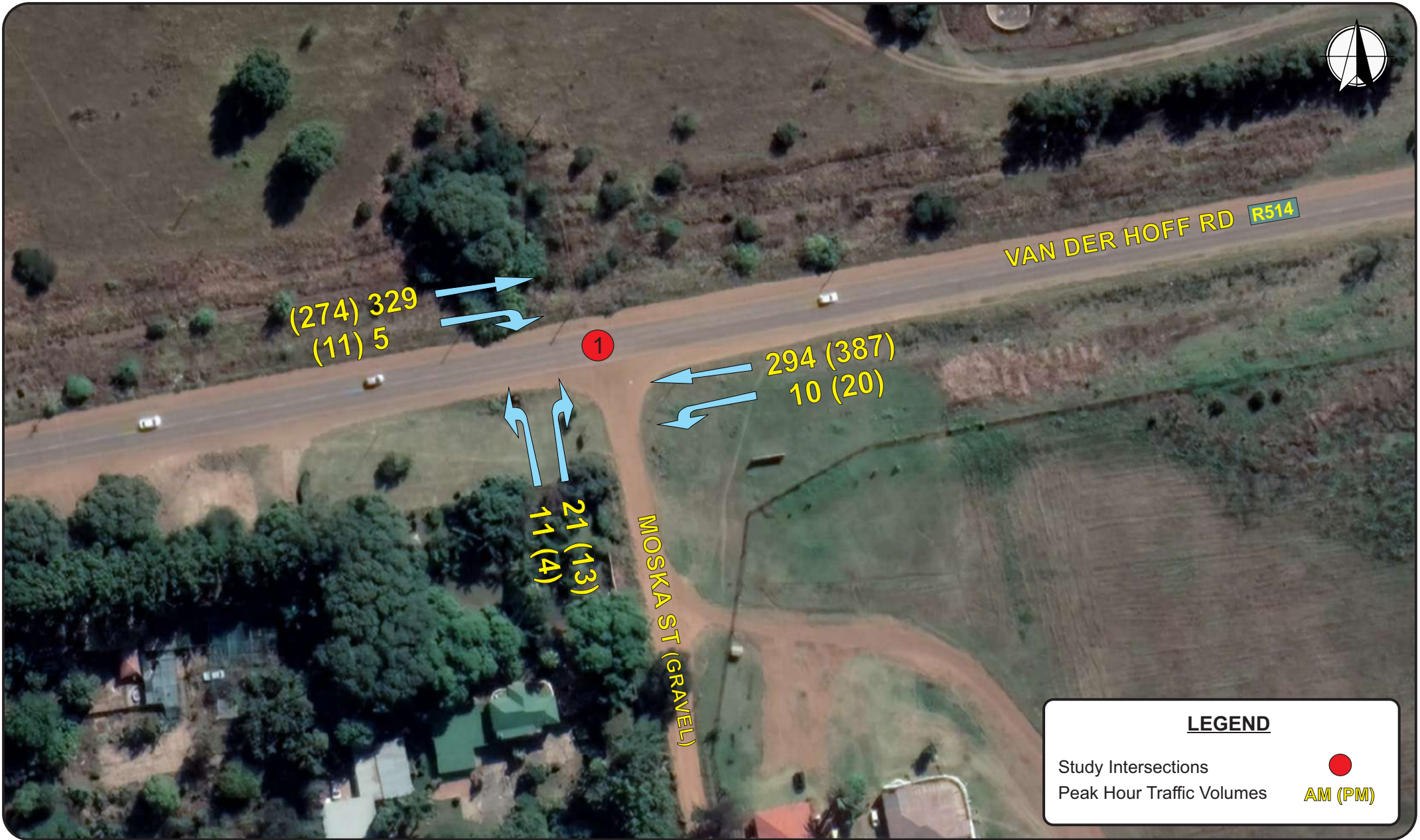


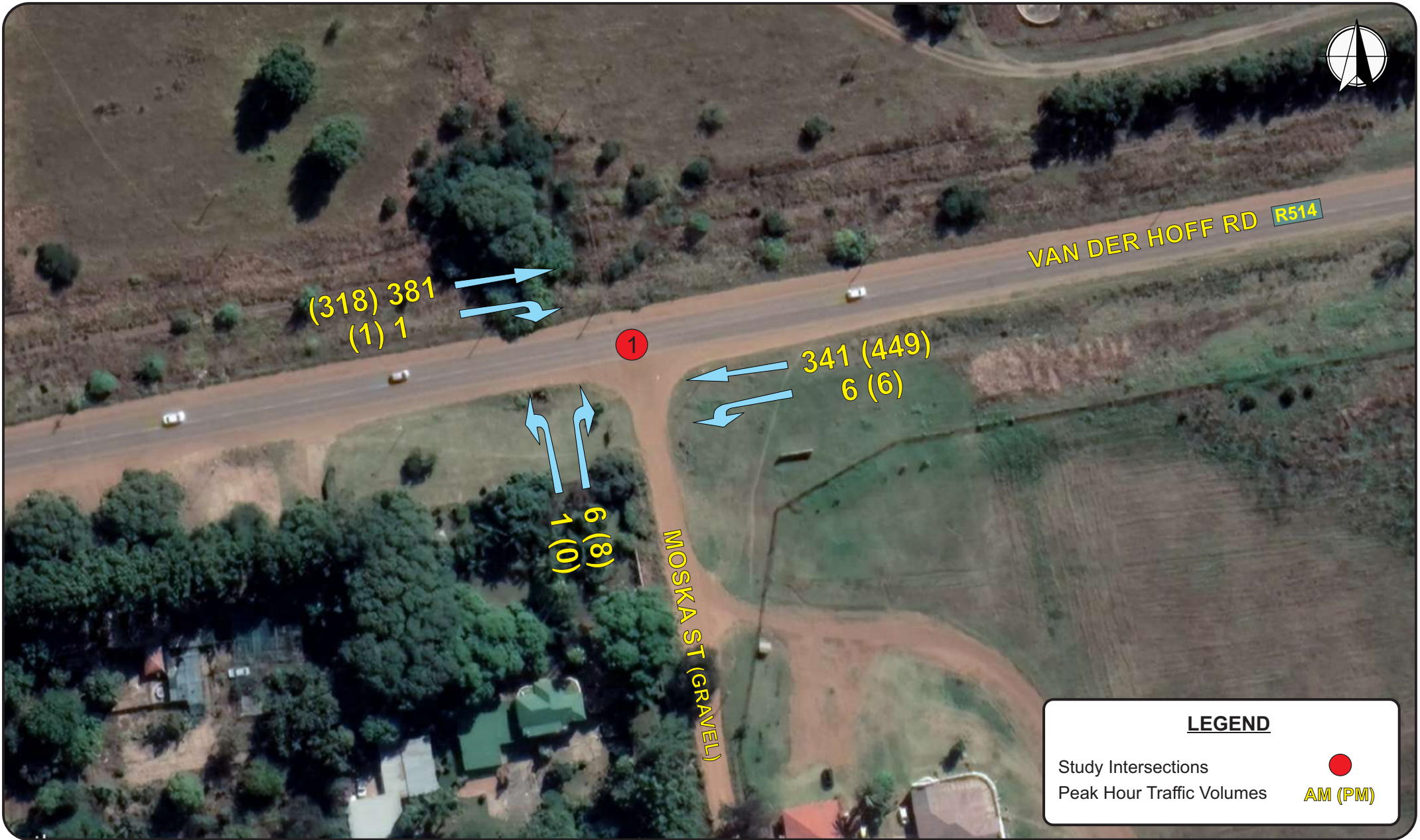














LEGEND

Study Intersections ●

Peak Hour Traffic Volumes AM (PM)

DRAWINGS

Drawing D001 Existing Intersection Layout



LEGEND:

EXISTING ROAD SURFACE



PROJECT:	TRAFFIC IMPACT STUDY: PTN 136 ZANDFONTEIN	SCALE @ A3:	N.T.S	CHECKED:	PJ	DRAWING TYPE:	CONCEPTUAL
TITLE:	INTERSECTION 1: EXISTING INTERSECTION LAYOUT	DESIGN:	PJ	DRAWN:	PJ	DATE:	03/03/2023
		PROJECT NO.:	387	DRAWING NO.:	D001	REV.:	A

APPENDIX A

Town Planning Application



**MOTIVATIONAL MEMORANDUM: APPLICATION FOR TOWNSHIP
ESTABLISHMENT IN TERMS OF SECTION 16(4) OF CITY OF TSHWANE
MUNICIPAL SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW,
(2016), PORTION 136 (PORTION OF PORTION 110) OF THE FARM
ZANDFONTEIN 317 JR, GAUTENG PROVINCE**

MARCH 2023

PREPARED FOR: PROPERTY FOR 4 US STOKVEL PROPRIETARY LIMITED

Pnt 136 (a portion of portion 110) of the Farm Zandfontein 317 JR
1692 Moska Street
Zandfontein
Pretoria
0002
Cell: 072 402 5587
Email: getrude.masetla@gmail.com/
kgotsokimb@gmail.com

PREPARED BY: MOKONE TOWN PLANNERS AND PROPERTY CONSULTANTS (PTY) LTD

Kutlwanong Democratic Centre
Office No: 40
357 Visagie Street
Pretoria Central
0002
Tel: +27 (0)12 881 1803
Cell: 067 675 5555
Email: Info@mokoneconsulting.co.za
Mokoneplannersptyltd@gmail.com
Website: www.mokoneconsulting.co.za

Prepared for submission at City of Tshwane Metropolitan Municipality

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LIST OF ACRONYMS

IUDF: Integrated Urban Development Framework

MSA: Municipal South Africa

CBD: Central Business District

MSDF: Gauteng Spatial Development Framework 2019

IDP: Integrated Development Plan 2017/21

SDF: Regional Spatial Development Framework 2018

NDP: National Development Framework 2030

MSDF: Metropolitan Spatial Development Framework (2012)

TOSF: The Tshwane Open Space Framework (2005)

SPLUMA: Spatial Planning and Land Use Management Act (Act No. 16 of 2013)

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MEMORANDUM

1. EXECUTIVE SUMMARY

Mokone Town Planners and Property Consultants has been appointed by Property For 4 Us Stokvel Proprietary Limited (refer to Annexure D: Power of Attorney) to prepare and submit the application for the Township Establishment. The Application is made in terms of Section 16(4) of City of Tshwane Municipal Spatial Planning and Land Use Management By-Law 2016, Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR, Gauteng Province. The township is located on the western side of Kirkney township and the relevant property measures ± 7.8837 hectares. The proposed Erf size shall be 479sqm from Erf 1-17 and Erf 19 to 35, while Erf 18 shall be 560sqm and Erf 36 shall be 5.8 Ha. The township will consist of the following zoning “**Residential 1 from Erf 1 to 35, Public Open Space on Erf 36 and proposed 13m Street**”. The current zoning of the property is Undetermined in terms of Tshwane Town Planning Scheme of 2008, (reversed 2014).

The intension of the registered owner in this matter is to build a residential development consisting of 35 dwelling house on each Erf and with single entrance / exit from Moska Street. The site is located at an optimum position relative to surrounding land usage such as Residential uses and Open Space. The subject property is currently vacant (refer to attached Annexure 13: Locality Map). The proposed Township Establishment will be compatible and consistent with surrounding land uses. The application represents the opportunity for this site to be used at a scale, which is appropriate to the area, and a higher potential to what is permitted in terms of the approved RSDF. It is therefore, concluded and contended that the local authority should support the proposed Township Establishment.

2. BACKGROUND AND LOCAL AUTHORITY

The owners of Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR (herein the “subject property” or “property” or “development site”), which falls under the jurisdiction of the City of Tshwane Metropolitan Municipality, (herein the “Municipality” or “Council”), wishes to lodge an application for Township Establishment on the subject property and this serves as a motivational memorandum in support of the application. Therefore, Mokone Town Planners and Property Consultants Ltd (Pty) has been appointed by Property For 4 Us Stokvel Proprietary Limited, as the owners of the property to lodge an application with City of Tshwane Metropolitan Municipality for the Township Establishment Application and to submit all the relevant documents in support of the application (refer to Special Power of Attorney attached as Annexure 4). The subject property has a land mass of 7,8837 ha and the proposed development is within Low-density zone in terms of approved 2018 RSDF for Region 3. In terms of zoning certificate the development site is currently

zoned for Undetermined as per Tshwane Town Planning Scheme 2008 (revised 2014), and the development site is within region 3 and in terms of political demarcation the property is in ward 55.

The subject property is located within the boundaries of the City of Tshwane Metropolitan Municipality, Gauteng Province, South Africa. An application for Township Establishment is therefore, submitted in terms of Section 16(4) of the City of Tshwane Spatial Planning and Land Use Management By-law, 2016. This memorandum aims to provide background information, give details and provide proof of policy compliance and motivation for the proposed application.

3. PROPERTY INFORMATION

3.1. Description

The property under discussion is Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR and will be referred to in this memorandum as the “subject property, property or development site”.

3.2. Locality

The site is located on the north of Pretoria, which it is approximately 22 km from the Pretoria Central Business District and development site is located Slightly towards the outskirts of Kirkney and it is directly at the eastern site of Sunset View AH via Van der Hoof Road. The co-ordinates of the site are as follows 28°05'00"E, 25°43'54"S. At present the property is vacant land and the proposed development is surrounded mainly by other farms and it is also within the Daspoortrant mountain (See Map 1: Locality Map).



3.3 Township Name

The township will be known as **Kirkney Extension 78** see attached confirmation letter dated **25 February 2023**. The property will have 36 Ervens with 35 Residential Use and Erf 36 for Public Open Space and 13m Street see attached Draft Township Layout Plan.

3.4. Property Details

In terms of the prevailing Title Deeds, the property registration details are as follows:

Property Details	Registered Owner	Extent	Title No.
Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR	Property For 4 Us Stokvel Proprietary Limited Registration No: 2020/064161/07	7.8837 ha	T41359/2022

Copy of the title deed is attached as **Annexure 18**.

3.5. Restrictive Conditions

There are no restrictive conditions registered over the property. (Refer to title deed attached as **Annexure 18**)

3.6. Servitude

According to the applicable Title Deed, there is servitude registered over the property and the application will adhere to the servitude. Please refer to the Title Deed attached as **Annexure 18**.

3.7. Mortgage Bonds

According to the Title Deed there is no mortgage bonds registered over the property.

3.8. Mineral Rights

There are no mineral rights that has been registered against the property. (**refer to title deed attached as annexure 18**)

3.9. Surrounding Zonings and Land Uses

The location (Zandfontein) on which the property is located is dominated by Residential Uses and Agricultural Uses/Vacant land. Refer to attached locality map indicated as Map 1. All other uses in close proximity are predominantly residential in nature.

3.10. Existing Zoning and Development Controls

The property falls within the management area of the City of Tshwane Municipal Spatial Planning and Land Use Management By-law, 2016, Therefore the zoning information of the property was conferred in terms of this



scheme. The table below summarises the development parameters that are currently applicable to the subject property (Refer to **Annexure-17: Zoning Certificate**).

1. Use Zone	19. Undetermined
2. Uses permitted	Agriculture, Farm Stall subject to Scheme 10, One dwelling-house
3. Use with consent	As per Scheme
4. Uses not permitted	Uses in Columns 3 & 4
5. Definitions	Clause 5
6. Density	N/A
7. Height	Table D, Height Zone 1
8. Coverage	Annexure T, subject to Clause 27
9. F.A.R	Table C, FAR Zone 21, subject to Clause 25
10. Parking provision	As per Scheme

Table-2: Existing Zoning and Development Parameters

3.11. Existing Structures

- The subject has no existing structure on it.

4. THE APPLICATION

We, **Mokone Town Planners and Property Consultants Pty Ltd**, being the authorized agent of the Property For 4 Us Stokvel Proprietary Limited, the registered owners of Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR, hereby apply for Township Establishment in terms of Section 16(4) of City of Tshwane Municipal Spatial Planning and Land Use Management By-Law, 2016. The current zoning of the subject property is Undetermined as defined by the Tshwane Town Planning Scheme of 2008 (revised 2014). The applicant intent to apply for Residential, Public Open Space and Street on the subject property and the developer's need is to develop this property which has been vacant for some years now, hence the proposed Residential will attract buyers or people living around the area and some investors will consider to develop the surrounding farms.



5. PROPOSED LAND USE SCHEDULES

The proposed Township Establishment will be in line with Tshwane Town Planning Scheme of 2008 (revised 2014) and it will consist of the following development controls / land use schedules.

Proposed Zone Number	Size (ha)	Use Permitted
21. Private Open Space	5.87 Ha	As per Scheme
23. Proposed Street	0.5 Ha	As Per Scheme

1.	Use Zone	1:Residential 1
2.	Uses permitted	Table B, Column (3)
3.	Use with consent	Table B, Column (4)
4.	Uses not permitted	Table B, Column (5)
5.	Definitions	Clause 5
6.	Density	1 Dwelling per erf
7.	Coverage	50%
8.	Height	2 Storeys,
9.	F.A.R	0,50
10.	SDP	Not required
11.	Street Building Line	5.0m



6.1. Background

6. MOTIVATION

The current zoning of the subject property is “undetermined” in terms of Tshwane Town Planning Scheme 2008 (revised 2014). The subject property is located within the jurisdiction of The City of Tshwane Metropolitan Municipality in Gauteng Province, South Africa. The City of Tshwane is administered by seven regions, while the subject property is within Region 3 in terms of RSDF and the property is demarcated as ward 55 in terms of political demarcation. Our client intend to develop the Township Establishment for Residential purpose over the subject property.

6.1 The Development Concept

The proposed Township Establishment will not have a detrimental impact on the surrounding land uses, it will not be in conflict with the adjoining or surrounding land uses, and it will be in line with all the necessary legislation, policies and guidelines in terms of City of Tshwane Land Use Management By-Law 2016.

6.2.1. Needs

The need for housing is an aspect in development that does not need to be elaborated on, hence housing is a fundamental human rights as stated in the constitution. Official Government policy supports all forms of housing development, in an effort to decrease housing backlog in the country and also to create sufficient housing stock on a continuous basis to provide in the current demand for housing units resulting from population growth, family formation, etc. The residential property market in Pretoria north or City of Tshwane in general is experiencing explosive growth basically all developed properties are always on the market, and there is an increasing demand for undeveloped land or land that can be re-developed. This together with the high prices is evident of the demand for housing really exist.

The application for Township Establishment for residential purposes will uplift the area’s needs through spontaneous development from agricultural uses to residential uses. Considering the modern day society aims to live, work and play in close proximity to various amenities without having to spend time travelling long distances in search for services and opportunities. This application seeks to apply the principle of sustainable development, which makes it possible to realise opportunities and enjoy services in close proximity. On a broader note, the subject property can easily be accessed via Van der hoof road and Moska street. The proposed development would, render services and create harmonies living for local residents and those living in the surrounding areas. The need for residential properties is influenced by proximity of population growth, scarcity of residential development within the area. The subject property is also strategically located in relation to the existing zonings and approved RSDF, which the area earmark for low density zone in terms of RSDF



for region 3, of which our proposed development is in line with the regional policies. Furthermore, the development site has a good connection to external services; therefore, the proposed development is feasible and it seeks to achieve the following:

- ❖ Job creation during the construction and operation phases.
- ❖ Promoting the principle of proximity
- ❖ The proposed development will play an important role in attracting other forms of developments to surroundings that will subsequently add value to the farm.

The subject property is zoned Undetermined and the intension of the property owner is to develop this property through residential houses. The rising cost of land and transport, together with the need to curtail urban sprawl, has resulted in the growing acceptance of the need for the integration of neighborhood supportive uses that are conveniently located. The proposed township establishment of the subject property will ensure that the property is utilized to its maximum potential. The property is compatible an will not have a detrimental impact on the surrounding areas, and is not in conflict with the adjoining or surrounding land uses, which makes this Township desirable. Furthermore, the proposed development is paramount in enhancing the residential house, as it will result in better, closely managed, and secured area.

6.2.2. Desirability

The performance and potential of the residential uses will be correlated to current consumer numbers and the market gap within the area. These factors influence the proposed development and the extent to which the site would be able to successfully capture local demand. The development of this property for residential purposes will only strengthen the existing residential character of the surrounding area. The existing road system will be able to accommodate the additional traffic generated by this development. The property has been vacant for some years now, however the property owner saw this opportunity to develop the site in order to excesses the proposed rights. It is ideal to utilize this prime property in terms of its location as a supportive use for what is happening in the immediate surroundings and the ever-increasing pressure of population, industries and transportation. The proposed development will be desirable as a viable option, as a sustainable, within available infrastructure, and it will contribute to the GDP through creation of permanent and temporary jobs during the construction or upgrade phase of the development.

There is also a massive host of services already available at Kirkney Township such as water, roads and electricity supply that can be beneficial when supplying infrastructure to the proposed development. The development has the potential to be unique and supportive to an “outlying” area of Kirkney and will accommodate locals in the adjacent property developments and attract outsiders from further field utilizing Van



Der Hoof Road and this may result in economic growth and creation of job opportunities during construction phase.

Given the fact that the application is located within the existing farm the proposed Township Establishment will not have any significant impact on the existing service infrastructure. The subject property will change the existing zoning and as such will not give rise to any new uses / impacts that is deemed undesirable. The proposed application aims to provide safe, affordable, adequate and decent development to the locals.

6.2.3. Complementing the local character

The subject property is bordered by residential building and open space to its boundaries. The proposed development will complement the local character and will ensure that the community's needs are met without diverging from the local character. The proposed development intends on disrupting the cycle of exclusion while it brings great quality through poverty reduction, employment creation, and economic growth.

6.2.4 Rights and obligations of affected parties (Community Participation)

This application will follow all the required procedure for comments/ objections to ensure that public participation has been complied with and the advertisements will be prescribed in a manner as stipulated in terms of the Tshwane Town Planning Scheme 2008 (revised 2014) read with Section 16(1)(h) of the City of Tshwane Land Use Management Bylaw, 2016, proof of which will be submitted upon expiry of the 28 days commenting period. Proof of compliance with the provisions of the aforesaid clauses as required will be submitted upon expiry of the objection period.

6.2.5. Social Services

In terms of Section 42(1)(c)(v) the impact of social services was considered. As the provision of social services resides in urban areas. The proposed rights for Residential 1 and Open Space where considered in order to merge the community's needs. The subject property will however optimise the access and use of existing resources and infrastructure.

7 LEGISLATIVE FRAMEWORK

7.1 The state's obligation to realize the constitutional and transformation imperatives

- ❖ Section 24 of the Constitution; to have the environment protected for the benefit of present and future generations through responsible legislative and other measures, which includes a land use planning system that is protective of the environment;
- ❖ Section 25 of the Constitution; to ensure the protection of property rights including measures designed to foster conditions that enable citizens to gain access to land on an equitable basis;



- ❖ Section 26 of the Constitution; to have the right of access to adequate housing which includes an equitable spatial pattern and sustainable human settlements; and
- ❖ Section 27(1)(b) of the Constitution; to ensure that the State takes reasonable legislative measures, within its available resources, to achieve the progressive realisation of the right to sufficient food and water.
- ❖ Section 42 of SPLUMA thus requires a local authority to consider the provisions of the relevant sections of the Constitution in deciding a land use application. To this end, this section of this application respectfully submits, and demonstrates that the required removal is consistent with the provisions of the Constitution
- ❖ Housing Act, No. 107 of 1997 the main objective is to provide for the facilitation of a sustainable housing development process; for this purpose to lay down general principles applicable to housing development in all spheres of government, to define the functions of national, provincial and local governments in respect of housing development and to provide for the establishment of a South African Housing Development Board, the continued existence of provincial boards under the name of provincial housing development boards and the financing of national housing programs; to repeal certain laws; and to provide for matters connected therewith.”

7.2.1. Consistency with Principles of SPLUMA Act 2013

The aim of the Spatial Planning and Land Use Management Scheme is to ensure that the influences of the past spatial planning be eradicated and ensure that a uniform, recognizable and comprehensive system of spatial planning and land use management be established throughout the Republic of South Africa to maintain economic unity and equal opportunity and equal access to government services, whereby social and economic inclusion is guaranteed and development planning applications should prove that the application complies with the said general principles, as depicted in the said act.

7.2.1. The Principle of Spatial Sustainability

The subject property would result in a community that is viable in providing an ancillary use to the current use. The site seeks the development rights hence the current zoning is Undetermined. The proposed application seeks to promote land development that is spatially compact, Furthermore; the proposed application poses no threat to the immediate and surrounding area. The application fulfils the criteria of spatial sustainability in that it stimulates effective and equitable functioning of areas within Municipal boundaries, where people can live, work, play and nurture their children in the neighborhood in which they live. The principle of spatial sustainability, whereby spatial planning and land use management system must promote land development that is within the fiscal, institutional, administrative means of the republic.



7.2.2. The Principle of Spatial Efficiency

The proposed Township Establishment will make use of the existing resources and services as it is within an already existing farm, which is a good way of optimizing resources. In other words, the subject property will maximise on the use of existing resources. In doing so, it will be optimising the development potential of the land.

7.2.3. The principle of special justice

The principle of spatial Justice. Past spatial and other development imbalances must be redressed through improved access to and use of land. Spatial planning mechanisms, including land use schemes must incorporate provisions that enable redress in access to land by disadvantaged communities and persons. The implication of spatial justice is that the municipality is striving to redress the imbalances of the past by putting measures in place to ensure that the current City of Tshwane Town Planning Scheme 2008 (revised 2014) enables the citizen to access land and utilize it efficiently to empower themselves. The increasing of urban population density while improving the liveability of the cities and providing affordable public transport, is seen as complementary strategies to this principle. Transportation networks are seen as the key to spatial transformation and the accommodation of diverse household types is encouraged

7.2.4. Principle of good administration

The promotion of consultative planning procedures can be seen by the principle of good administration. The process followed by transparency due to the advertising and circulation of the application to the various departments, be it in the Municipality or statutory departments is a clear indicator that a consultative approach is followed.

7.3. National Spatial Development Framework 2030

The proposed Township Establishment application over Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR is in line with Integrated Urban Development Framework, South Africa's national urban policy, takes as one of its key drivers for National Development Plans requires that South Africa should see meaningful and measurable progress in the pursuit of more functionally integrated, balanced and vibrant settlements. It builds on, and responds to a variety of chapters in the NDP, but notably Chapter 8. This is evident in its guiding vision of "liveable, safe, resource-efficient cities and towns that are socially integrated, economically inclusive and globally competitive and where residents actively participate in urban life". The IUDF puts forward a "new deal "for South Africa's cities and towns, which it sees as being on a continuum, ranging from the very large metropolitan regions to the smallest towns in rural South Africa.



This new deal entails maximising the potential of urban areas, and integrating planning, budgeting and investment in such a way that it improves and enhances urban form and improves the performance of urban areas. The IUDF makes a strong case for working with and sharing the urban spaces built up during colonial and Apartheid times; and retrofitting' our urban spaces to optimise their footprint and produce compact, coordinated and well-connected cities and towns.

The IUDF puts forward “four strategic goals”for all urban areas,

- ❖ Integrated urban planning and management;
- ❖ Integrated transport and mobility;
- ❖ Integrated and sustainable human settlements;
- ❖ Integrated urban infrastructure;
- ❖ Efficient land governance and management;
- ❖ Inclusive economic development;
- ❖ Empowered active communities;
- ❖ Effective urban governance; and
- ❖ Sustainable finances

The IUDF furthermore introduces three “cross-cutting priorities “that are to be used in the conceptualisation and implementation of the nine policy levers. These are rural-urban interdependency, urban resilience, and urban safety. While making strong, guiding statements in the pursuit of shared, inclusive, resilient and liveable urban settlements, the IUDF cautions against a one-size-fits-all approach. Instead, it recognises that South Africa has different types of cities and towns that perform different roles and have different requirements.

7.4. Gauteng Spatial Development Framework 2019

Provincial Spatial Development Frameworks is an integral part of national spatial planning and governance, and key components in the overall structure and functioning of provincial government, especially spatial planning and governance. The Objectives for local municipality spatial development frameworks are similar in many respects, and some key principles are seen through as follows:

- ❖ The proposed Township Establishment will promote the development in specific areas utilize resources more efficiently
- ❖ The proposed development will enhance of development corridors and township redevelopment
- ❖ It will improve of linkages and connectivity of the township.
- ❖ The promotion of viable public transport system and the reduction of reliance on private mobility



There are key factors identified for development in the province and by implication in City of Tshwane is to increased accesses and mobility as one factor that is focused on in this framework. The proposed Township Establishment intend to optimize the use of the existing resources including such resources relating to land, bulk infrastructure, engineering services and social facilities.

7.5. Regional Spatial Development Framework 2018

The RSDF of Region 3 identifies nodes in the metropolitan areas that are characterized by largely mono-functional land uses taking up large concentrated and defined space. The character of areas ranges from industrial to high technology smart industries, medical facilities, educational, research and conservation facilities. It is important to acknowledge the specialized activity areas. These linkages do not only refer to physical linkages, but also 'connectivity:' in a broader sense, such as between institutions of learning and research. The subject property is situated in an area earmarked for mixed-use development in terms of the applicable RSDF for Region 3. The services provided for the said area are of great capacity, the approval of the Township will be in line with the applicable policy and guideline. Tshwane densification policy is set to have integrated development in the area, thus higher residential densities are key means to achieving integrated development within and around nodes. Development guidelines thereto relate to the densification and enhancement of the residential character.

The RSDF focus on spatial transformation, Economic transformation and Ecological transformation as envisioned in the Roadmap towards Tshwane 2030. The approved IDP contain the strategic context within which the 2017/21 IDP has been developed and contain five strategic pillars which is guiding the focus for the 5 year term. The five pillars as indicated in the Roadmap towards Tshwane 2030 can be summarised as follows:

- ❖ A City that facilitates economic growth and job creation
- ❖ A City that cares for residents and promotes inclusivity
- ❖ A City that delivers excellent services and protects the environment
- ❖ A City that keeps residents safe
- ❖ A City that is open, honest and responsive

7.6. City of Tshwane Integrated Development Plan 2017 - 2021

In terms of Section 5 of the Municipal Systems Act, 2000 every municipality must compile an IDP, which serves as a budgetary delivery programme plan to manage, plan and execute development in each municipal area. City of Tshwane 's IDP 2017-2021 was approved by Council on the 25th of May 2017. The IDP is considered as an important planning and management tool to give effect to the City's Vision and




respond to development needs. The Roadmap towards Tshwane 2030 as indicated in the IDP 2017/2021 focuses on Spatial transformation, Economic transformation and Ecological transformation as investigated in the said Roadmap. The Regionalized Spatial Development Framework (RSDF) are aimed at dealing with the following spatial-related aspects, focussing however, on a regional level as indicated in the IDP 2017/2021:

- ❖ Provide spatial direction for development (spatial transformation)
- ❖ Provide an appropriate and integrated regional spatial framework for sustainable development (economic transformation).
- ❖ Ensure directed public investment, through the identification of geographic areas where intervention is necessary (economic transformation).
- ❖ Guide local development, in relation to urban movement and activity systems, in order to realise the vision of sustainability and urbanity (ecological transformation)
- ❖ Inform developers and the public of the location, structure and form of development that will most likely be approved and the sustainable urban planning and development guidelines to be followed (spatial transformation).

7.7 Metropolitan Spatial Development Framework (2012)

The MSDF represents the spatial interpretation of desired growth and development directions for the City. It spatially focuses economic and infrastructure development and gives spatial expression to the development plans above (CDS and IDP), both for the long-term and the medium term. The purpose of a metropolitan spatial framework for the city is to provide a spatial representation of the city vision and to be a tool to integrate all aspects of spatial (physical) planning such as land use planning; planning for pedestrian movement vehicular and other movement patters; planning regarding buildings and built-up areas; planning of open space systems; planning of roads and other service infrastructure; as well as to guide all decision-making processes regarding spatial (physical) development. It is the intention of the MSDF to restructure our fragmented, inequitable and inefficient urban form to create a more equitable, efficient and environmentally and financially sustainable urban dispensation in line with current legislation and policy. The compaction and functional integration of the city are normative directives from national level, and implies:

- Addressing social need
 - Restructuring of a spatially inefficient City
 - Promotion of sustainable use of land resources
 - Strategic direction around infrastructure provision
- 

- Creating opportunities for both rural and urban areas
- Guiding developers and investors as to appropriate investment localities
- Rural management programs to improve livelihoods and stimulate employment.”

7.8. The Tshwane Open Space Framework (Tosf) (2005)

The City of Tshwane Draft Metropolitan Open Space Framework comprises a Metropolitan Open Space Plan (MOSP) and a Regional Open Space Plan (ROSP). The MOSP was prepared in close collaboration with the Spatial Development Framework. The proposed Township Establishment for Residential will adhere to the open space framework policy, as such the proposed development will thus align with the MOSP for the area and will have no impact on any of the City’s ecological structuring elements or active open spaces with recreational value. Furthermore, considering the locality of the site, it is concluded that:

- ❖ The property is not near or on a ridge;
- ❖ The site is not part of a sensitive protected area;
- ❖ The site not regarded as high potential agricultural land;
- ❖ The property has no heritage or cultural value;
- ❖ The property has no tourism potential or are part of a tourism area
- ❖ The property is not part of a nature reserve or conservancy
- ❖ The property has not been registered as important or irreplaceable sites.

The site bear no environmental concern that could or should prohibit the application. This application will have no adverse impact on the conservation of ecologically sensitive areas or valuable agricultural land within the municipality. This application is therefore considered to be in support of the MOSP

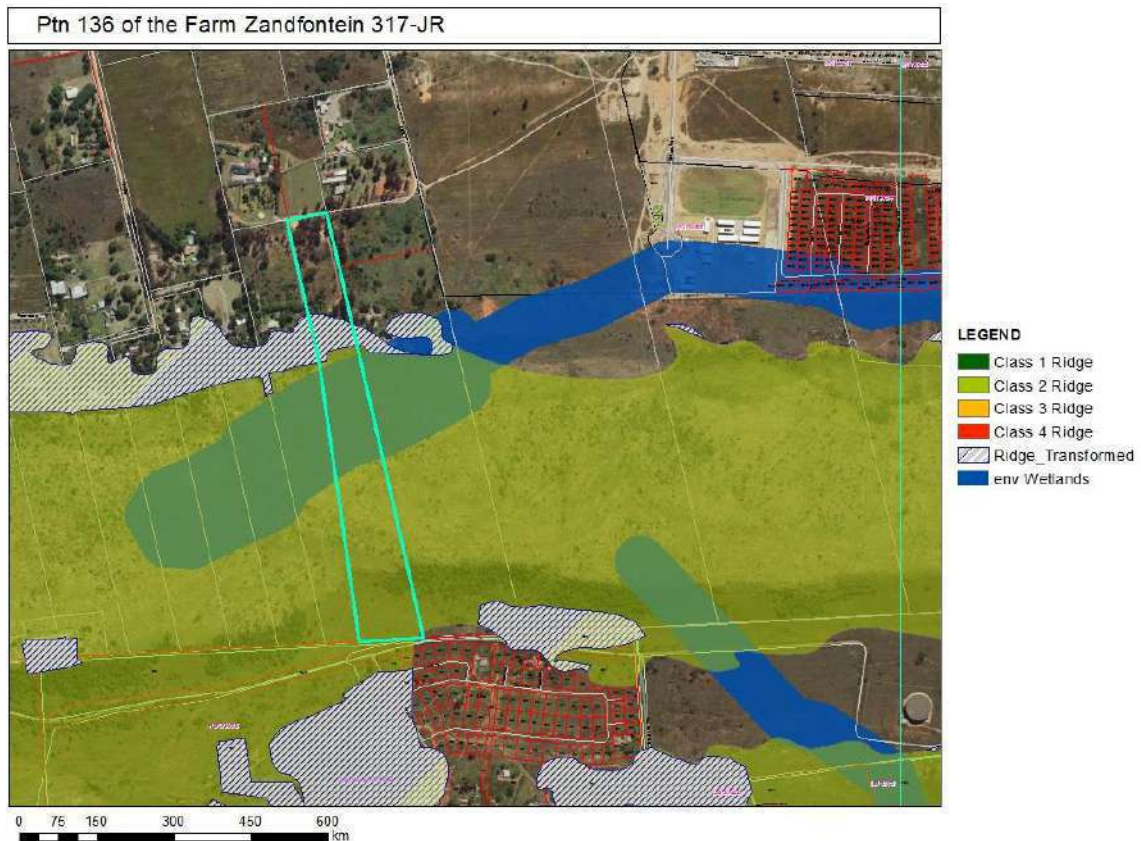
8 ENVIRONMENTAL SERVICES

Environmental impacts are regulated in terms of the National Environmental Management Act, 1998 (107 of 1998) (NEMA), read with their 2014 regulations. The following measure to betaken into consideration include:

- Ensuring that the disturbed footprint is kept to a minimum,
- Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only.
- Exposed areas should be rehabilitated with indigenous plants to the project area as soon as construction is finished.



- All protected plant species should not be disturbed as they are within an area marked as high sensitive
- Development should only take place in the area marked as low-medium sensitive
- No development should take place within a high sensitive area as indicated on Appendix C of this report
- Ensure that no protected plant species is disturbed, removed or translocated without a permit for such.



Ensuring compliance to the recommended mitigation measures by any contractors (project proponent) used on the project. Provided that the mitigation measures as suggested can be implemented, then the overall impact of the development components would be of low overall significance. Should all the mitigation and recommendations on this report be applied Naledzani Environmental Services does approve that the establishment of the township be granted but care should be taken not to destroy plant species unnecessarily. Therefore, the project does not pose any adverse impacts to the local ecosystem

9 HERITAGE STUDY

The literature review indicates that there are some cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls. During the January 2023 field

assessment some remains of recent homesteads and other unidentified related structures was found in the study and development area footprint. These are however most likely younger than 60 years of age, and have been demolished and vandalized to such an extent that they have no cultural heritage significance. The Phase 1 assessment and recording can therefore be seen as sufficient and these remains can be removed as part of the proposed development actions.

Although the ridge will not be developed as it is demarcated as an Environmental Greenway there is always a possibility of cultural heritage sites and features being located here. A possible Late Iron Age feature was identified from an aerial image (Google Earth) and could represent a typical livestock (cattle kraal) enclosure. Should the proposed development move onto the ridge, the site will have to be properly investigated, mapped and drawn before demolition. It is however unlikely that the development will encroach onto the ridge area.

From a Cultural Heritage point of view, it can therefore be concluded that the proposed Portion 136 Zandfontein 317JR Township Development should be allowed to continue provided that the recommendations made above are implemented.

10 GEOTECHNICAL REPORTS

10.1 RECOMMENDATIONS

Recommendations provided regarding the following:

- Development in general;
- Founding of light structures;
- Construction materials;
- Drainage measures & General.

10.1.1 DEVELOPMENT

No adverse conditions prohibiting the construction of structures for residential development were encountered at the site. A rock, covering an area of approximately 6.2ha (as shown in Appendix G)

It is recommended that the housing development proceed subject to the following conditions: Special founding solutions must be implemented for all high-rise structures as per the recommendations made in this report.

10.1.2 Founding of structures

According to the NHBRC guidelines the following founding solutions can be implemented for the zones:



- Zone H1: Modified normal
- Soil raft
- Zone S2: Concrete raft
- Deep strip foundations
- Pile foundations
- Soil raft

The common solutions between the two sit classes are: Soil raft

The site preparation requirements identified below are aimed at preparing foundation, removal of any unsuitable materials and densification of the ground. The presence of clay material below transported material may lead to significant differential settlement and cracking or distortion of structures.

Construction of a soil raft entails the following:

- Strip all topsoil, vegetation and organic soils and stockpile. This material could be used for landscaping, but is not suitable for use as engineered fill.
- Remove the in-situ material in an area 1 m wider than the footprint of the structure to a depth of 1.5 m. The excavation must be battered at a slope of 60° Stockpile this material separately for potential reuse for landscaping.
- Backfill the excavation in 150 mm thick layers with G6 quality materials (in accordance with TRH14) in 20 maximum 0.15 m layers (loose spread) and compacted to not less than 98% Mod AASTO density within 2% of OMC. The residual material encountered on site is considered suitable for this purpose.
- Concrete raft foundations should be placed at a shallow depth (0.5 m) in the soil raft.

In addition:

- Storm water must be managed such that it is kept away from earthworks. All loosened material shall be either recompacted or excavated and replaced with compacted engineered fill.
- It is recommended that the founding conditions be verified on site by a competent geotechnical engineer during construction.
- Temporary lateral supports are to be designed and installed during construction to support the excavation. The expected contact load on the concrete raft will be in the region of 50 KPa as the load is distributed evenly on the entire raft. The expected total settlement is 23 mm on the concrete raft foundation founded ≤ 0.5 m below natural ground level. The residual materials have an ultimate bearing capacity of 501kPa, and an allowable bearing capacity of 167kPa.



A concrete raft placed on top of the engineered fill prepared as described above would be suitable for founding the proposed development. Construction of reinforced concrete rafts under the entire footprint of the structure on competent founding material. Remove all or part of expansive horizon to 1,0 m 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 to prevent differential settlements. The final design of the recommended foundation solutions should be checked by a competent geotechnical engineer before the construction of foundations. Development can take place provided appropriate precautions against differential settlement are implemented.

Zone R: Developing on zone R will be a challenge because the preparation of foundations will require blasting of the rock which is expensive.

10.1.3 Construction Material

This residual material classifies as "G6" according according to the TRH 14 guidelines (CSIR: 1987). The G6 material is considered suitable for the construction of an engineered fill in moderate stiffness of engineered fills.

10.1.4 Stability of Excavations

It is strongly recommended that all excavations exceeding 1.5m should have a proper sidewall protection to ensure safety of workers. It is recommended that all deeper temporary excavations and excavations experiencing seepage will require trimming the slope and ensuring that any loose materials in upper soil layers are removed before workers are allowed into the excavations. Slope angles in excavations should not exceed 30 degrees. Shoring is required for excavations extending depths of 3 m below surface level.

10.1.5 Drainage measures

The following drainage measures must be implemented:

- No accumulation of surface water is permitted, and the entire development must be properly drained.
- All trenches and excavations must be properly backfilled and compacted in 150 mm thick layers and compacted to 90% of modified AASHTO density.

11 ENGINEERING SERVICES & INFRASTRUCTURE

The existing engineering infrastructure (electricity, water, and sanitation, roads and storm water) appear to be capable of providing for this proposed development, However, the owner of the property is willing



to pay contribution to accommodate any increase in capacity on site for the proposed development. In terms of Section 42(1)(c) of the Act, the capacity, state and impact of engineering services was considered. The property is currently vacant and the applicant intend to legalize land use rights over the subject property, will not have an additional impact on the sustainability of engineering services.

11.1 Roads and Access

The access shall be gained at nearby township known as Kirkney and will be in line with the local authority's guidelines and standards. Thus, the proposed development may not have an adverse impact on the existing road network. A service road through the development property, with an eastern alignment, which will also serve the larger township to the west of the property, is proposed. Access to the proposed development is intended to be obtained from this proposed service road.

11.2 Stormwater

At present there are no formal stormwater systems in the vicinity of the development site and no additional impact on stormwater services will emanate for the proposed rights.

11.3 Water

The existing zoning of the property and the fact that the township application will amend the current zoning from "Undetermined" to "Residential 1, Street & Public Open Space" will have adversely or increase impact on the property in its entirety or on the surrounding area. This application should thus will have slightly impact on the existing water infrastructure and/or place excessive demand on capacity. Additional capacity will be addressed as part of the comments that will be tabled on the application and service report shall also address the capacity required for proposed development.

11.4 Sewer

All municipal services will be connected or accessed at nearby Township known as Kirkney and the site shall be connected to it. Additional capacity shall be addressed as part of the comments that will be tabled on the application.

11.5 Electricity

The development site shall be served by City of Tshwane in terms of electrical connections and any increase in capacity on site for the proposed development the owner will settled the contributions. A distribution line is available on the vicinity of the development site. This should be sufficient for provision of electricity to site.



11.6 Waste Management Services

The domestic waste will be collected and transported by the Municipal and disposed of at a nearby municipal landfill site

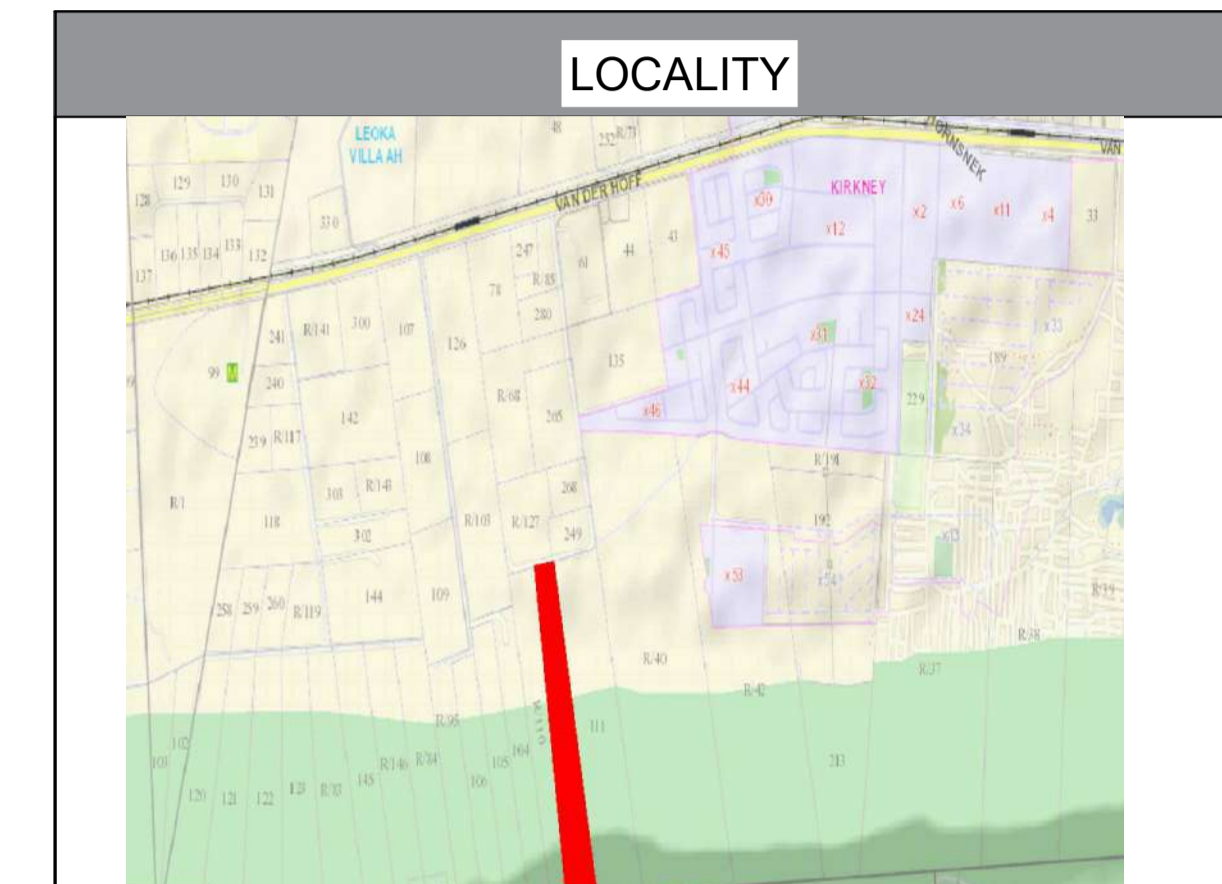
12 CONCLUSION

Application is hereby made in terms of Section 16(4) of City of Tshwane Municipal Spatial Planning and Land Use Management By-Law, 2016 for Township Establishment over of Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR. The proposed Township Establishment will be in line with all the principles as contained in the spatial planning and land use management act and the proposal is supported and resonate well with the Regional SDF, hence the subject property earmark for low density zone. The proposed township will be in accordance with the development pattern of the area and will have no detrimental effect to the surrounding residential area, hence it will add value on the area. The subject property conforms to the surrounding land uses, in line with the policy directive of the municipality and is compatible with the surrounding land uses. The proposed application is not only suitable or desirable but also necessary from a legal point of view and in light of the above motivation. With the granting and approval of this application for proposed Township Establishment over Portion 136 (portion of portion 110) of the Farm Zandfontein 317 JR, will ensure that the land can be utilized at the same scale for a supportive use. We believe that this Township Establishment application can be justified based upon the above information and should be favorably supported by the local authority.



TOWNSHIP ESTABLISHMENT ROSSLYN EXT 77
CITY OF TSHWANE METROPOLITAN
MUNICIPALITY
GAUTENG PROVINCE

CLIENT
PROPERTY 4 US STOCKVEL



ZONING TABLE

Land Use	Size	Coverage
Residential	1.63HA	20.37%
Roads	0.5HA	6.25%
Open Space	5.87HA	73.35%

LEGEND

- Storm water
- Sewer Line
- Township Boundary
- Counter line
- Line of no Access

SCALE

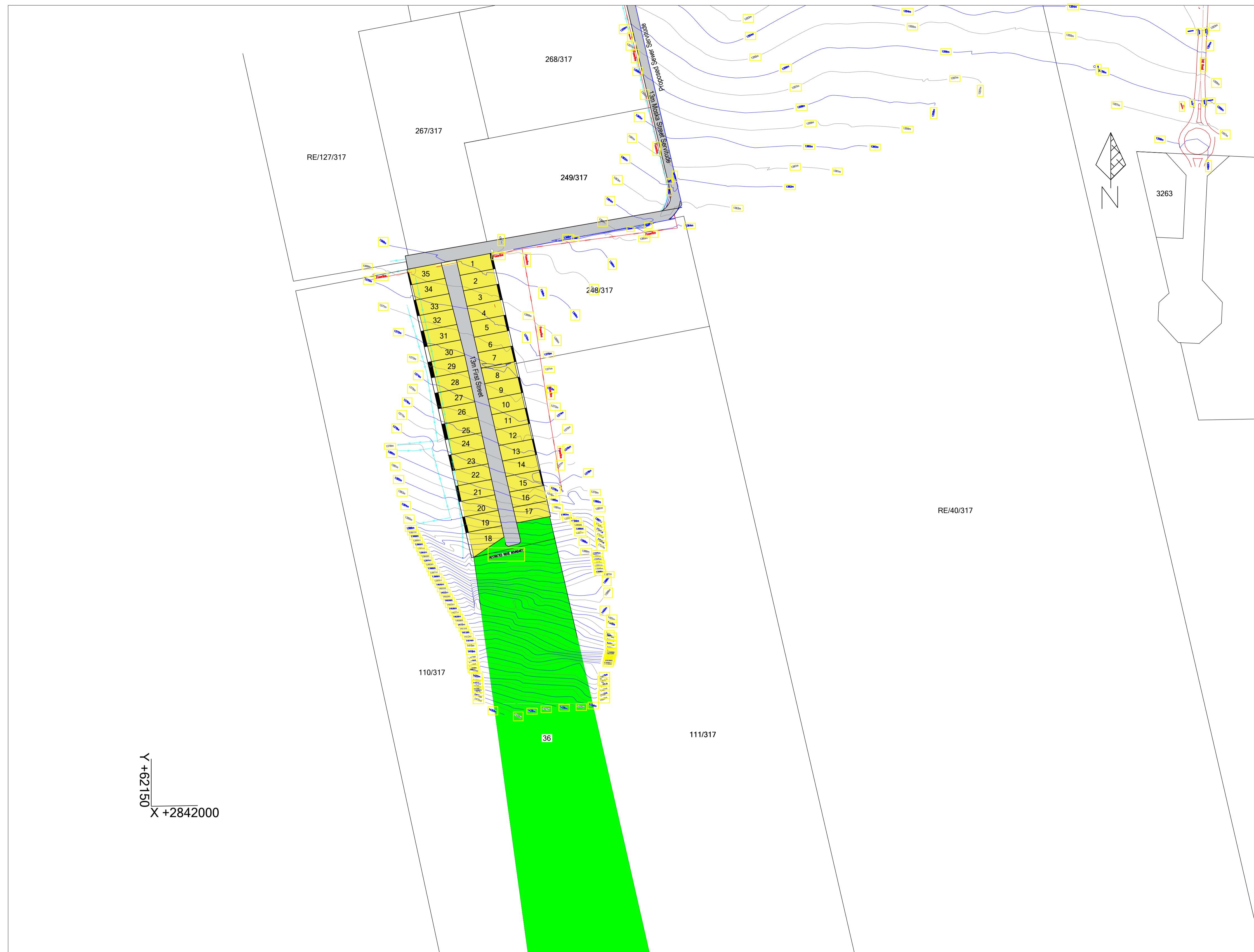
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TOWNSHIP DATA

DIMENSIONS AND SIZES

All dimensions shown on the plan are approximately scaled in meters
Erf 1-17 479 sqm Erf 19-35 is 479 sqm Erf 18 is 560 sqm in extent and

PLAN NUMBER:



GENERAL NOTES

- FIGURE A,B,C,D, represent the Township boundary of the proposed Township Rosslyn Extension 77
- Storm water
 - Sewer Line
 - Township Boundary
 - Counter line
 - Township Boundary
 - Buildingline

GEOTECHNICAL NOTES

This is to certify that the Township layout on this plan is in accordance with the provisions and recommendations as set out the Geotechnical Investigation for the proposed Township prepared by Davhana Geotech Solutions (Pty) Ltd

SIGNATURE

Date: _____

FLOOD LINE ANALYSIS

The property is not affected by a 1:50 or 1:100 year flood line as defined by the National Water Act of 1998 act 36 of 1998 and the layout plan of the proposed township has been certified by Mr Nico Roets

SIGNATURE

Date: _____

PROJECT LOCATION

SITUATED AT PORTION 136 OF THE FARM
ZANDFONTEIN JR

STATEMENT OF THE CONDITIONS UNDER WHICH THE APPLICATION IS MADE BY PROPERTY FOR 4 US STOKVEL (PTY) LTD (HEREIN AFTER REFERRED TO AS THE APPLICANT/TOWNSHIP OWNER) UNDER THE PROVISIONS OF SECTION 16(4) OF THE CITY OF TSHWANE LAND USE MANAGEMENT BY- LAWS, 2016 FOR PERMISSION TO ESTABLISH A TOWNSHIP ON PORTION 136 (PORTION OF PORTION 110) OF THE FARM ZANDFONTEIN 317 JR

1. CONDITIONS TO BE COMPLIED WITH PRIOR TO THE DECLARATION OF THE TOWNSHIP IN TERMS OF THE PROVISIONS OF THE CITY OF TSHWANE LAND USE MANAGEMENT BY-LAWS, 2016 AS AN APPROVED TOWNSHIP

1.1 INSTALATION AND PROVISION OF SERVICES

The applicant shall make the necessary arrangements for the finalization of the service agreement with the Municipality for the provision and installation of water, electricity and sanitation as well as the construction of roads and stormwater drainage to the township.

1.2 CANCELLATION OF EXISTING CONDITIONS OF TITLE

There are no restrictive condition and servitudes which needs to be cancelled.

1.3 MINERAL RIGHTS PERMITS

The consent be obtained from the Department of Mineral and Energy Regarding the mineral rights in respect of the land on which the township is being established.

1.4 GENERAL

The township owner shall comply with the provisions of section 16(7) of the By-law and satisfy the City of Tshwane Metropolitan Municipality that –

1.4.1 Amendment Scheme

The relevant amendment scheme in terms of section 16(4)(d) of the By-law `read with section 16(4)(g)(v) is in order and shall be published in terms of section 16(9)(a) and (b) in accordance with COT: F/28.

1.4.2 Name of Township, street names and numbering

The name of the township as well as the street names and numbers have been approved by the Municipality and is indicated on the General Plan in accordance with Schedule 5 and section 42 of the By-law.

1.4.3 Excision in terms of section 32(c) of the By-law

The holding on which the township is being established has been excised and the description of the land has been submitted as being farmland.

1.4.4 Geotechnical conditions in terms of section 28(12) to (14)

A geotechnical report has been submitted in order to determine the soil suitability of the land and indicating the various classes of soil according to the NHBC classification on which the township is to be established and the said report shall be favourable.

If it is determined that the property falls within a dolomitic area the applicant shall provide proof that a dolomitic stability and foundation investigation has been carried out and a report compiled from the results, indicating areas suitable for development and specifying conditions under which development may take place, has been submitted and accepted by the Municipality and the Council for Geoscience.

The Engineer Geologist has certified that he/she compared the final layout plan of the township with the geological report in conjunction with the consulting town planner and he/she is satisfied that buildings can be erected on every erf. If any special arrangements have to be made for any erf the township owner shall provide proof that these arrangements have been made to the satisfaction of the Municipality.

If required by the Municipality to do so, the township owners shall have the layout plan for the township vetted by the Council for Geoscience.

1.4.5 Non-Profit Company in terms of Schedule 1 of the Companies Act (Act 71 of 2008)

A NPC (Non Profit Company) shall be registered by the township owner to the satisfaction of the Municipality, which company shall have as its main purpose the provision and maintenance of engineering services and private open space in terms of section 34 read with Schedule 19 of the By-law.

1.4.6 Engineering Services

(i) Access is available to the township and that access to a public street system is available to all erven in the township whether by means of a private or public street in terms of section 28(5) of the By-law.

(ii) The portions of the road reserves adjoining the proposed township, and which are required for the proper installation and maintenance of municipal services, shall be acquired by the township owner;

(iii) Engineering Services read with Chapter 7 of the By-law: The township owner shall, at its (or his or her) costs provide such engineering services, social infrastructure and open spaces as the Municipality may deem necessary for the proper development of the land development area and/or land development application; provided that the Municipality may, for that purpose, enter into an engineering services agreement with the owner of the land development area, in terms of the By-law, other law and as may be required in accordance with section 49 of the Act;

(iv) The township owner shall for the purpose of providing such engineering services reach agreement to the satisfaction of, and with the City of Tshwane on the availability and provision of engineering services for the township, which agreement shall indicate the standard of services to be provided and obligations of the Township Owner and the City of Tshwane with regard to the provision of internal and external engineering services and the payment of engineering services contribution toward the provision of such services in terms of section 21(3) of the

bylaw and section 49 of Spatial Planning and Land Use Management Act, (Act 16 of 2013).

(v) A traffic impact study shall be submitted to the satisfaction of the Municipality, if required to do so by the Municipality in terms of Schedule 6 paragraph 3.(9)(d).

(vi) A detailed Public Transport Assessment shall be submitted by the township owner in compliance with Section 38 of the National Land Transport Act, 2009 (Act 5 of 2009), to the satisfaction of the Municipality, if required to do so by the Municipality read with Schedule 6 paragraph 3(16).

(vii) The stormwater plan for this township must be integrated with the greater stormwater master plan for the total relevant catchment area, including adjoining areas. The low points in roads and the accumulation of stormwater in crescents, culde-sac's and lower lying erven must be drained to the satisfaction of the Municipality.

1.4.7 Department Mineral Resources

The comments of the Department of Mineral Resources was obtained.

1.4.8 EIA read with Schedule 6 (18) of the By-law.

A record of decision from the Gauteng Department of Agriculture and Rural Development shall be obtained in terms of the provisions of the Environmental Management Act, 1998 (Act. 107 of 1998) and conditions that may have been imposed in the record of decision shall be complied with at the cost of the township owner.

1.4.9 Electricity where limited capacity is available.

The township lies within the priority area for the supply of electricity in bulk can be supplied, provided that the total expected load of 130 kVA is not exceeded. Capacity in this regard will expire on the 27th January 2023. This date may be amended with the written approval of the Services Infrastructure Department (Energy and Electricity Division) in terms of Chapter 7 of the By-law read with section 42 of SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, (ACT 16 OF 2013). This may apply *mutatis mutandis* to other engineering services.

1.4.10 Development Framework

Where an approval of a township, or an approval of a division of a township is done in terms of a Development Framework, or it is required to be submitted in order to finalise the township, then a Development Framework for the township shall be submitted to the satisfaction of the Municipality which may also interactively referred to as a master SDP or provisional SDP/Architectural guidelines etc. or similar type of documentation.

1.4.11 General Plan

General Plan in terms of section 16(6) of the By-law plus extensions of time in terms of section 16(6)(a) and section 16(8)(a) of the By-law read with Schedule 10

The township owner shall comply with the provisions of section 16(6) and 29 (where applicable) of the By-law.

1.4.12 The applicant shall satisfy the City of Tshwane Metropolitan Municipality that,

- (i) the relevant amendment scheme, is in order and may be published simultaneously with the declaration of the township an approved township;
- (ii) satisfactory access is available to the township and that a public street system and or a right of way servitude is available to all erven in the township;
- (iii) a satisfactory traffic impact assessment has been submitted;
- (iv) a satisfactory noise impact study has been submitted;
- (v) the holding on which the township is being established has been excised and the description of the property has been submitted as being farmland;
- (vi) a favourable geo-technical report has been submitted to the Department Public Works and Infrastructure Development;
- (vii) the portion of the road reserves adjoining the proposed township, and which are required for the proper installation and maintenance of the Municipality's services, must be acquired by the township owner; and
- (viii) the name of the township as well as the street names have been approved by the Municipality and is indicated on the layout plan or General Plan in accordance with regulation City of Tshwane Land Use Management By-Laws, 2016.

1.4.13 The applicant shall comply with the provisions of Section 6 of the Tshwane Land Use Management By-Laws, 2016.

2. CONDITIONS OF ESTABLISHMENT (CONDITIONS WHICH WILL BE APPLICABLE TO THE APPROVED TOWNSHIP IN TERMS OF CITY OF TSHWANE LAND USE MANAGEMENT BY-LAWS, 2016)

2.1 NAME

The name of the township shall be **Kirkney Ext 77**

2.2 DESIGN

The township shall consist of erven as indicated on Plan no. **CPD-MTTX 70/4.**

2.3 PROVISION AND INSTALLATION OF ENGINEERING SERVICES

The Township Owner shall at his cost provide the township with such engineering services, social infrastructure and open spaces as the Municipality may deem necessary for the proper development of the township and comply with the engineering services agreement entered into between the township owner and the

Municipality as required in terms of Section 21(3) of the By-law and in accordance with section 49 of the Spatial Planning and Land Use Management Act, 16 of 2013.

2.4 ACCEPTANCE AND DISPOSAL OF STORMWATER

The township owner shall arrange for the drainage of the township to fit in with that of the adjacent road (or roads) and all stormwater running off or being diverted from the road (or roads) and higher lying areas shall be received and disposed of, to the satisfaction of the Municipality.

2.5 DISPOSAL OF EXISTING CONDITIONS OF TITLE

All erven shall be made subject to existing condition and servitudes in the Title Deed T41359/2022.

2.6 REMOVAL OR REPLACEMENT OF MUNICIPAL SERVICES

Should it become necessary to move or replace any existing municipal service as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.7 ACCESS

Ingress to the township and egress the township will only be allowed along the points as approved by City of Tshwane Metropolitan Municipality. The Township owner shall after approval of the layout and specifications construct the said ingress and egress points at his own expenses to the satisfaction of the City of Tshwane Metropolitan Municipality.

2.8 PHYSICAL BARRIER

The Township owner shall at his own expense erect a physical barrier in a position and to the satisfaction of the City of Tshwane Metropolitan Municipality, as and when required to do so and the Township owner shall maintain the physical barrier in good order.

2.9 DEMOLITION OF BUILDINGS AND STRUCTURES

When required by the City of Tshwane Metropolitan Municipality to do so, the township owner shall at his own expense cause to be demolished to the satisfaction of the City of Tshwane Metropolitan Municipality all existing buildings and structures situated within building line reserves and side spaces or over common boundaries, or dilapidated structures.

2.10 REMOVAL OF LITTER

The township owner shall at his own expense have all litter within the township area removed to the satisfaction of the City of Tshwane Metropolitan Municipality, when required to do so.

2.11 REMOVAL AND /OR REPLACEMENT OF ESKOM POWER LINES

Should it become necessary to remove and/or replace any existing power lines of Eskom as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.12 REMOVAL AND/OR ROPLACEMENT OF TELKOM SERVICES

Should it become necessary to remove and/or replace any existing Telkom services as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.13 CONDITIONS IMPOSED BY THE GAUTENG PROVINCIAL GOVERNMENT:

DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (GDARD)

The township owner shall at his costs comply with and strictly adhere to all the conditions and/or requirements imposed by Department of Agriculture and Rural Development including those by which exemption has been granted from compliance with the Environmental Impact Assessment Regulations, 2014 promulgated on 4 December 2014 in terms of section 21, 22 and 26 of the Environmental Conservation Act (Act 73 of 1989) or the National Environmental Act, 998 (Act 107 of 1998) as amended and the Regulations thereto, as the case may be for the Development of this township.

2.14 CONDITIONS IMPOSED BY NATIONAL AND REGIONAL ROADS AUTHORITIES

The township owner shall, at its own cost, comply with and strictly adhere to all the conditions and/or requirements imposed by the South African National Roads Agency Limited, the Department of Roads and Transport (Gauteng Provincial Government), Department of Water and Environmental Affairs and where applicable as imposed by the Municipality.

2.15 ACCESS CONDITIONS

- (a) Access to or egress from the township shall be provided to the satisfaction of the Municipality.
- (b) No access to or egress from the township shall be permitted along the lines of no access as indicated on the approved layout plan of the township No. **CPD-MTTX 70/4**.

2.16 SAFEGUARDING OF UNDERGROUND WORKINGS

The township owner shall at its own costs, make adequate provision to the satisfaction of the Inspector of Mines (Gauteng Region), to prevent any water from entering underground workings through outcrop workings or shaft openings and if applicable, the existing stormwater drains shall be properly maintained and protected.

3. CONDITIONS TO BE COMPLIED WITH BEFORE THE ERVEN IN THE TOWNSHIP BECOME REGISTRABLE WHICH SHALL BE READ WITH THE CONDITIONS OF ESTABLISHMENT INDICATED IN 2 ABOVE IN TERMS OF

SECTION 16(10) OF THE BY-LAW AND SECTION 53 OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 16 OF 2013

3.1 ELECTRICITY AND PRIVATE SEWERAGE AND WASTEWATER TREATMENT AND OTHER WORKS

The Municipality is not the bulk supplier of electricity/sewerage and waste water treatment/water (in the case of Rand Water) works and therefore the township owner shall in terms of Section 21(3) of the By-law make the necessary arrangements with ESKOM as the licensed supplier of electricity in the township for the provision of electricity to the township and/or with the Department responsible for sewerage and waste water treatment (private package plants) and/or RAND WATER for the provision of the service to the township.

3.2 REFUSE REMOVAL

- a. The township owner shall at his own expense have all litter within the township area removed to the satisfaction of the City of Tshwane Metropolitan Municipality, when required to do so by the City of Tshwane Metropolitan Municipality.
- b. The township owner shall provide sufficient refuse collection points in the township and shall make arrangements to the satisfaction of the Municipality for the removal of all refuse.

3.3 REMOVAL OR REPLACEMENT OF EXISTING SERVICES

If, by reason of the establishment of the township, it should be necessary to remove or replace any existing municipal, TELKOM and/or ESKOM services, the cost of such removal or replacement shall be borne by the township owner. For purposes of removal or replacement the township owner shall, at its own costs, protect the services by means of the registration of servitudes in favour of the City of Tshwane, should it be deemed necessary.

3.4 DEMOLITION OF BUILDINGS AND STRUCTURES

The township owner shall at its own costs cause all existing buildings/structures situated within the building line reserves, side spaces, or over common boundaries to be demolished to the satisfaction of the Municipality, when requested thereto by the Municipality or where buildings/structures are dilapidated.

3.5 RESTRICTION ON REGISTRATION AND TRANSFER OF ERVEN FROM THE TOWNSHIP

In terms of section 16(10) of the By-law read with section 53 of Spatial Planning and Land Use Management Act, (Act 16 of 2013) no property(ies) or land and/or erf/erven and/or sections and/or units, sectional title schemes/registers or other registration transaction/s, in a land development area, which registration transactions results from a land development application(s), may be submitted by the applicant and/or owner, to the Registrar of Deed for registration, including transfer and the registration of a Certificate of Consolidated Title and/or Certificate of Registered in the name of the owner; prior to the Municipality certifying to the Registrar of Deeds that:

- (i) all engineering services have been designed and constructed to the satisfaction of the Municipality, including the provision of guarantees, and maintenance guarantees, for services having been provided to the satisfaction of the Municipality as may be required;
- (ii) all engineering services contributions and open spaces and parks contributions and/or development charges and/or other monies have been paid;
- (iii) all engineering services have been or will be protected to the satisfaction of the Municipality by means of servitudes;
- (iv) all conditions of the approval of the land development application have been complied with or that arrangements for compliance to the satisfaction of the Municipality have been made, which arrangements shall form part of an agreement read with Chapter 7 of the By-law, to the satisfaction of the Municipality;
- (v) it is in a position to consider a final building plan; and
- (vi) all the properties have either been transferred in terms of subsection 16(11) hereof or shall be transferred simultaneously with the first transfer or registration of a newly created property or sectional title scheme.

3.6 ESTABLISHMENT OF A NON-PROFIT COMPANY IN TERMS OF SECTION 34 WITH SCHEDULE 19 OF THE BY-LAW

The township owner shall at his/her own cost establish a Non-Profit Company ("NPC") in terms of schedule 1 of the Companies Act, 2008 (Act 71 of 2008) as amended and as contemplated in section 34 read with schedule 19 of the By-law, with the main object of the Company being to retain and maintain the private engineering services in the township. The township owner shall further submit proof that such a Company has been duly registered, before a section 16(10) Certificate shall be issued in terms of the By-law.

Servitudes in favour of all the erven within the township shall be registered over any and all property owned or transferred to a NPC for purposes of access and engineering services.

4. CONDITIONS OF TITLE

4.1 CONDITIONS OF TITLE IMPOSED IN FAVOUR OF THE MUNICIPALITY IN TERMS OF THE SECTION 16(4)(G) OF THE BY-LAW

4.1.1. ALL ERVEN

- (a) The erf shall be subject to a servitude, 2m wide, for municipal services (water, sewer, electricity and stormwater) (hereafter referred to as "the services"), in favour of the City of Tshwane Metropolitan Municipality, along any two boundaries, excepting a street boundary, if and when required by the local authority: Provided that the local authority may waive any such servitude.
- (b) No building or other structure or any part of its foundation shall be erected within the aforesaid servitude area and no large, rooted trees shall be planted within the area of such servitude or within 2m thereof.
- (c) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining the aforesaid servitude, any

material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards necessary, and furthermore the Municipality shall be entitled to reasonable access to the said property for the aforesaid purposes, subject to the provision that the Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.

- (d) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining aforesaid servitude, any material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards necessary and furthermore the Municipality shall be entitled to reasonable access to the said property for the aforesaid purposes, subject to the provision that the Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.
- (e) The proposed Erf size shall be 479sqm from Erf 1-17 & 19 - 35, while Erf 18 shall be 560sqm and Erf 36 shall be 5.8 Ha. The township will consist of the following zoning “Residential 1 from Erf 1 to 35, Public Open Space on Erf 36 and proposed 13m Street

4.1.2. ERVEN 1- 35

The erven is subject to the following servitudes in favour of the Municipality, as indicated on the General Plan:

- a) A 3m wide stormwater servitude;
- b) A 2m wide electrical mini-substation servitude; and
- c) A 5m wide sewer servitude.

5. CONDITIONS WHICH, IN ADDITION TO THE EXISTING PROVISIONS OF THE RULING TOWN-PLANNING SCHEME, HAVE TO BE INCORPORATED IN THE TSHWANE TOWNPLANNING SCHEME, 2008 (REVISED 2014) IN TERMS OF CITY OF TSHWANE MANAGEMENT BY-LAWS, 2016

5.1 ERVEN 1 - 35 **KIRKNYE EXTENSION 78**

1	Use Zone	1: RESIDENTIAL 1
2	Uses permitted	Table B, Column 3.
3	Uses with consent	Table B, Column 4.
4	Uses not permitted	Table B, Column 5.
5	Definitions	Clause 5.
6	Density	1 Dwelling per erf.
7	Coverage	50%.
8	Height	2 storeys.
9	Floor area ratio	0,5.
10	Site development plan and landscape development plan	Not required.

11	Street building lines	5,0 m.
12	Building restriction areas	3,0 m; provided that the provision of Clause 13 (a) is excluded.
13	Parking requirements	Clause 28, Table G.
14	Paving of traffic areas	All parts of the erf upon which motor vehicles may move or park, shall be provided with a permanent dust-free surface, which surface shall be paved, drained and maintained to the satisfaction of the Municipality.
15	Access to the erf	Clause 7(1).
16	Loading and off-loading facilities	Not applicable.
17	Turning facilities	Not required.
18	Physical barriers	Clause 18(8).
19	Health measures	Clause 18(14).
20	Outdoor advertising	Advertisements and/or sign boards shall not be erected or displayed on the erf without the written consent of the Municipality first being obtained in terms of municipal by-laws for outdoor advertising.
21	Detrimental soil conditions	Clause 19.
22	Open space	Clause 14(3)(a).
	<p>23 General:</p> <p>(1) The control of stormwater shall meet the requirement of the Municipality.</p> <p>(2) The management and control of stormwater on the site(s) must be done to the satisfaction of the Municipality.</p> <p>(3) A stormwater management plan, unless otherwise determined by the Municipality, compiled by a person suitable qualified to the satisfaction of the Municipality, shall be submitted to the Municipality for approval prior to the submission/approval of building plans.</p> <p>(4) In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Tshwane Town-planning Scheme, 2008 (Revised 2014).</p>	

ERF 36 **KIRKNEY EXT 78**

Proposed Zone Number	Size (ha)	Use Permitted
21. Private Open Space	5.87 Ha	As per Scheme
23. Proposed Street	0.5 Ha	As Per Scheme

APPENDIX B

Trip Generation Calculations

APPENDIX C

Traffic Analysis Summary Table

TRAFFIC ANALYSIS RESULTS

INTERSECTION 1 – van der Hoff Road/Moska Street

Peak hour	Parameter	2023 Traffic Volumes												2023 + Development Traffic Volumes												2028 Traffic Volumes												2028 + Development Traffic Volumes											
		Moska St South (1)			Van der Hoff Rd East (2)			No approach North (3)			Van der Hoff Rd West (4)			Moska St South (1)			Van der Hoff Rd East (2)			No approach North (3)			Van der Hoff Rd West (4)			Moska St South (1)			Van der Hoff Rd East (2)			No approach North (3)			Van der Hoff Rd West (4)			Moska St South (1)			Van der Hoff Rd East (2)			No approach North (3)			Van der Hoff Rd West (4)		
		L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R			
Week AM	V/C	0.01	-	0.01	0.17	0.17	-	-	-	-	0.19	0.19	0.06	-	0.06	0.18	0.18	-	-	-	-	0.20	0.20	0.02	-	0.02	0.20	0.20	-	-	-	-	0.22	0.22	0.07	-	0.07	0.21	0.21	-	-	-	-	0.23	0.23				
	Delay (s)	9	-	12	6	0	-	-	-	-	0	7	10	-	12	6	0	-	-	-	-	0	7	10	-	13	6	0	-	-	-	-	0	7	10	-	14	6	0	-	-	-	-	0	7				
	LOS	A	-	B	A	A	-	-	-	-	A	A	A	-	B	A	A	-	-	-	-	A	A	A	-	B	A	A	-	-	-	-	A	A	A	-	B	A	A	-	-	-	-	A	A				
Week PM	V/C	0.02	-	0.02	0.21	0.21	-	-	-	-	0.15	0.15	0.03	-	0.03	0.22	0.22	-	-	-	-	0.16	0.16	0.02	-	0.02	0.25	0.25	-	-	-	-	0.17	0.17	0.04	-	0.04	0.25	0.25	-	-	-	-	0.18	0.18				
	Delay (s)	10	-	12	6	0	-	-	-	-	0	7	10	-	12	6	0	-	-	-	-	0.16	0.16	10	-	13	6	0	-	-	-	-	0	8	10	-	14	6	0	-	-	-	-	0	8				
	LOS	A	-	B	A	A	-	-	-	-	A	A	A	-	B	A	A	-	-	-	-	A	A	B	-	B	A	A	-	-	-	-	A	A	B	-	B	A	A	-	-	-	-	A	A				
Intersection Layout	Existing																																																
Traffic Control	Existing (priority stop)	Existing (priority stop)																																															

Notes: L=left, T=through, R=right, V/C=volume/capacity, LOS=Level of Service, red text in table indicates unacceptable performance

APPENDIX D

Detailed Traffic Analysis Outputs

SITE LAYOUT

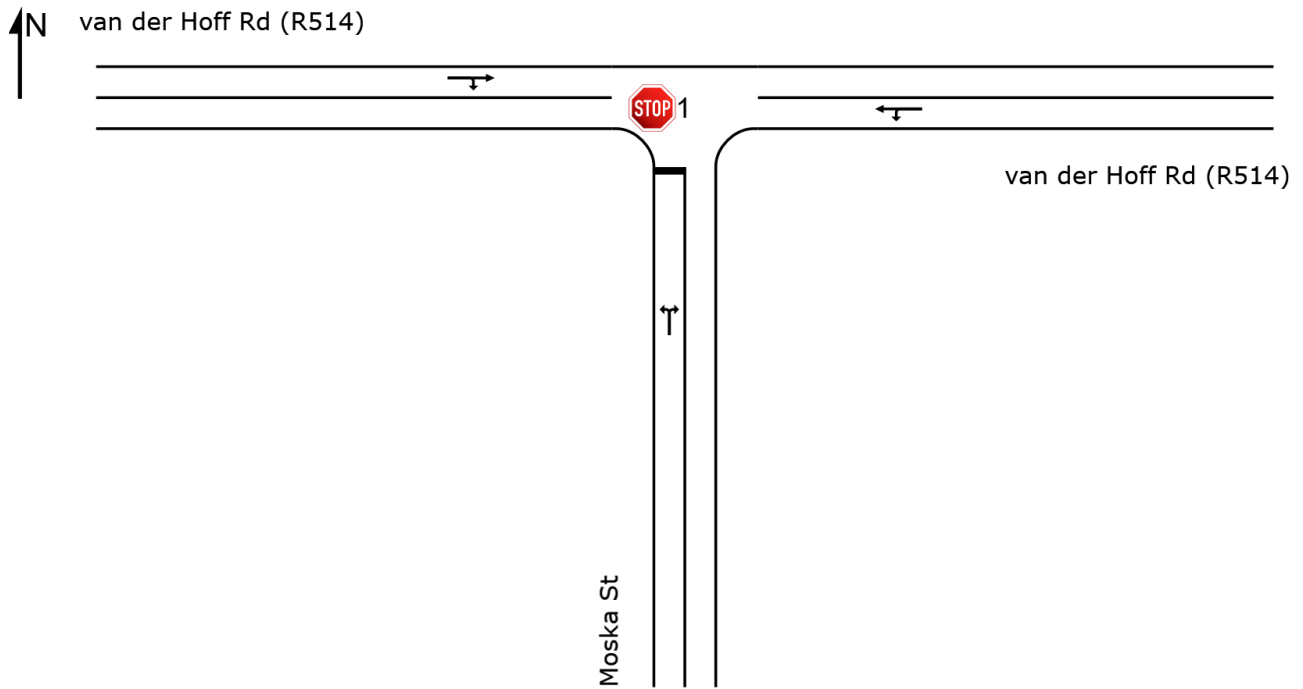
Site: 1 [01_2023 AM (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [01_2023 AM (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	1	1.0	1	1.0	0.012	9.4	LOS A	0.0	0.2	0.50	0.89	0.50	50.0
3	R2	5	1.0	6	1.0	0.012	11.8	LOS B	0.0	0.2	0.50	0.89	0.50	49.5
Approach		6	1.0	7	1.0	0.012	11.4	LOS B	0.0	0.2	0.50	0.89	0.50	49.6
East: van der Hoff Rd (R514)														
4	L2	5	1.0	6	1.0	0.174	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.2
5	T1	294	3.0	327	3.0	0.174	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		299	3.0	332	3.0	0.174	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: van der Hoff Rd (R514)														
11	T1	329	3.0	366	3.0	0.192	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	1.0	1	1.0	0.192	6.9	LOS A	0.0	0.1	0.00	0.00	0.00	57.6
Approach		330	3.0	367	3.0	0.192	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		635	3.0	706	3.0	0.192	0.2	NA	0.0	0.2	0.01	0.01	0.01	59.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

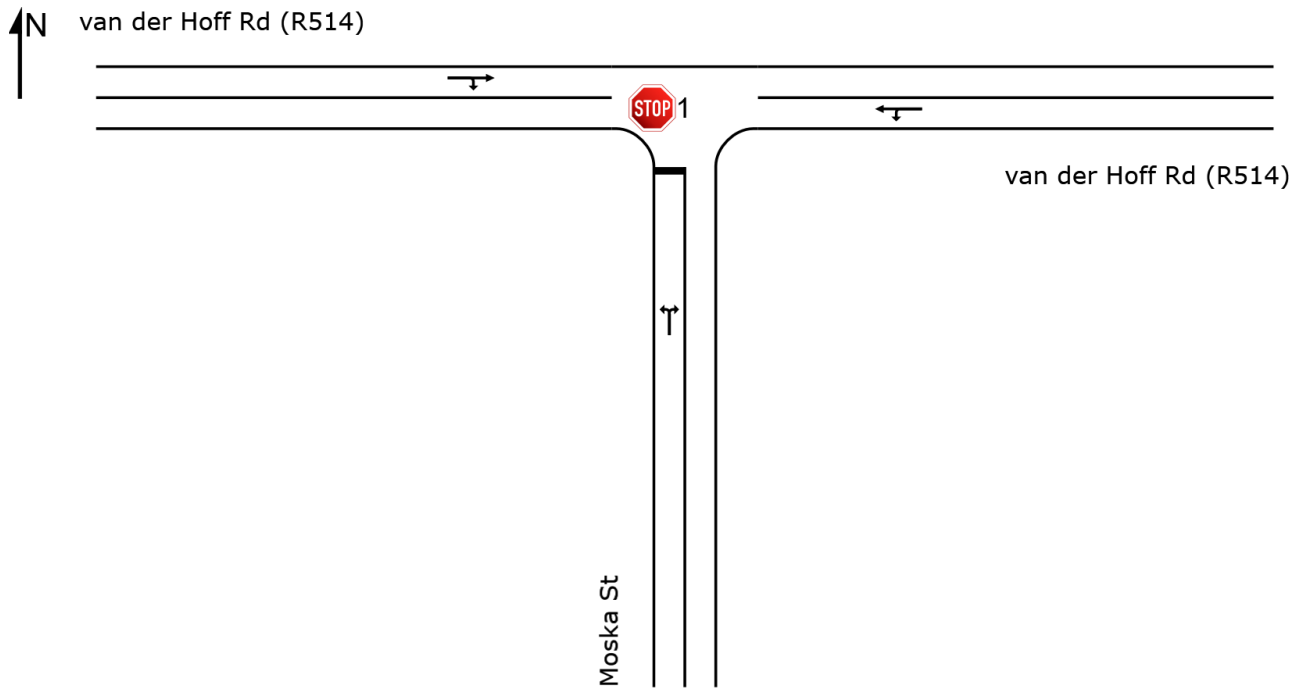
Site: 1 [02_2023 PM (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [02_2023 PM (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	1	1.0	1	1.0	0.015	9.8	LOS A	0.0	0.3	0.52	0.90	0.52	49.9
3	R2	7	1.0	7	1.0	0.015	11.8	LOS B	0.0	0.3	0.52	0.90	0.52	49.4
Approach		8	1.0	8	1.0	0.015	11.6	LOS B	0.0	0.3	0.52	0.90	0.52	49.5
East: van der Hoff Rd (R514)														
4	L2	5	1.0	5	1.0	0.211	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.2
5	T1	387	3.0	399	3.0	0.211	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		392	3.0	404	3.0	0.211	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: van der Hoff Rd (R514)														
11	T1	274	3.0	282	3.0	0.149	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	1.0	1	1.0	0.149	7.2	LOS A	0.0	0.1	0.00	0.00	0.00	57.6
Approach		275	3.0	284	3.0	0.149	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		675	3.0	696	3.0	0.211	0.2	NA	0.0	0.3	0.01	0.02	0.01	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

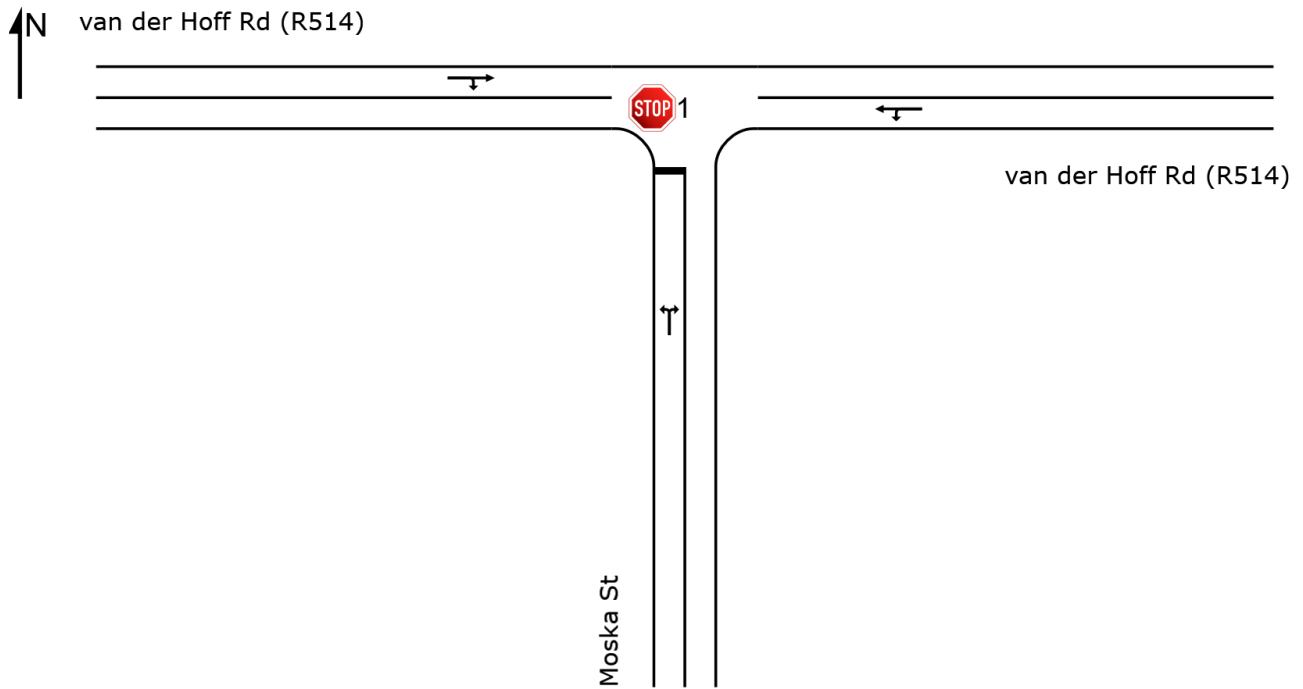
Site: 1 [03_2023 AM + Dev (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [03_2023 AM + Dev (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Moska St														
1	L2	11	1.0	12	1.0	0.057	9.5	LOS A	0.2	1.1	0.49	0.94	0.49	50.1
3	R2	21	1.0	23	1.0	0.057	12.2	LOS B	0.2	1.1	0.49	0.94	0.49	49.6
Approach		32	1.0	36	1.0	0.057	11.3	LOS B	0.2	1.1	0.49	0.94	0.49	49.8
East: van der Hoff Rd (R514)														
4	L2	10	1.0	11	1.0	0.177	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
5	T1	294	3.0	327	3.0	0.177	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		304	2.9	338	2.9	0.177	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
West: van der Hoff Rd (R514)														
11	T1	329	3.0	366	3.0	0.196	0.0	LOS A	0.1	0.3	0.02	0.01	0.02	59.8
12	R2	5	1.0	6	1.0	0.196	6.9	LOS A	0.1	0.3	0.02	0.01	0.02	57.5
Approach		334	3.0	371	3.0	0.196	0.1	NA	0.1	0.3	0.02	0.01	0.02	59.8
All Vehicles		670	2.9	744	2.9	0.196	0.7	NA	0.2	1.1	0.03	0.06	0.03	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

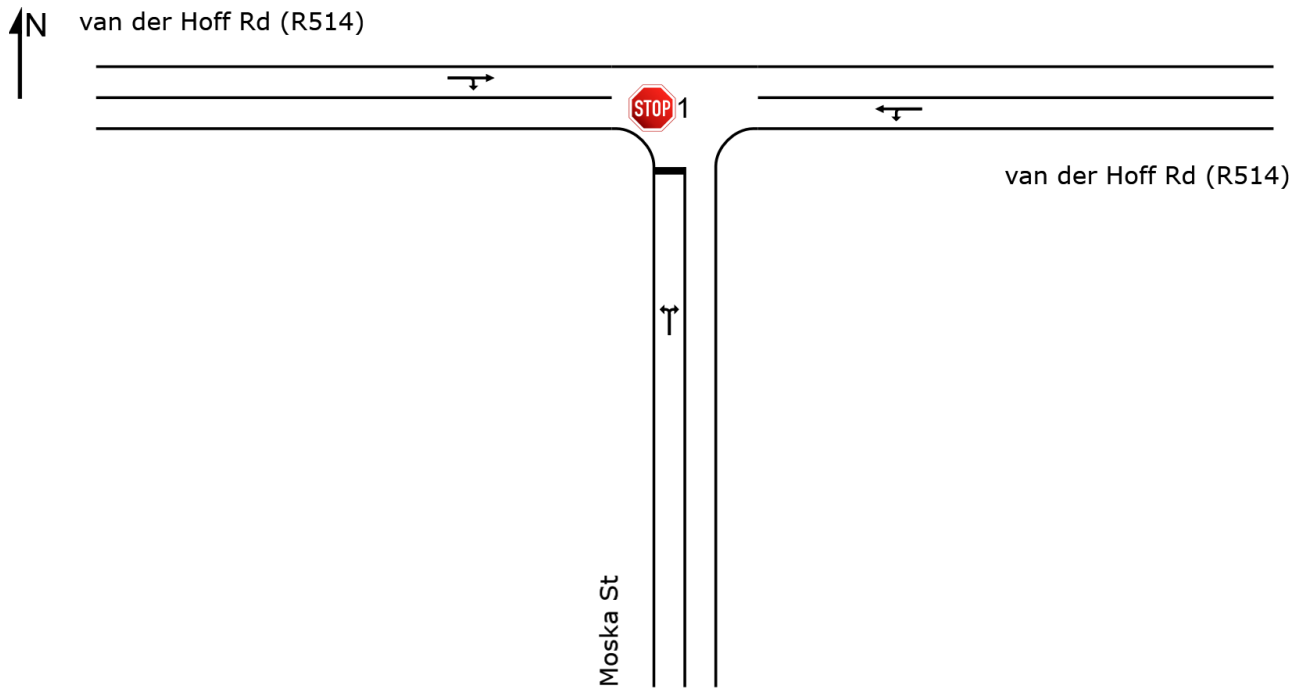
Site: 1 [04_2023 PM + Dev (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [04_2023 PM + Dev (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist m]				
South: Moska St														
1	L2	4	1.0	4	1.0	0.031	9.9	LOS A	0.1	0.6	0.52	0.93	0.52	49.9
3	R2	13	1.0	13	1.0	0.031	12.1	LOS B	0.1	0.6	0.52	0.93	0.52	49.4
Approach		17	1.0	18	1.0	0.031	11.6	LOS B	0.1	0.6	0.52	0.93	0.52	49.5
East: van der Hoff Rd (R514)														
4	L2	20	1.0	21	1.0	0.220	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.0
5	T1	387	3.0	399	3.0	0.220	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		407	2.9	420	2.9	0.220	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
West: van der Hoff Rd (R514)														
11	T1	274	3.0	282	3.0	0.158	0.1	LOS A	0.1	0.7	0.05	0.02	0.05	59.6
12	R2	11	1.0	11	1.0	0.158	7.3	LOS A	0.1	0.7	0.05	0.02	0.05	57.3
Approach		285	2.9	294	2.9	0.158	0.4	NA	0.1	0.7	0.05	0.02	0.05	59.5
All Vehicles		709	2.9	731	2.9	0.220	0.6	NA	0.1	0.7	0.03	0.05	0.03	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

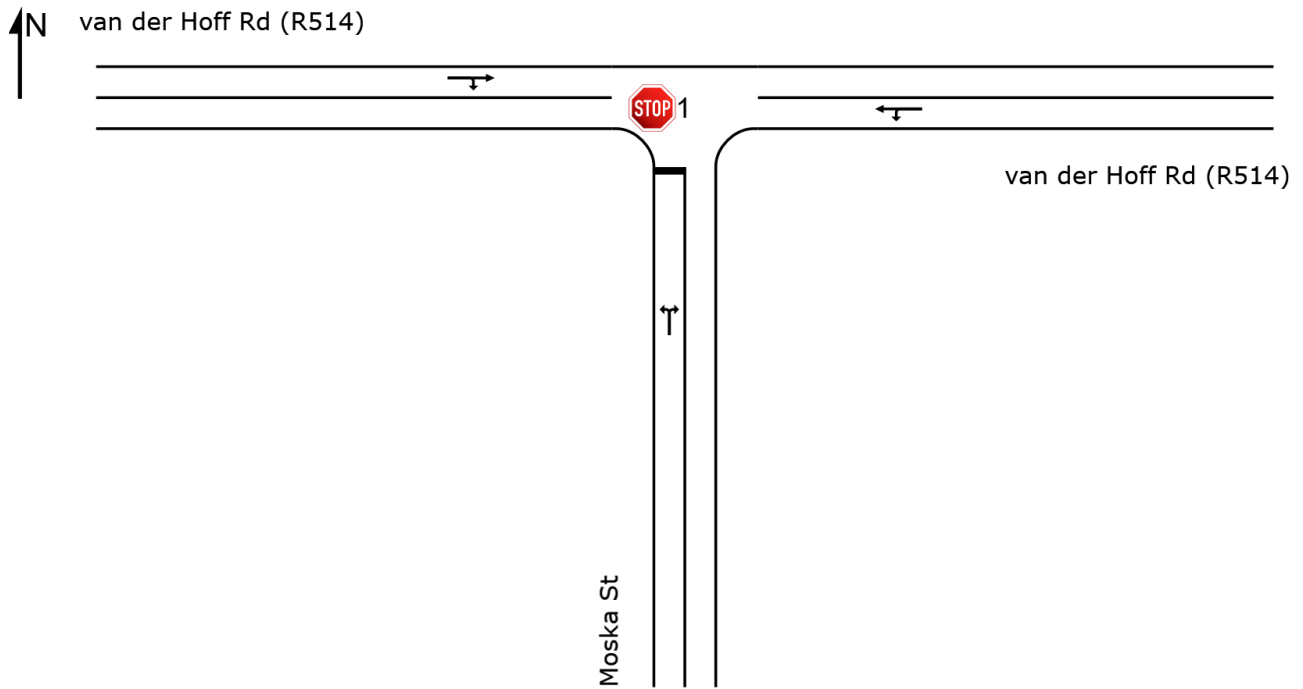
Site: 1 [05_2028 AM (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [05_2028 AM (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	1	1.0	1	1.0	0.016	9.7	LOS A	0.1	0.3	0.58	0.92	0.58	49.2
3	R2	6	1.0	7	1.0	0.016	13.1	LOS B	0.1	0.3	0.58	0.92	0.58	48.8
Approach		7	1.0	8	1.0	0.016	12.6	LOS B	0.1	0.3	0.58	0.92	0.58	48.8
East: van der Hoff Rd (R514)														
4	L2	6	1.0	7	1.0	0.202	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.1
5	T1	341	3.0	379	3.0	0.202	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		347	3.0	386	3.0	0.202	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: van der Hoff Rd (R514)														
11	T1	381	3.0	423	3.0	0.222	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	1.0	1	1.0	0.222	7.3	LOS A	0.0	0.1	0.00	0.00	0.00	57.7
Approach		382	3.0	424	3.0	0.222	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		736	3.0	818	3.0	0.222	0.2	NA	0.1	0.3	0.01	0.01	0.01	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

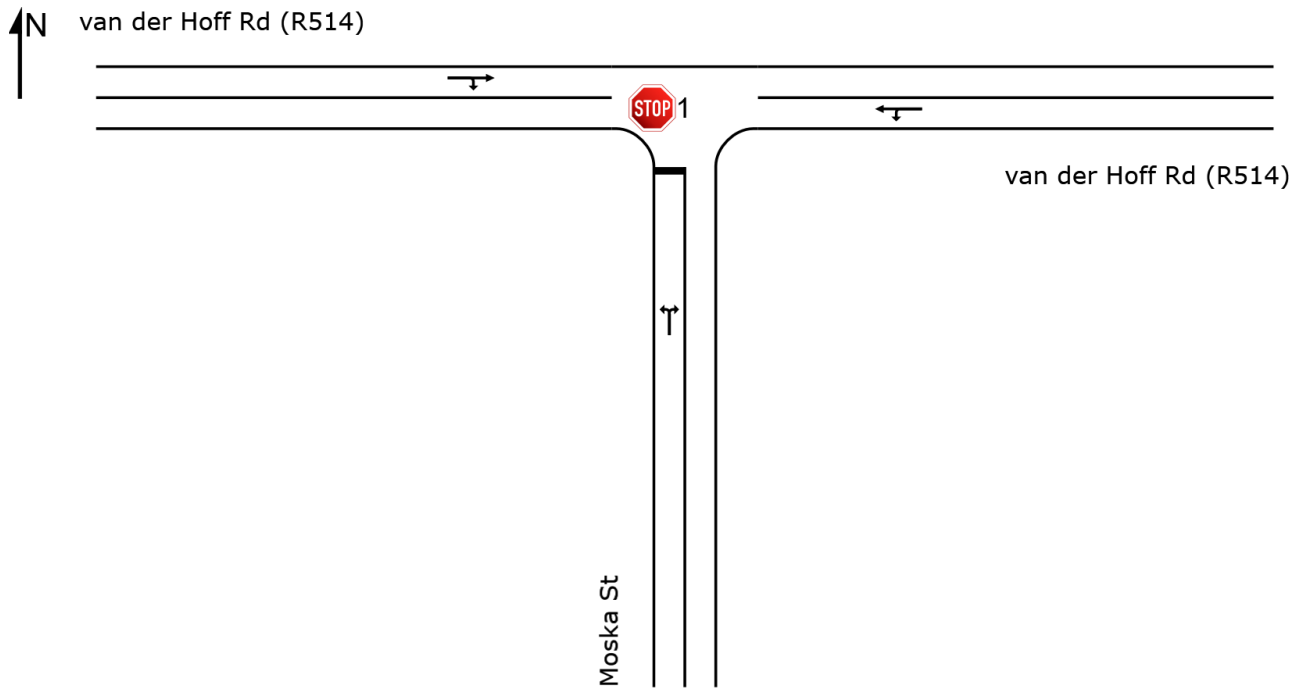
Site: 1 [06_2028 PM (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [06_2028 PM (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	1	1.0	1	1.0	0.020	10.3	LOS B	0.1	0.4	0.59	0.93	0.59	49.1
3	R2	8	1.0	8	1.0	0.020	13.1	LOS B	0.1	0.4	0.59	0.93	0.59	48.7
Approach		9	1.0	9	1.0	0.020	12.8	LOS B	0.1	0.4	0.59	0.93	0.59	48.7
East: van der Hoff Rd (R514)														
4	L2	6	1.0	6	1.0	0.245	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.1
5	T1	449	3.0	463	3.0	0.245	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		455	3.0	469	3.0	0.245	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West: van der Hoff Rd (R514)														
11	T1	318	3.0	328	3.0	0.172	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	1.0	1	1.0	0.172	7.7	LOS A	0.0	0.1	0.00	0.00	0.00	57.6
Approach		319	3.0	329	3.0	0.172	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		783	3.0	807	3.0	0.245	0.2	NA	0.1	0.4	0.01	0.02	0.01	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

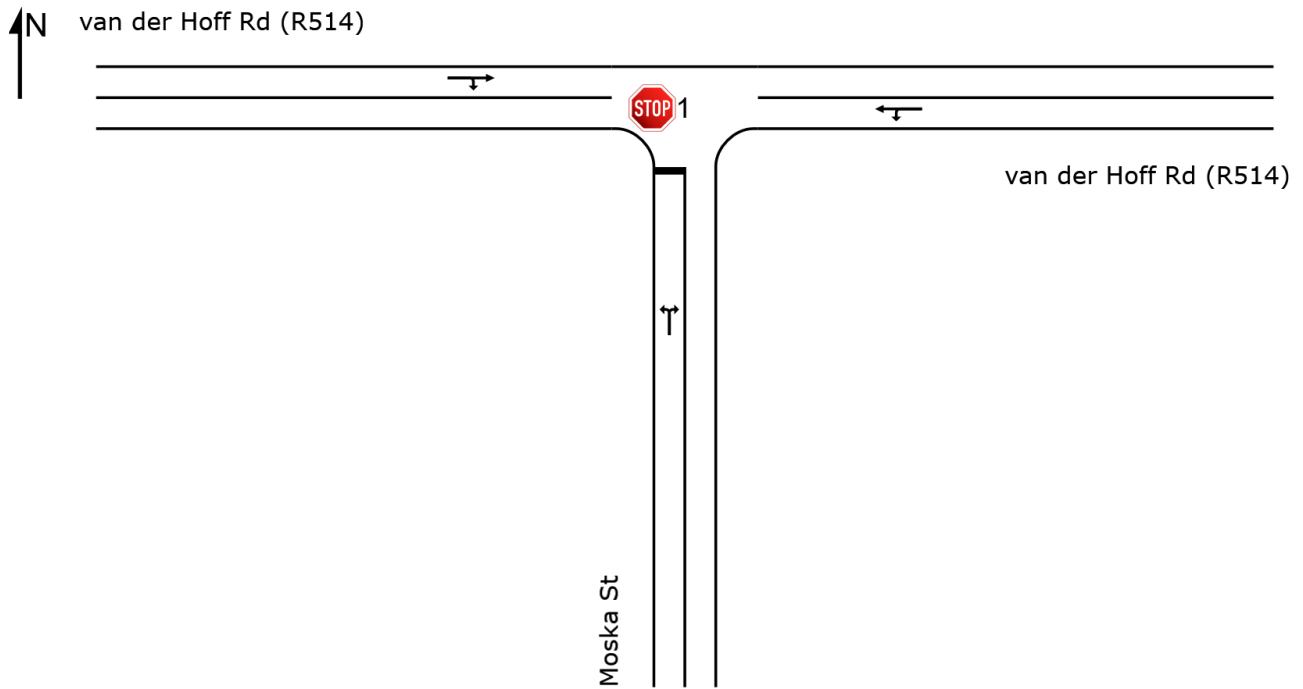
Site: 1 [07_2028 AM + Dev (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [07_2028 AM + Dev (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	11	1.0	12	1.0	0.066	9.8	LOS A	0.2	1.3	0.53	0.95	0.53	49.5
3	R2	21	1.0	23	1.0	0.066	13.5	LOS B	0.2	1.3	0.53	0.95	0.53	49.0
Approach		32	1.0	36	1.0	0.066	12.3	LOS B	0.2	1.3	0.53	0.95	0.53	49.2
East: van der Hoff Rd (R514)														
4	L2	11	1.0	12	1.0	0.205	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.1
5	T1	341	3.0	379	3.0	0.205	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		352	2.9	391	2.9	0.205	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
West: van der Hoff Rd (R514)														
11	T1	381	3.0	423	3.0	0.226	0.0	LOS A	0.1	0.4	0.02	0.01	0.02	59.9
12	R2	5	1.0	6	1.0	0.226	7.3	LOS A	0.1	0.4	0.02	0.01	0.02	57.5
Approach		386	3.0	429	3.0	0.226	0.1	NA	0.1	0.4	0.02	0.01	0.02	59.8
All Vehicles		770	2.9	856	2.9	0.226	0.7	NA	0.2	1.3	0.03	0.05	0.03	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

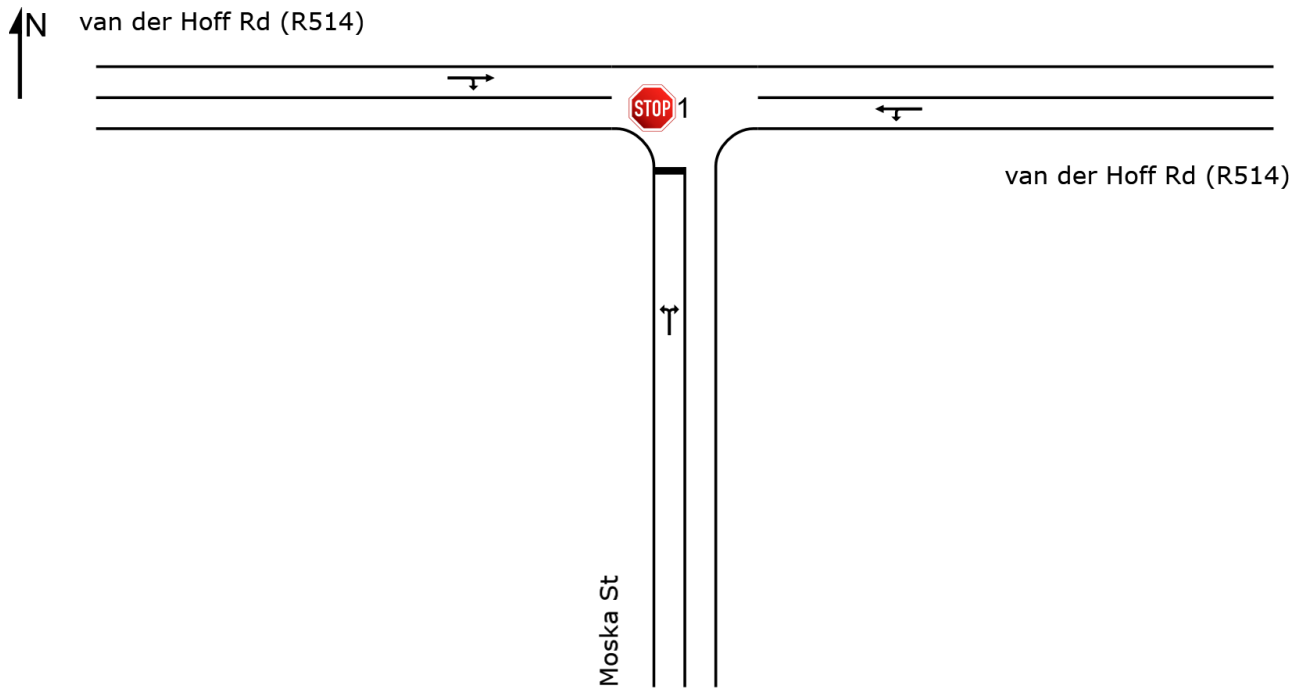
Site: 1 [08_2028 PM + Dev (Site Folder: General)]

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 1 [08_2028 PM + Dev (Site Folder: General)]**

van der Hoff Rd/Moska St

Site Category: -

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Moska St														
1	L2	4	1.0	4	1.0	0.038	10.3	LOS B	0.1	0.7	0.59	0.96	0.59	49.2
3	R2	14	1.0	14	1.0	0.038	13.5	LOS B	0.1	0.7	0.59	0.96	0.59	48.7
Approach		18	1.0	19	1.0	0.038	12.8	LOS B	0.1	0.7	0.59	0.96	0.59	48.8
East: van der Hoff Rd (R514)														
4	L2	21	1.0	22	1.0	0.254	5.6	LOS A	0.0	0.0	0.00	0.03	0.00	58.0
5	T1	449	3.0	463	3.0	0.254	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	59.6
Approach		470	2.9	485	2.9	0.254	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
West: van der Hoff Rd (R514)														
11	T1	318	3.0	328	3.0	0.182	0.1	LOS A	0.1	0.8	0.05	0.02	0.05	59.6
12	R2	11	1.0	11	1.0	0.182	7.8	LOS A	0.1	0.8	0.05	0.02	0.05	57.3
Approach		329	2.9	339	2.9	0.182	0.4	NA	0.1	0.8	0.05	0.02	0.05	59.5
All Vehicles		817	2.9	842	2.9	0.254	0.6	NA	0.1	0.8	0.03	0.04	0.03	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Engineering Services Report

CITY OF TSHWANE MUNICIPALITY



KIRKNEY X78

**PORTION 136, ZANDFONTEIN 317
JR**

SERVICES REPORT

PROJECT NUMBER: 1057

REVISION 1
FINAL

FEBRUARY 2023



CITY OF TSHWANE: KIRKNEY X78 : SERVICES REPORT

CLIENT:

Name of Client	MOKONE TOWN PLANNERS & PROPERTY CONSULTANTS
Contact Person	Mr Kgoale
Address	Unit 404 Jacoliza building. 11 bourke street Sunnyside 0001
Telephone No. / Cell No.	012 881 1803 / 072 603 6346
E-mail	info@mokoneconsulting.co.za

FOR SUBMISSION TO:

Local Authority	City of Tshwane (Water- and Sanitation)
Contact Person	Itumeleng Kekana
Address	P O Box 1022 PRETORIA 0001
Telephone No.	012-358 3578

FOR SUBMISSION TO:

Local Authority	City of Tshwane (Roads- and Storm Water)
Contact Person	Kenneth Masiagwala
Address	P O Box 14013 LYTTELTON 0140
Telephone No.	012-358 3571
E-mail	KennethM@tshwane.gov.za

COMPILED BY:

Consulting Engineers	NCES Consulting Engineers
Contact Person	Nico Roets
Address	650 Duiwelskloof Street Faerie Glen X6 Pretoria 0043
Telephone No. / Cell No.	012 991 1433 / 082 418 9164
E-mail	info@ncesconsulting.co.za

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ANNEXURE F	:	RUN-OFF CALCULATIONS

CITY OF TSHWANE: KIRKNEY X78 : SERVICES REPORT

1. INTRODUCTION

NCES was appointed by Mr Kgoale of Mokone Town Planners & Property Consultants (Pty) Ltd to compile a services report for the proposed development of Kirkney X78 on Portion 136, Zandfontein 317 JR

2. PROFESSIONAL TEAM

The professional team is as follows:

Professional Discipline	Name of Company	Contact Person
Client	Mokone Town Planners & Property Consultants (Pty) Ltd	Mr Kgoale
Project Manager	Mokone Town Planners & Property Consultants (Pty) Ltd	Mr Kgoale
Town Planner	Mokone Town Planners & Property Consultants (Pty) Ltd	Mr Kgoale
Land Surveyor	NSI Geomatics (Pty) Ltd	Sefako Ngoasheng
Geologist	Davhana Geotech Solutions (Pty) Ltd	Vincent Tshingwala
Civil Engineers	NCES	Nico Roets
Traffic Engineers	NCES / Traffic Surveys	Pieter Jooste
Electrical Engineers	NCES	Jacques Hendricks

3. LOCATION OF DEVELOPMENT AND FLOOD LINES

The proposed development of Kirkney X78 is located on Portion 136 Zandfontein 317JR.

The proposed development is bounded by the Remainder of Portion 127 to the North and Remainder of the farm 318JR to the south, the Remainder of Portion 110 forms the western boundary and Portion 111 forms eastern boundary.

The 1:100-year flood lines to the best of our knowledge will not affect the proposed development.

A locality plan is included in Annexure A.

4. LAND USES

The proposed land uses are summarised in Table 4 below.

Table 4: Land Uses

Use Zone/ Reservation	Portion No	Area (ha)	FAR / Coverage	Number of Units	Floor Area (m²)
Residential 1	136	7.8837	N/A	35	N/A

5. GEOTECHNICAL REPORT

A geo-technical report was compiled by Davhana Geotech Solutions (Pty) Ltd during February 2023. The following is an extract from the report.

The geotechnical investigation revealed that the profile across the site is uniform, comprising of the following horizons:

*Topsoil
Transported
Pedogenic
Residual Sandy Clay*

No adverse conditions prohibiting the development of the site were observed and the site has two zones, which can be described as follows:

*Zone **S2/H1**: This zone covers the entire site and is characterised by relatively thick compressible soil profile with S2 (total normal settlement >20mm). These transported soils are underlain by relatively thick fine-grained soils with moderate plasticity (clays, silty clays, clayey silts and sandy clays) with total expected movements between 7.5 mm and 15 mm.*

*Zone **R** (Rock): This zone is characterised by rock (the outcropping sandstone rock on the mountain).*

The site is considered suitable for the proposed development provided that the recommendations made in this report are adhered to. A concrete raft placed on top of the engineered fill prepared as described above would be suitable for founding the proposed development.

6. TRAFFIC IMPACT STUDY

A traffic impact study was conducted by NCES Consulting Engineers / Traffic Surveys During February 2023

The following summary and conclusions are made regarding the proposed new Kirkney Extension 78. The proposed township will be located on Portion 136 (a portion of Portion 110) of the farm Zandfontein 317-JR, City of Tshwane, Gauteng Province:

This report will form part of the town planning application required to obtain the land-use rights needed for the proposed development.

The proposed development is expected to generate the following number of trips during peak traffic hours:

Weekday AM peak: 35 vehicles per hour

Weekday PM peak: 35 vehicles per hour

The following intersection has been included in the scope of this study:

van der Hoff Road (R514)/Moska Street

To determine the existing traffic demand in the study area, traffic surveys were conducted at the study intersection on Thursday, 26 January 2023.

Acceptable traffic conditions are currently experienced at the van der Hoff Road/Moska Street intersection.

Access to the development is proposed at the existing access to the property on Moska Street.

Considering the extent of the proposed development, the following assessment years were considered:

Short-term (base year): 2023

Long-term (horizon year): 2028

Acceptable traffic conditions are expected at the van der Hoff Road/Moska Street intersection with the development traffic, without any road upgrades.

The proposed development is not expected to generate a significant demand for public transport. Considering this, as well as the small extent of the development, no new public transport facilities are proposed.

Based on the contents of this report, it is recommended that the proposed new township, namely Kirkney Extension 78, be supported from a traffic engineering and transportation planning point of view.

7. CIVIL ENGINEERING SERVICES

7.1. Design Standards

The design standards to be followed for the design of the infrastructure will be based on the technical requirements of the Engineering Department of the City of Tshwane for the provision of municipal services.

The design of the water reticulation will be done in accordance with the latest edition of the Design Guidelines for Water Reticulation and Supply issued by the Water and Sanitation Division of the City of Tshwane.

Sewer designs will be done according to the design guidelines for Sewer Mains and Sewer Drainage Systems in the City of Tshwane.

All roads and storm water will be according to the Tshwane Manual for the Design of Streets and Storm Water, issued by the Town Engineer's office of City of Tshwane

7.2. Design Software

The designs of the civil engineering services will be carried out with Autodesk Civil 3D design programs.

7.3. Ownership of Services

The internal services will be taken over by City of Tshwane that will be responsible for the maintenance of the services.

8. WATER

8.1. Bulk Services

An Existing Water 110mmØ Water pipe is located in the servitude of Moska Way terminating at Portion 249. This pipe forms Part of the Hercules West Reservoir zone and does not have sufficient pressure to service the proposed development.

8.1.1 Temporary Water Supply

Temporary supply from this pipe is possible but the static pressure at the connection point is only 27m.

The highest portion of the proposed development will have only 1.0m of pressure which is below the prescribed City of Tshwane Standard.

To achieve the minimum required pressure of 24m a booster pump system needs to be installed on site. This will need special approval from the City of Tshwane and will require backup power with a pumping room that is burglar proof according to the latest City of Tshwane Standard.

This will be a very costly option and will be temporary until the Kirkney Reservoir Zone is established.

8.1.2 Permanent Water Supply

The Kirkney X54 development is in the process obtaining servitudes to establish the Kirkney Reservoir Zone.

The developer of the Portion 136 will have to install a 250mm Ø network link pipe from Simonsberg Road to the east to the intersection of Akelei Road and Rooirabas Road to the west of the proposed development.

A 160mmØ Connection will then be obtained from this link pipe. The static pressure for this connection will be ±50m. Using this connection, the highest portion of the development will have sufficient pressure of 28m.

The fire department will require a fire hydrant to be inside the proposed development. The connection size that will be required by the fire department will be a minimum of 160mmØ.

Refer to Drawing No. 0057/200/01/01 for details.

8.2. Internal reticulation

8.2.1 Water Design Criteria

The design criteria to be used and to analyse and design the water network are indicated in Table 8.2.1 below.

Table 8.2.1 : Water Design Criteria

Item No.	Design Element	Criteria
1.	Average Annual Daily Demand (AADD) for residential and recreational sites	Refer to Table 8.2.2 below
2.	Gross Average Annual Daily Demand (GAADD)	Allow 10% losses
3.	Daily Peak Factor (PDF)	1.9
4.	Hourly Peak Factor (PHF)	3.6
5.	Design Peak Flow Rate (DPFR) for domestic flows	AADD x PHF
6.	Maximum static head	90m
7.	Minimum residual head under conditions of domestic peak flows	24m
8.	Maximum linear flow velocity under conditions of domestic peak flows	1,8m/s
9.	Pipe type	uPVC pressure pipes
10.	Minimum pipe class	Class 12
11.	Fire flow at any one hydrant under the condition of domestic peak flows (one hydrant at a time)	20ℓ/s
12.	Minimum residual head (fire plus domestic peak flow)	2m
13.	Maximum linear flow velocity under conditions of fire-fighting	2,2m/s
14.	Boundary roughness (K-Value)	0,1mm
15.	Available static head	50m
16.	Available dynamic head under fire flow conditions	To be confirmed
17.	Flow formulae	D'Arcy Weissbach
18.	Minimum pipe diameter	75mm

8.2.2 Estimated Water Demand

The estimated water demand for the proposed development is shown in Table 8.2.2 below.

Table 8.2.2: Estimated Water Demand

Zoning	Kirkney X78		
	No. of Units	Average Annual Daily Demand (AADD)	Water Demand (kℓ/d)
Residential 1	35	1.2 kℓ/d	42.0
	Total		42.0

Thus AADD(ℓ/s) = $42\ 000 / 24 \times 60 \times 60 = 0.48 \text{ ℓ/s}$

Daily Peak flow = $0.48 \times 1.9 = 0.923 \text{ ℓ/s}$

Weekly Peak Factor = $0.48 \times 1.5 = 0.72 \text{ ℓ/s}$

Hourly Peak Factor = $1.38 \times 3.6 = 1.728 \text{ ℓ/s}$

Fire Flow = 15 ℓ/s @ min pressure of 8m

9. SEWER

9.1 Bulk Services

An existing 700mmØ sewer is located to the north of the existing development inside the road reserve for van der Hoff Road on the southern side flowing in an eastern direction.

A New Sewer outfall will be constructed to drain in a northern direction in the servitude of Moska Way, the pipe will turn in an eastern direction and will run parallel on the southern side of Van Der Hoff Road to drain into the existing 700mmØ sewer.

Refer to Drawing No. 0057/300/01/01 for details.

9.2 Internal Sewer Reticulation

9.2.1 Sewer Design Criteria

The design criteria used to design the sewage network are indicated in Table 9.2.1 below.

Table 9.2.1: Sewer Design Criteria

Item No.	Design Element	Criteria
1.	Average Annual Daily flow for special and residential Erven	Refer to Table 9.2.2 below
2.	Peak Factor	2,5
3.	Allowance for infiltration	15%
4.	Capacity of Sewer	Pipes may run full at the Total Design Flow, which includes the peak and infiltration flows
5.	Sewer pipe type	Class 400 (Solid Wall PVC -U)
6.	Minimum velocity	0,6m/s
7.	Minimum pipe diameter	160mm
8.	Minimum depth of cover	1,0m

9.2.2 Estimated Sewerage Flow

The estimated sewerage flow for the proposed development is shown in Table 9.2.2 below.

Table 9.2.2: Estimated Sewerage Flow

Zoning	Portion 136 of Zandfontein 317 JR		
	No. of Units	Average Annual Daily Flow (AADF)	Sewerage Flow (kℓ/d)
Residential 1	35	0.7 kℓ/d	24.5
	Total		24.5

Thus AADF (ℓ/s) = $24\ 500 / 24 \times 60 \times 60 = 0.283 \ell/s$

Peak Flow = $0.283 \times 2.5 = 0.708 \ell/s$

10. STORM WATER DRAINAGE

10.1 Storm Water Systems

The general drainage pattern of the proposed development is from south to north. The proposed development and the pre & post development runoff was calculated.

The internal storm water system will be designed for a 1:2-year flood return period and a runoff coefficient of 72% (C= 0.72) will be allowed for the proposed development.

Refer to Annexure C, Drawing No. 0057/500/01/01 for details.

Stormwater Connection

There is currently no existing Storm water infrastructure located in proximity of the proposed development.

The City of Tshwane Storm Water Master plan indicates that a new system will drain the area in a northern direction by means of a system running parallel to Moska way.

We propose that the internal township will be drained by a Stormwater pipe system consisting of 450mm Ø to 600mmØ pipes. This system will discharge into a new open channel system that will convey the storm water eastwards and turn northwards to connect into an Existing Road Culvert Crossing van der Hoff road.

This System will be diverted eastwards in future at van der Hoff Road to align with the City Tshwane Storm Water Master Plan.

Refer to Annexure C, Drawing No. 00057/500/01/01 for details.

10.2 Hydrology

Hydrological data that is to be used in the design of the storm water drainage system for the development is summed up in Table 10.2 below.

Table 10.2: Hydrology

Hydrological Data	
a) Flood return period	1:2 years for storm water pipe systems
	1:20 years for the combined storm water pipe and road systems
b) Average yearly rainfall	700mm
c) Minimum time of concentration and run-off co-efficient according to: Tshwane Manual for the Design of Streets and Storm Water, issued by the Town Engineer's office of City of Tshwane	
d) Design method	Rational method for smaller catchment areas

10.3 Design Standards

Table 10.3 lists the standards to be used in the design of the storm water drainage system.

Table 10.3: Storm water Design Standards

Design Element	Specification
a) Minimum pipe size	450mm diameter
b) Pipe Type	Interlocking Joint Pipes Pipe Class: 50D 100D road crossings
c) Minimum pipe gradient	0,67%
d) Storm water details	According to The Tshwane Manual for the Design of Streets and Storm Water, issued by the Town Engineer's office of City of Tshwane

10.4 Run-Off

The storm water run-off generated by the Proposed Development and the areas above is shown in Table 10.4 below.

Table 10.4: Development Catchment Areas

Catchment	Area (km ²)	Length of Longest Flow Path (m)	Height Difference on 10/80 Slope
Development	0.021542	282	22
Catchment Above	0.03907	417	105

Refer to Annexure J for run-off. calculations

Table 10.4 .1: Development Storm Water Run-off

Run-off Area	Development Run-off. Coefficient 1:2 Years	Development Run-off 1:2 Years (m ³ /s)	Development Run-off. Coefficient 1:20 Years	Development Run-off 1:20 Years (m ³ /s)
Pre-Development (Development)	0.32	0.21	0.39	0.51
Post Development (Development)	0.58	0.49	0.65	0.83
Pre-Development (Catchment Above)	0.34	0.56	0.39	0.95

Refer to Annexure J for run-off. calculations

11. ROADS

11.1 Access to the Development

Access to the development is proposed Moska Way.

Moska Way needs to be upgraded to a surfaced Road with a minimum servitude width of 13m with a surface width of 7.4m.

The intersection with Van der Hoff street will have to be upgraded to a surface intersect complying to Gauteng Department Roads Transport (Gautrans) standards.

11.2 Classification of Roads

The classifications of roads are shown in Table 11.2.1 - 11.2.2 below.

Table 11.2.1: Classification of Internal Roads

Description	Class No.	Function
Moska Way	4b	Collector

Table 11.2.2: Classification of Internal Roads

Description	Class No.	Function
Internal Road	5a	Residential Access Collector

11.3 GEOMETRIC DESIGN STANDARDS

Details of the different road classes are shown in the Tables 11.3.1 to 11.3.2 below.

Table 11.3.1: Class 4b –Collector (Moska Way)

Design speed	60km/h
Minimum centre line radii	50m
Minimum gradient	0,67%
Favoured maximum gradient	10%
Maximum grade/grade length	12,5% over 70m
Minimum K-value: Crest	6
Sag	6

Table 11.3.2: Class 5a – Residential Access Collector

Design speed	50km/h
Minimum centre line radii	50m
Minimum gradient	0,67%
Favoured maximum gradient	10%
Maximum grade/grade length	12,5% over 70m
Minimum K-value: Crest	6
Sag	6

11.4 Pavement Design

The proposed pavement design will be based on anticipated traffic volumes and ground conditions. The design life of the proposed pavement is 20 years on provision that repairs to the surface will be made where necessary to maintain its skid resistance and impermeability during the design life of the road.

The pavement designs proposed are shown in Table 11.4.1 to 11.4.2 below.

Table 11.4.1: Pavement Design of road classes 4b (Moska Way)

Wearing course	30mm thick continuously – graded medium grade asphalt – AC. (See note below)
Base	150mm thick graded crushed stone compacted to 86% of apparent density – G1. (See note below)
Subbase	150mm thick stabilized natural gravel compacted to 95% of modified AASHTO density. Minimum UCS = 1 200kPa at 95% of modified AASHTO density – C4
Selected sub grade	150mm G6 thick natural gravel compacted to 95% of modified AASHTO density. Minimum CBR = 25 at 95% of modified AASHTO density – G6 (in-situ or imported)
Fill (where required)	150mm thick layers compacted to 93% of modified AASHTO density. Minimum CBR = 7 at 93% of modified AASHTO density – G9

Table 11.4.2: Pavement Design of road classes 5a

Wearing course	30mm thick continuously – graded medium grade asphalt – AC. (See note below)
Base	150mm thick graded crushed stone compacted to 86% of apparent density – G1. (See note below)
Subbase	150mm thick stabilized natural gravel compacted to 95% of modified AASHTO density. Minimum UCS = 1 200kPa at 95% of modified AASHTO density – C4
Selected sub grade	150mm G6 thick natural gravel compacted to 95% of modified AASHTO density. Minimum CBR = 25 at 95% of modified AASHTO density – G6 (in-situ or imported)
Fill (where required)	150mm thick layers compacted to 93% of modified AASHTO density. Minimum CBR = 7 at 93% of modified AASHTO density – G9

12. SOLID WASTE DISPOSAL

12.1 Volume of Solid Waste

The estimated volume of waste to be generated on a weekly basis is shown Table 12.1.

Table 12.1: Estimated Volume of Solid Waste

Use Zone/ Reservation	No. of Units / Building Area (m ²)	Volume of Solid Waste (m ³ /Week)
Residential	35	8.4
Total	35	8.4

The collection of solid waste in the proposed development will be carried out by the City of Tshwane.

The solid waste will be transported to the solid waste disposal site of The City of Tshwane by The City of Tshwane

13. ELECTRICAL ENGINEERING SERVICES

13.1 Existing Electrical Infrastructure

The City of Tshwane (CoT) is the Licensed Electrical Provider for the area and there are existing networks in the vicinity of the Proposed Development.

13.2 Expected Maximum Demand

The total estimated maximum demand for the Proposed Development, based on the City of Tshwane's Tariff Specifications, is shown in Table 13.2 below:

Table 13.2: Estimated Expected Demand

Zoning	PORTION 136 of the farm ZANDFONTEIN 317-JR		
	No. of Units	Load Allocation	Load (kVA)
Residential 1	35	3.5kVA/unit	122.5
Total			122.5

13.3 Bulk Electrical Supply

There is an existing 11kV overhead rural line on the northern boundary of the Proposed Development. City of Tshwane's regulations however stipulates that any new townships must be connected to the existing electrical infrastructure via underground cables and therefore the internal network of the Proposed Network cannot be connected to the existing overhead line. To avail a connection to the Proposed Development, two new underground cables will have to be installed from the boundary of the proposed development up to the nearest existing underground cable ring, which is situated in Geelkeur Street north-east of the proposed development, so that the two new cables can be 'cut-into the existing ring, thereby extending the ring up to the Proposed Development. The two new cables will be terminated in a new 315kVA miniature substation that is to be installed at an optimum position inside the proposed development. The availability of spare capacity on the existing ring can only be confirmed by CoT once a formal application for the supply has been submitted to CoT, but due to the relatively small load, we believe that the capacity will be available.



13.4 Internal Reticulation

The following is proposed:

- Install a 315kVA, 11kV/400V miniature substation at an optimum position inside the proposed development and supply the miniature substation via a new 11kV, PILC, copper underground cable to be installed up on the boundary of the Proposed Development
- install 120mm², 4-core, SWA/PVC/SWA, aluminium low voltage cables from the miniature substation up to planted metering kiosks
- install planted 3CR12 metering kiosks pre-wired with 60A single phase meters.
- install 16mm² 3-core copper service cables from the metering kiosks up to the single residential units.

14. BULK SERVICES CONTRIBUTIONS AND BOUNDARY ROAD CONTRIBUTIONS

The amount of Bulk Services Contributions for civil services payable to the City of Tshwane, if applicable, will be determined with the compilation of the services agreement. The estimated bulk services contributions are:

- Water = RXX-XX (Including VAT) (2021 Rates) To be confirmed with CoT
- Sewer = RXX-XX(Including VAT) To be confirmed with CoT
- Roads- and Storm Water = To be confirmed with CoT

The amount of Bulk Services Contributions for electricity payable to the City of Tshwane will be in the order of R373 013.83 (Excluding VAT; 2022/2023 Rates – valid till June 2023).

15. CONSTRUCTION PERIOD

The anticipated construction period for the external civil services is 12 months.

Construction will commence once the Services Agreements are signed by all affected parties, the wayleaves are issued, and the construction drawings are approved.

16. COST ESTIMATES

Item No.	Description	Amount (R)
CONSTRUCTION COSTS		
CIVIL ENGINEERING SERVICES		
External Services		
A1.1	Preliminary and General	2 442 684-00
A1.2	Water Network Upgrade	2 822 500-00
A1.3	Sewer Outfall	3 220 200-00
A1.4	Storm Water Outfall Channel	1 545 000-00
A1.5	Access Road	9 768 000-00
A1.6	GDRT Intersection Upgrade	3 000 000-00
TOTAL A		22 798 384-00
ELECTRICAL ENGINEERING SERVICES		
B1 External Services		
B1.1	External Services (New mini-sub and MV cable)	4 593 000-00
TOTAL B (EXTERNAL SERVICES)		4 593 000-00
TOTAL A + B		27 391 384-00
C PROFESSIONAL FEES		
C1	Civil	1 595 886-00
C2	Electrical	448 544-00
TOTAL C		2 044 430-00
TOTAL (A + B + C) (VAT Excluded)		29 435 814-00
VAT (15%)		4 415 372-10
TOTAL (VAT Including)		33 851 186-10

17. CONCLUSION

We trust that the above report meets your requirements. Please contact us should you require any additional information.

.....

Nico Roets
NCES Consulting Engineers (Pty) Ltd

08-03-2023

.....
Date

ANNEXURE A

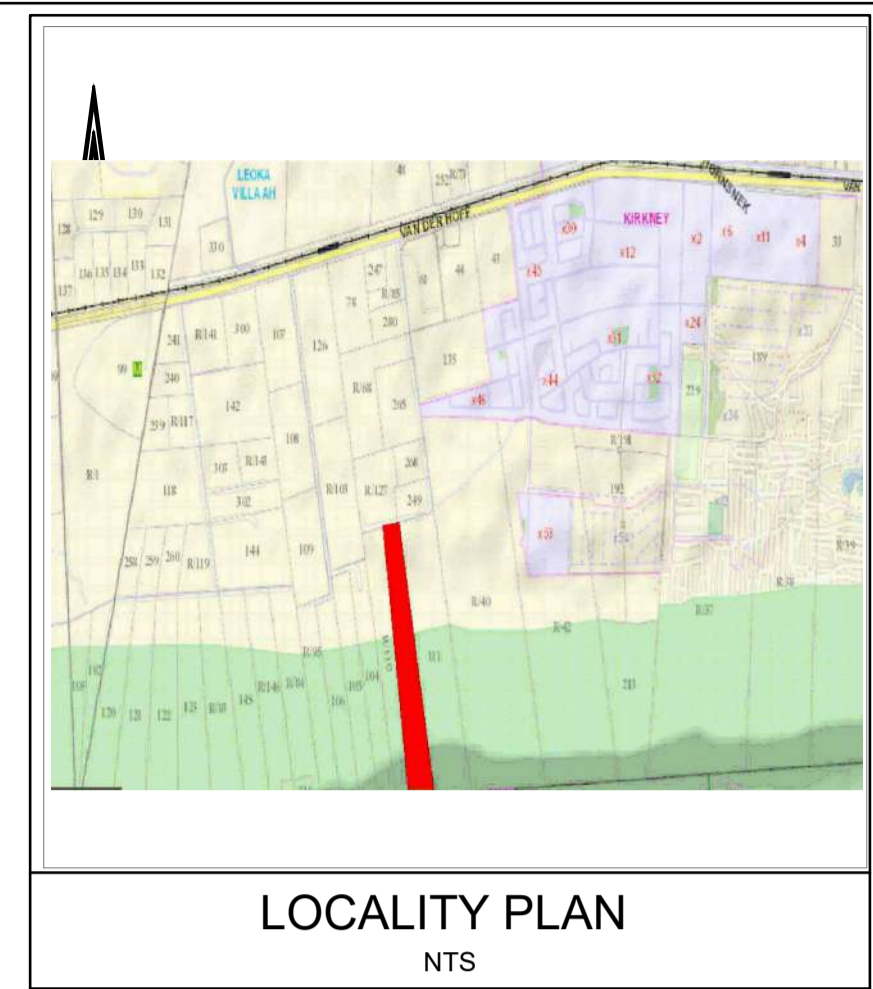
LOCALITY PLAN

ANNEXURE B

SITE DEVELOPMENT PLAN

ANNEXURE C

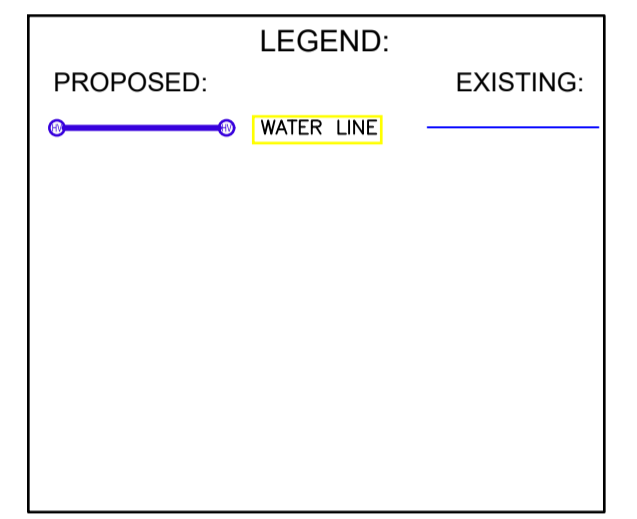
ENGINEERING LAYOUT DRAWINGS



NOTES AND SPECIFICATIONS

GENERAL

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AMENDMENTS				
NR.	DATE	APPROVED FOR APPROVAL	DESCRIPTION	PAR.
A		A		A

DESIGNED NJ ROETS	DATE: 16/09/2021	DRAWN NJ ROETS
DESIGN CHECKED BY J BADENHORST		INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT D.J. CHALMERS

PROJECT STATUS

CONCEPT DRAWING
 TENDER DRAWING
 APPROVED FOR CONSTRUCTION DRAWING
 AS BUILT DRAWING

PROJECT ENGINEER (CONSULTANT)
 NJ ROETS 201170222 2023/03/08
 INITIALS AND SURNAME SIGNATURE AND P. No. DATE
 INSPECTOR OF WORKS (CITY OF TSHWANE):

CONSULTANT DETAIL

NCES

NCES CONSULTING ENGINEERS (Pty) Ltd

650 Duivelskloof Street, Faerie Glen X6, Pretoria, 0043
 Tel: +27(0)12-991-1433 / +27(0)82 418 9164

CITY OF TSHWANE
 ROADS AND TRANSPORT DEPARTMENT

Mr Nava Pillay Ms. L. V. Kegakwe-Piki
 DIRECTOR EXECUTIVE DIRECTOR
 STRATEGIC EXECUTIVE DIRECTOR
 P.O. BOX 1409 P.O. BOX 1409
 PRETORIA PRETORIA
 0001 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
 Ms. L. V. Kegakwe-Piki

LOCATION OF PROJECT:
KRIKNEY X78

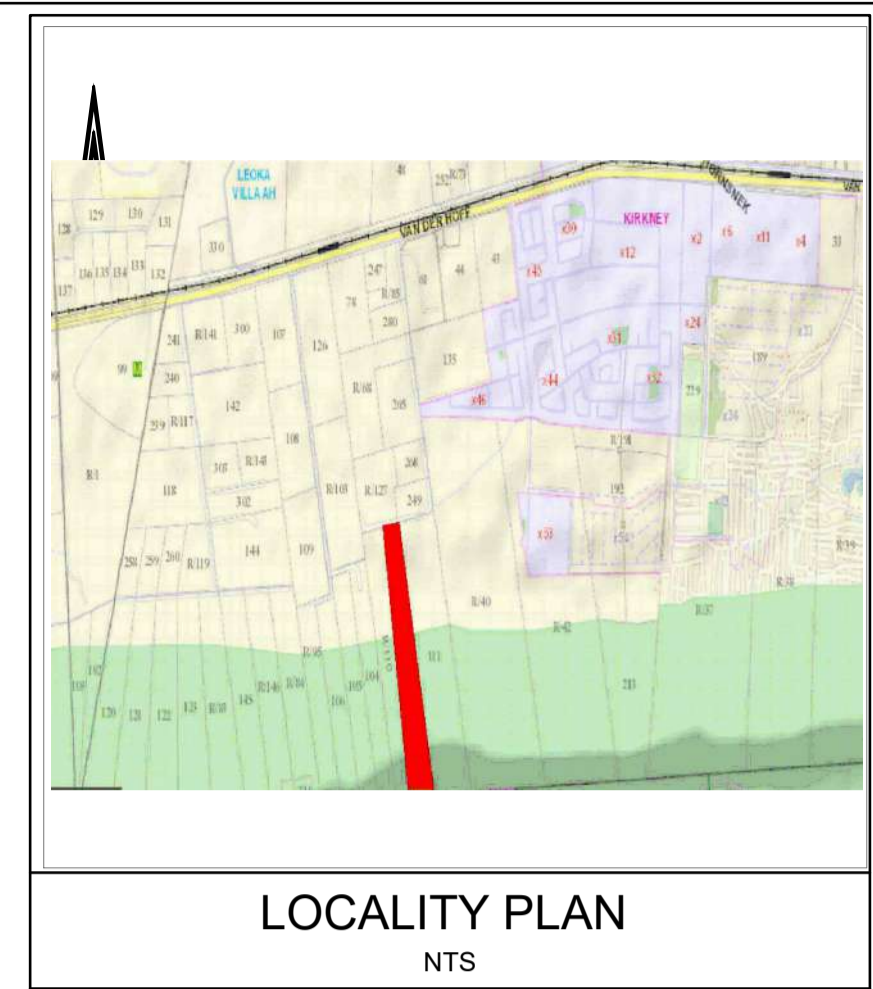
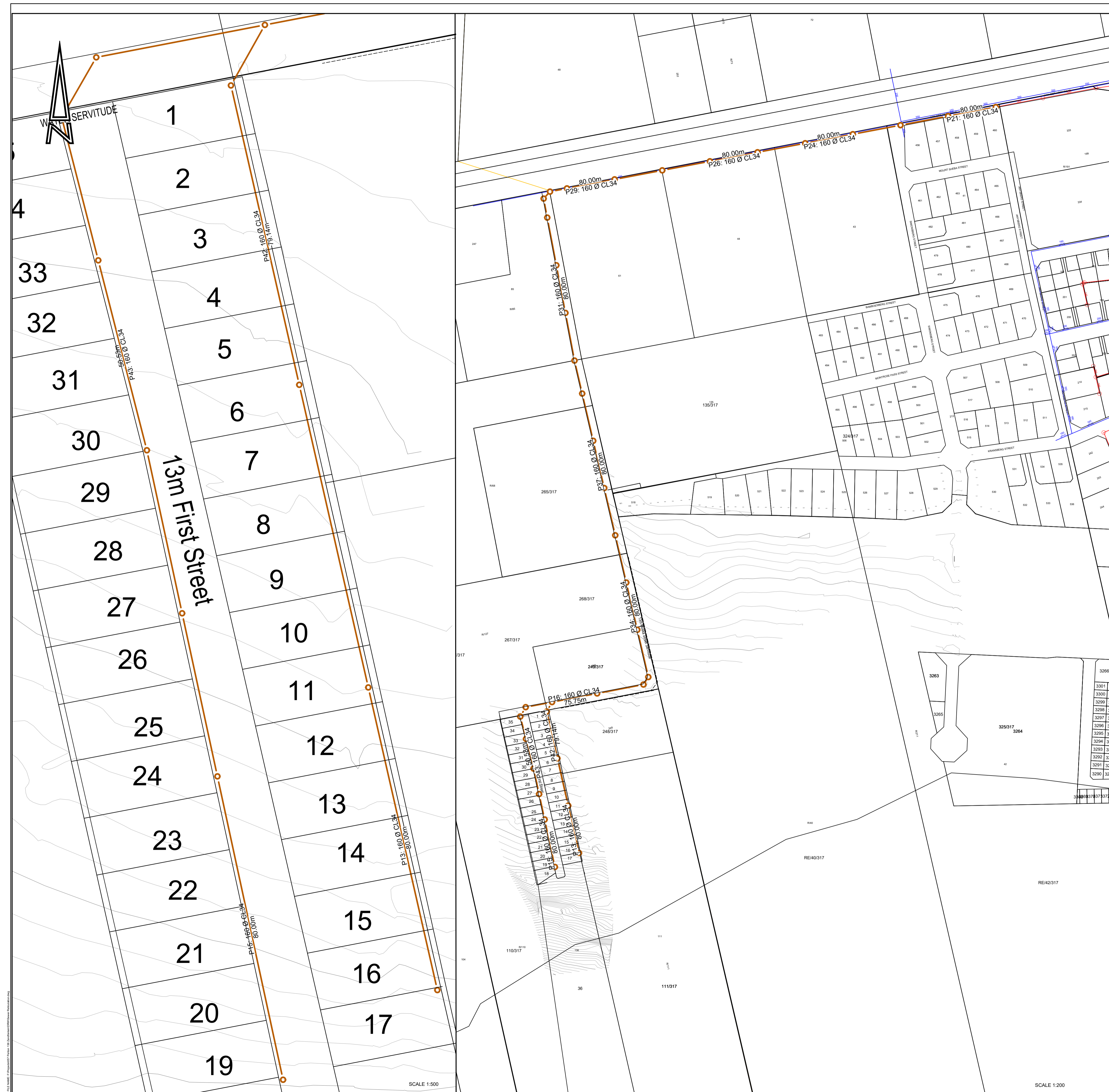
DESCRIPTION OF PROJECT:
**PORTION 36, ZANDFONTEIN JR :
RESIDENTIAL DEVELOPMENT : WATER LAYOUT**

INFRASTRUCTURE DESIGN, CONSTRUCTION AND MAINTENANCE DIVISION
 For Internal Approval

RECEIVED
 SIGN WHEN APPLICABLE

DIRECTOR: TRANSPORT INFRASTRUCTURE PROVISION	SIGNATURE	DATE
DIRECTOR: TRANSPORT INFRASTRUCTURE CONSTRUCTION (PROJECT MANAGEMENT)	SIGNATURE	DATE
DIRECTOR: TRANSPORT INFRASTRUCTURE ASSET MANAGEMENT	SIGNATURE	DATE
DIRECTOR: TRANSPORT INFRASTRUCTURE PLANNING	SIGNATURE	DATE
DIRECTOR: INTELLIGENT TRANSPORT SYSTEMS AND TRAFFIC ENGINEERING	SIGNATURE	DATE
DIRECTOR: INFRASTRUCTURE MAINTENANCE MANAGEMENT (IMM)	SIGNATURE	DATE
DIRECTOR: INTEGRATED TRANSPORT PLANNING	SIGNATURE	DATE

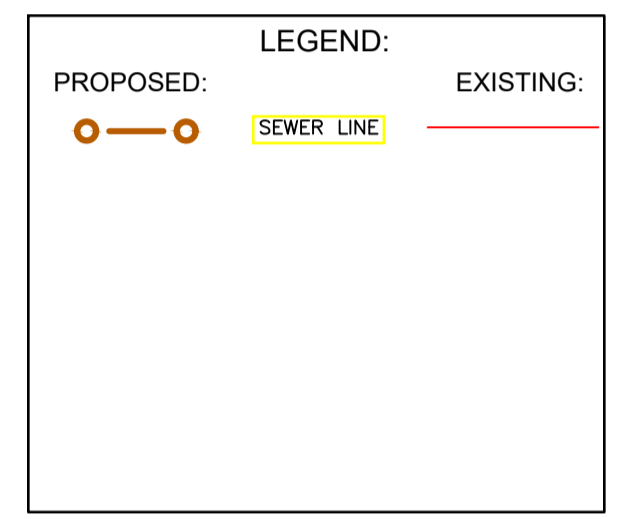
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DATE:	SCALE:	ORIGINAL PAPER SIZE:
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DRAWING NO.:	SHEET NO.:	REVISION:
1057/200/02/01	1	



NOTES AND SPECIFICATIONS

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AMENDMENTS				
NR.	DATE	APPROVED FOR APPROVAL	DESCRIPTION	PAR.
A		A	FOR APPROVAL	A

DESIGNED NJ ROETS	DATE: 16/09/2021	DRAWN NJ ROETS
DESIGN CHECKED BY J.BADENHORST		INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT D.J. CHALMERS
SIGNATURE:	DATE:	SIGNATURE:

PROJECT STATUS		
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PROJECT ENGINEER (CONSULTANT) NJ ROETS	201170222	2023/03/08
INITIALS AND SURNAME	SIGNATURE AND P. No.	DATE
INSPECTOR OF WORKS (CITY OF TSHWANE):		
INITIALS AND SURNAME	SIGNATURE AND P. No.	DATE

CONSULTANT DETAIL

NCES CONSULTING ENGINEERS (Pty) Ltd

650 Duivelskloof Street, Faerie Glen X6, Pretoria, 0043
Tel: +27(0)12-991-1433 / +27(0)82 418 9164

CITY OF TSHWANE
ROADS AND TRANSPORT DEPARTMENT

Mr Nava Pillay
STRATEGIC EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

Ms. L. V. Kegakwe-Piki
EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
Ms. L. V. Kegakwe-Piki

SIGNATURE: _____ DATE: _____

LOCATION OF PROJECT:

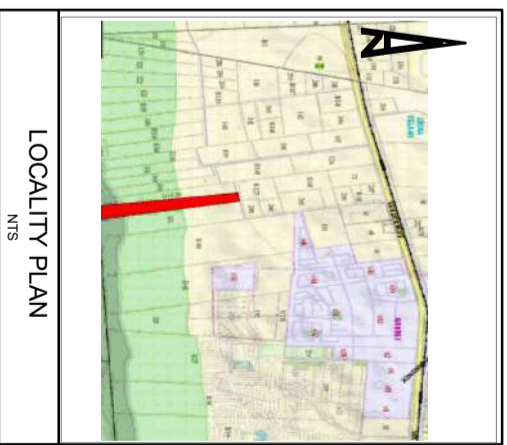
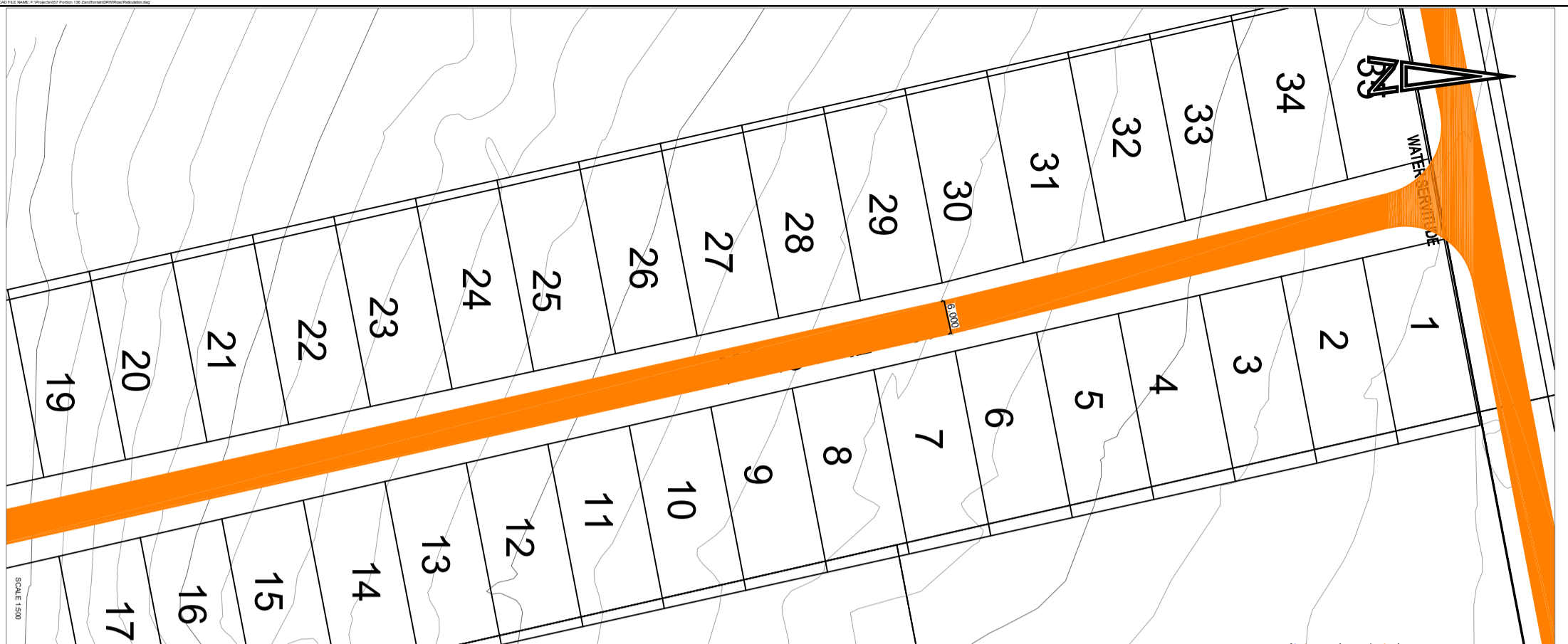
KRIKNEY X78

DESCRIPTION OF PROJECT:

**PORTION 36, ZANDFONTEIN JR :
RESIDENTIAL DEVELOPMENT : SEWER LAYOUT**

INFRASTRUCTURE DESIGN, CONSTRUCTION AND MAINTENANCE DIVISION For Internal Approval	RECEIVED SIGN WHEN APPLICABLE
DIRECTOR: TRANSPORT INFRASTRUCTURE PROVISION	SIGNATURE: _____ DATE: _____
DIRECTOR: TRANSPORT INFRASTRUCTURE CONSTRUCTION (PROJECT MANAGEMENT)	SIGNATURE: _____ DATE: _____
DIRECTOR: TRANSPORT INFRASTRUCTURE ASSET MANAGEMENT	SIGNATURE: _____ DATE: _____
DIRECTOR: TRANSPORT INFRASTRUCTURE PLANNING	SIGNATURE: _____ DATE: _____
DIRECTOR: INTELLIGENT TRANSPORT SYSTEMS AND TRAFFIC ENGINEERING	SIGNATURE: _____ DATE: _____
DIRECTOR: INFRASTRUCTURE MAINTENANCE MANAGEMENT (IMM)	SIGNATURE: _____ DATE: _____
DIRECTOR: INTEGRATED TRANSPORT PLANNING	SIGNATURE: _____ DATE: _____

CONTRACT No.:	PROJECT No.:
CONTRACT	1057
DATE:	SCALE:
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DRAWING NO.:	SHEET NO.:
1057/300/02/01	1
	ORIGINAL PAPER SIZE:
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	REVISION



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AMENDMENTS

NO	DATE	APPROVED FOR APPROVAL	DESCRIPTION	DATE
A	1			

PROJECT STATUS

DESIGNED: DRAWN:

BY: N.J. ROETS

CHECKED BY: J. BACHHOORN

APPROVED BY: D.J. CHALMERS

PROJECT ENGINEER (CONSULTANT)
 N.J. ROETS 201170222 2023/03/08
 INITIALS AND SIGNATURE: _____ DATE: _____

INSPECTOR OF WORKS (CITY OF TSHWANE)
 INITIALS AND SIGNATURE: _____ DATE: _____

CONSULTANT DETAIL
 INITIALS AND SIGNATURE: _____ DATE: _____

NCES CONSULTING ENGINEERS (PTY) LTD
 660 Duvalwood Street, Ficksburg, Gauteng, 0043
 Tel: +27(0)12-681-1453 / +27(0)12-218-9184

CITY OF TSHWANE
 ROADS AND TRANSPORT DEPARTMENT

Mr. L. V. Kogelmeier - P.M.
 STRATEGIC EXECUTIVE
 DIRECTOR
 P.O. BOX 449
 TSHWANE
 0001

Mr. L. V. Kogelmeier - P.U.
 DRAWING APPROVED BY EXECUTIVE DIRECTOR

DESCRIPTION OF PROJECT
 PORTION 36, ZANDFONTEIN, JR.:
 RESIDENTIAL DEVELOPMENT:
 ROADS LAYOUT

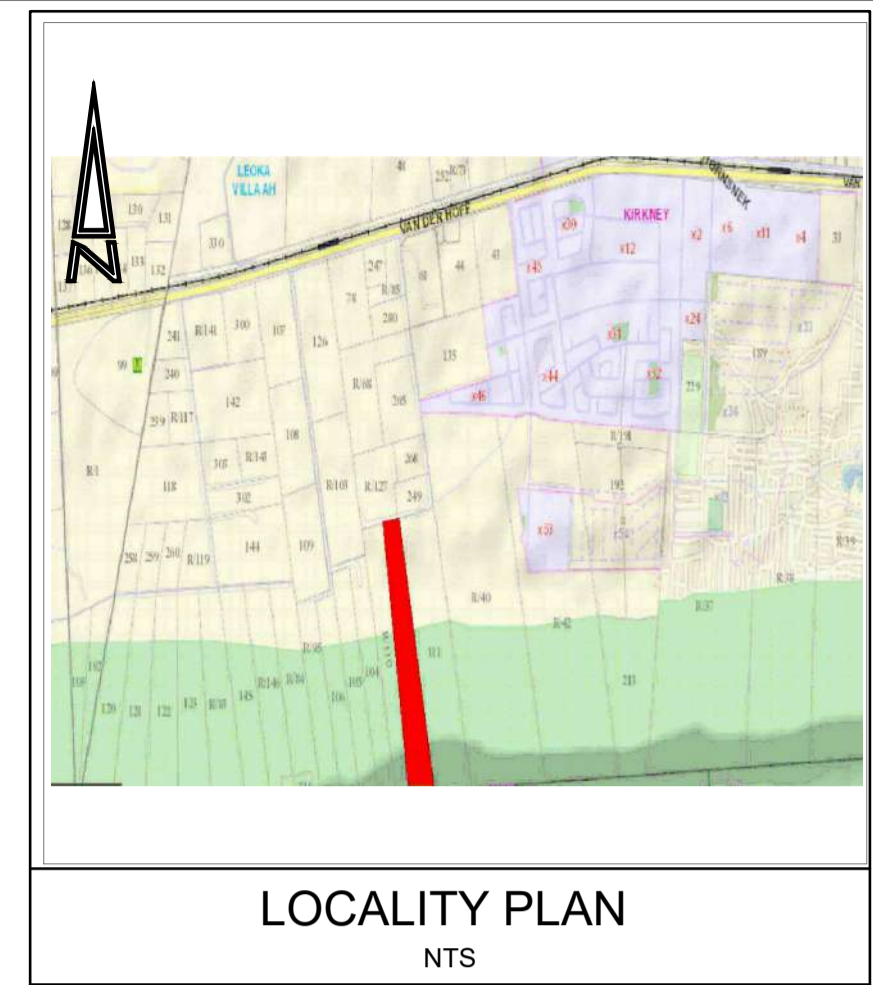
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PROJECT NO.: 2023/03/08

SCALE: AS SHOWN

DRAWING NO.: 1057/400/02/01

SHEET NO.: 1

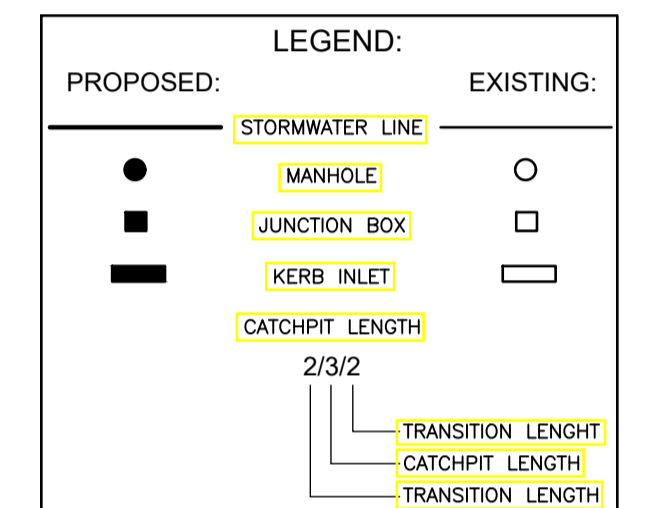


- STORMWATER**
- 1 MINIMUM PIPE DIAMETER TO BE 450mm.
 - 2 MINIMUM FALL TO BE 1:150.
 - 3 PIPE BEDDING TO BE CLASS B UNLESS OTHERWISE SPECIFIED.
 - 4 ALL EXCAVATIONS AND BEDDING MUST BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE LAYING OF ANY PIPES.
 - 5 CLEAN EXISTING STORMWATER INLETS AND REPAIR WHERE NECESSARY (IF APPLICABLE).

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DESIGN CHECKED BY J.BADENHORST		INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT D.J. CHALMERS
SIGNATURE: _____	DATE: 16/09/2021	SIGNATURE: _____

PROJECT STATUS		
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<input checked="" type="radio"/> AS BUILT DRAWING		
PROJECT ENGINEER (CONSULTANT) NJ ROETS	201170222	2023/03/08
INITIALS AND SURNAME	SIGNATURE AND P. No.	DATE
INSPECTOR OF WORKS (CITY OF TSHWANE):		
INITIALS AND SURNAME	SIGNATURE AND P. No.	DATE

CONSULTANT DETAIL

NCES

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CITY OF TSHWANE
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P.O. BOX 1409
PRETORIA 0001

Ms. L. V. Kegakwe-Piki
EXECUTIVE DIRECTOR
P.O. BOX 1409
PRETORIA 0001

DRAWING APPROVED BY EXECUTIVE DIRECTOR
Ms. L. V. Kegakwe-Piki

LOCATION OF PROJECT:
KRIKNEY X78

DESCRIPTION OF PROJECT:
**PORTION 36, ZANDFONTEIN JR :
RESIDENTIAL DEVELOPMENT :
STORMWATER CONNECTION**

INFRASTRUCTURE DESIGN, CONSTRUCTION AND MAINTENANCE DIVISION For Internal Approval
RECEIVED SIGN WHEN APPLICABLE
DIRECTOR: TRANSPORT INFRASTRUCTURE PROVISION
SIGNATURE: _____ DATE: _____
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SIGNATURE: _____ DATE: _____
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SIGNATURE: _____ DATE: _____
DIRECTOR: INTELLIGENT TRANSPORT SYSTEMS AND TRAFFIC ENGINEERING
SIGNATURE: _____ DATE: _____
DIRECTOR: INFRASTRUCTURE MAINTENANCE MANAGEMENT (IMM)
SIGNATURE: _____ DATE: _____
DIRECTOR: INTEGRATED TRANSPORT PLANNING
SIGNATURE: _____ DATE: _____

CONTRACT No.:	PROJECT No.:	
CONTRACT	1057	
DATE:	SCALE:	ORIGINAL PAPER SIZE:
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DRAWING NO.:	SHEET NO.:	REVISION:
1057/500/02/01	1	

SCALE 1:200

SCALE 1:500

ANNEXURE D

APPROVED CONDITIONS OF ESTABLISHMENT

STATEMENT OF THE CONDITIONS UNDER WHICH THE APPLICATION IS MADE BY PROPERTY FOR 4 US STOKVEL (PTY) LTD (HEREIN AFTER REFERRED TO AS THE APPLICANT/TOWNSHIP OWNER) UNDER THE PROVISIONS OF SECTION 16(4) OF THE CITY OF TSHWANE LAND USE MANAGEMENT BY- LAWS, 2016 FOR PERMISSION TO ESTABLISH A TOWNSHIP ON PORTION 136 (PORTION OF PORTION 110) OF THE FARM ZANDFONTEIN 317 JR

1. CONDITIONS TO BE COMPLIED WITH PRIOR TO THE DECLARATION OF THE TOWNSHIP IN TERMS OF THE PROVISIONS OF THE CITY OF TSHWANE LAND USE MANAGEMENT BY-LAWS, 2016 AS AN APPROVED TOWNSHIP

1.1 INSTALATION AND PROVISION OF SERVICES

The applicant shall make the necessary arrangements for the finalization of the service agreement with the Municipality for the provision and installation of water, electricity and sanitation as well as the construction of roads and stormwater drainage to the township.

1.2 CANCELLATION OF EXISTING CONDITIONS OF TITLE

There are no restrictive condition and servitudes which needs to be cancelled.

1.3 MINERAL RIGHTS PERMITS

The consent be obtained from the Department of Mineral and Energy Regarding the mineral rights in respect of the land on which the township is being established.

1.4 GENERAL

The township owner shall comply with the provisions of section 16(7) of the By-law and satisfy the City of Tshwane Metropolitan Municipality that –

1.4.1 Amendment Scheme

The relevant amendment scheme in terms of section 16(4)(d) of the By-law `read with section 16(4)(g)(v) is in order and shall be published in terms of section 16(9)(a) and (b) in accordance with COT: F/28.

1.4.2 Name of Township, street names and numbering

The name of the township as well as the street names and numbers have been approved by the Municipality and is indicated on the General Plan in accordance with Schedule 5 and section 42 of the By-law.

1.4.3 Excision in terms of section 32(c) of the By-law

The holding on which the township is being established has been excised and the description of the land has been submitted as being farmland.

1.4.4 Geotechnical conditions in terms of section 28(12) to (14)

A geotechnical report has been submitted in order to determine the soil suitability of the land and indicating the various classes of soil according to the NHBC classification on which the township is to be established and the said report shall be favourable.

If it is determined that the property falls within a dolomitic area the applicant shall provide proof that a dolomitic stability and foundation investigation has been carried out and a report compiled from the results, indicating areas suitable for development and specifying conditions under which development may take place, has been submitted and accepted by the Municipality and the Council for Geoscience.

The Engineer Geologist has certified that he/she compared the final layout plan of the township with the geological report in conjunction with the consulting town planner and he/she is satisfied that buildings can be erected on every erf. If any special arrangements have to be made for any erf the township owner shall provide proof that these arrangements have been made to the satisfaction of the Municipality.

If required by the Municipality to do so, the township owners shall have the layout plan for the township vetted by the Council for Geoscience.

1.4.5 Non-Profit Company in terms of Schedule 1 of the Companies Act (Act 71 of 2008)

A NPC (Non Profit Company) shall be registered by the township owner to the satisfaction of the Municipality, which company shall have as its main purpose the provision and maintenance of engineering services and private open space in terms of section 34 read with Schedule 19 of the By-law.

1.4.6 Engineering Services

(i) Access is available to the township and that access to a public street system is available to all erven in the township whether by means of a private or public street in terms of section 28(5) of the By-law.

(ii) The portions of the road reserves adjoining the proposed township, and which are required for the proper installation and maintenance of municipal services, shall be acquired by the township owner;

(iii) Engineering Services read with Chapter 7 of the By-law: The township owner shall, at its (or his or her) costs provide such engineering services, social infrastructure and open spaces as the Municipality may deem necessary for the proper development of the land development area and/or land development application; provided that the Municipality may, for that purpose, enter into an engineering services agreement with the owner of the land development area, in terms of the By-law, other law and as may be required in accordance with section 49 of the Act;

(iv) The township owner shall for the purpose of providing such engineering services reach agreement to the satisfaction of, and with the City of Tshwane on the availability and provision of engineering services for the township, which agreement shall indicate the standard of services to be provided and obligations of the Township Owner and the City of Tshwane with regard to the provision of internal and external engineering services and the payment of engineering services contribution toward the provision of such services in terms of section 21(3) of the

bylaw and section 49 of Spatial Planning and Land Use Management Act, (Act 16 of 2013).

(v) A traffic impact study shall be submitted to the satisfaction of the Municipality, if required to do so by the Municipality in terms of Schedule 6 paragraph 3.(9)(d).

(vi) A detailed Public Transport Assessment shall be submitted by the township owner in compliance with Section 38 of the National Land Transport Act, 2009 (Act 5 of 2009), to the satisfaction of the Municipality, if required to do so by the Municipality read with Schedule 6 paragraph 3(16).

(vii) The stormwater plan for this township must be integrated with the greater stormwater master plan for the total relevant catchment area, including adjoining areas. The low points in roads and the accumulation of stormwater in crescents, culde-sac's and lower lying erven must be drained to the satisfaction of the Municipality.

1.4.7 Department Mineral Resources

The comments of the Department of Mineral Resources was obtained.

1.4.8 EIA read with Schedule 6 (18) of the By-law.

A record of decision from the Gauteng Department of Agriculture and Rural Development shall be obtained in terms of the provisions of the Environmental Management Act, 1998 (Act. 107 of 1998) and conditions that may have been imposed in the record of decision shall be complied with at the cost of the township owner.

1.4.9 Electricity where limited capacity is available.

The township lies within the priority area for the supply of electricity in bulk can be supplied, provided that the total expected load of 130 kVA is not exceeded. Capacity in this regard will expire on the 27th January 2023. This date may be amended with the written approval of the Services Infrastructure Department (Energy and Electricity Division) in terms of Chapter 7 of the By-law read with section 42 of SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, (ACT 16 OF 2013). This may apply *mutatis mutandis* to other engineering services.

1.4.10 Development Framework

Where an approval of a township, or an approval of a division of a township is done in terms of a Development Framework, or it is required to be submitted in order to finalise the township, then a Development Framework for the township shall be submitted to the satisfaction of the Municipality which may also interactively referred to as a master SDP or provisional SDP/Architectural guidelines etc. or similar type of documentation.

1.4.11 General Plan

General Plan in terms of section 16(6) of the By-law plus extensions of time in terms of section 16(6)(a) and section 16(8)(a) of the By-law read with Schedule 10

The township owner shall comply with the provisions of section 16(6) and 29 (where applicable) of the By-law.

1.4.12 The applicant shall satisfy the City of Tshwane Metropolitan Municipality that,

- (i) the relevant amendment scheme, is in order and may be published simultaneously with the declaration of the township an approved township;
- (ii) satisfactory access is available to the township and that a public street system and or a right of way servitude is available to all erven in the township;
- (iii) a satisfactory traffic impact assessment has been submitted;
- (iv) a satisfactory noise impact study has been submitted;
- (v) the holding on which the township is being established has been excised and the description of the property has been submitted as being farmland;
- (vi) a favourable geo-technical report has been submitted to the Department Public Works and Infrastructure Development;
- (vii) the portion of the road reserves adjoining the proposed township, and which are required for the proper installation and maintenance of the Municipality's services, must be acquired by the township owner; and
- (viii) the name of the township as well as the street names have been approved by the Municipality and is indicated on the layout plan or General Plan in accordance with regulation City of Tshwane Land Use Management By-Laws, 2016.

1.4.13 The applicant shall comply with the provisions of Section 6 of the Tshwane Land Use Management By-Laws, 2016.

2. CONDITIONS OF ESTABLISHMENT (CONDITIONS WHICH WILL BE APPLICABLE TO THE APPROVED TOWNSHIP IN TERMS OF CITY OF TSHWANE LAND USE MANAGEMENT BY-LAWS, 2016)

2.1 NAME

The name of the township shall be **Kirkney Ext 77**

2.2 DESIGN

The township shall consist of erven as indicated on Plan no. **CPD-MTTX 70/4.**

2.3 PROVISION AND INSTALLATION OF ENGINEERING SERVICES

The Township Owner shall at his cost provide the township with such engineering services, social infrastructure and open spaces as the Municipality may deem necessary for the proper development of the township and comply with the engineering services agreement entered into between the township owner and the

Municipality as required in terms of Section 21(3) of the By-law and in accordance with section 49 of the Spatial Planning and Land Use Management Act, 16 of 2013.

2.4 ACCEPTANCE AND DISPOSAL OF STORMWATER

The township owner shall arrange for the drainage of the township to fit in with that of the adjacent road (or roads) and all stormwater running off or being diverted from the road (or roads) and higher lying areas shall be received and disposed of, to the satisfaction of the Municipality.

2.5 DISPOSAL OF EXISTING CONDITIONS OF TITLE

All erven shall be made subject to existing condition and servitudes in the Title Deed T41359/2022.

2.6 REMOVAL OR REPLACEMENT OF MUNICIPAL SERVICES

Should it become necessary to move or replace any existing municipal service as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.7 ACCESS

Ingress to the township and egress the township will only be allowed along the points as approved by City of Tshwane Metropolitan Municipality. The Township owner shall after approval of the layout and specifications construct the said ingress and egress points at his own expenses to the satisfaction of the City of Tshwane Metropolitan Municipality.

2.8 PHYSICAL BARRIER

The Township owner shall at his own expense erect a physical barrier in a position and to the satisfaction of the City of Tshwane Metropolitan Municipality, as and when required to do so and the Township owner shall maintain the physical barrier in good order.

2.9 DEMOLITION OF BUILDINGS AND STRUCTURES

When required by the City of Tshwane Metropolitan Municipality to do so, the township owner shall at his own expense cause to be demolished to the satisfaction of the City of Tshwane Metropolitan Municipality all existing buildings and structures situated within building line reserves and side spaces or over common boundaries, or dilapidated structures.

2.10 REMOVAL OF LITTER

The township owner shall at his own expense have all litter within the township area removed to the satisfaction of the City of Tshwane Metropolitan Municipality, when required to do so.

2.11 REMOVAL AND /OR REPLACEMENT OF ESKOM POWER LINES

Should it become necessary to remove and/or replace any existing power lines of Eskom as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.12 REMOVAL AND/OR ROPLACEMENT OF TELKOM SERVICES

Should it become necessary to remove and/or replace any existing Telkom services as a result of the establishment of the township, the cost thereof shall be borne by the township owner.

2.13 CONDITIONS IMPOSED BY THE GAUTENG PROVINCIAL GOVERNMENT:

DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT (GDARD)

The township owner shall at his costs comply with and strictly adhere to all the conditions and/or requirements imposed by Department of Agriculture and Rural Development including those by which exemption has been granted from compliance with the Environmental Impact Assessment Regulations, 2014 promulgated on 4 December 2014 in terms of section 21, 22 and 26 of the Environmental Conservation Act (Act 73 of 1989) or the National Environmental Act, 998 (Act 107 of 1998) as amended and the Regulations thereto, as the case may be for the Development of this township.

2.14 CONDITIONS IMPOSED BY NATIONAL AND REGIONAL ROADS AUTHORITIES

The township owner shall, at its own cost, comply with and strictly adhere to all the conditions and/or requirements imposed by the South African National Roads Agency Limited, the Department of Roads and Transport (Gauteng Provincial Government), Department of Water and Environmental Affairs and where applicable as imposed by the Municipality.

2.15 ACCESS CONDITIONS

- (a) Access to or egress from the township shall be provided to the satisfaction of the Municipality.
- (b) No access to or egress from the township shall be permitted along the lines of no access as indicated on the approved layout plan of the township No. **CPD-MTTX 70/4**.

2.16 SAFEGUARDING OF UNDERGROUND WORKINGS

The township owner shall at its own costs, make adequate provision to the satisfaction of the Inspector of Mines (Gauteng Region), to prevent any water from entering underground workings through outcrop workings or shaft openings and if applicable, the existing stormwater drains shall be properly maintained and protected.

3. CONDITIONS TO BE COMPLIED WITH BEFORE THE ERVEN IN THE TOWNSHIP BECOME REGISTRABLE WHICH SHALL BE READ WITH THE CONDITIONS OF ESTABLISHMENT INDICATED IN 2 ABOVE IN TERMS OF

SECTION 16(10) OF THE BY-LAW AND SECTION 53 OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 16 OF 2013

3.1 ELECTRICITY AND PRIVATE SEWERAGE AND WASTEWATER TREATMENT AND OTHER WORKS

The Municipality is not the bulk supplier of electricity/sewerage and waste water treatment/water (in the case of Rand Water) works and therefore the township owner shall in terms of Section 21(3) of the By-law make the necessary arrangements with ESKOM as the licensed supplier of electricity in the township for the provision of electricity to the township and/or with the Department responsible for sewerage and waste water treatment (private package plants) and/or RAND WATER for the provision of the service to the township.

3.2 REFUSE REMOVAL

- a. The township owner shall at his own expense have all litter within the township area removed to the satisfaction of the City of Tshwane Metropolitan Municipality, when required to do so by the City of Tshwane Metropolitan Municipality.
- b. The township owner shall provide sufficient refuse collection points in the township and shall make arrangements to the satisfaction of the Municipality for the removal of all refuse.

3.3 REMOVAL OR REPLACEMENT OF EXISTING SERVICES

If, by reason of the establishment of the township, it should be necessary to remove or replace any existing municipal, TELKOM and/or ESKOM services, the cost of such removal or replacement shall be borne by the township owner. For purposes of removal or replacement the township owner shall, at its own costs, protect the services by means of the registration of servitudes in favour of the City of Tshwane, should it be deemed necessary.

3.4 DEMOLITION OF BUILDINGS AND STRUCTURES

The township owner shall at its own costs cause all existing buildings/structures situated within the building line reserves, side spaces, or over common boundaries to be demolished to the satisfaction of the Municipality, when requested thereto by the Municipality or where buildings/structures are dilapidated.

3.5 RESTRICTION ON REGISTRATION AND TRANSFER OF ERVEN FROM THE TOWNSHIP

In terms of section 16(10) of the By-law read with section 53 of Spatial Planning and Land Use Management Act, (Act 16 of 2013) no property(ies) or land and/or erf/erven and/or sections and/or units, sectional title schemes/registers or other registration transaction/s, in a land development area, which registration transactions results from a land development application(s), may be submitted by the applicant and/or owner, to the Registrar of Deed for registration, including transfer and the registration of a Certificate of Consolidated Title and/or Certificate of Registered in the name of the owner; prior to the Municipality certifying to the Registrar of Deeds that:

- (i) all engineering services have been designed and constructed to the satisfaction of the Municipality, including the provision of guarantees, and maintenance guarantees, for services having been provided to the satisfaction of the Municipality as may be required;
- (ii) all engineering services contributions and open spaces and parks contributions and/or development charges and/or other monies have been paid;
- (iii) all engineering services have been or will be protected to the satisfaction of the Municipality by means of servitudes;
- (iv) all conditions of the approval of the land development application have been complied with or that arrangements for compliance to the satisfaction of the Municipality have been made, which arrangements shall form part of an agreement read with Chapter 7 of the By-law, to the satisfaction of the Municipality;
- (v) it is in a position to consider a final building plan; and
- (vi) all the properties have either been transferred in terms of subsection 16(11) hereof or shall be transferred simultaneously with the first transfer or registration of a newly created property or sectional title scheme.

3.6 ESTABLISHMENT OF A NON-PROFIT COMPANY IN TERMS OF SECTION 34 WITH SCHEDULE 19 OF THE BY-LAW

The township owner shall at his/her own cost establish a Non-Profit Company ("NPC") in terms of schedule 1 of the Companies Act, 2008 (Act 71 of 2008) as amended and as contemplated in section 34 read with schedule 19 of the By-law, with the main object of the Company being to retain and maintain the private engineering services in the township. The township owner shall further submit proof that such a Company has been duly registered, before a section 16(10) Certificate shall be issued in terms of the By-law.

Servitudes in favour of all the erven within the township shall be registered over any and all property owned or transferred to a NPC for purposes of access and engineering services.

4. CONDITIONS OF TITLE

4.1 CONDITIONS OF TITLE IMPOSED IN FAVOUR OF THE MUNICIPALITY IN TERMS OF THE SECTION 16(4)(G) OF THE BY-LAW

4.1.1. ALL ERVEN

- (a) The erf shall be subject to a servitude, 2m wide, for municipal services (water, sewer, electricity and stormwater) (hereafter referred to as "the services"), in favour of the City of Tshwane Metropolitan Municipality, along any two boundaries, excepting a street boundary, if and when required by the local authority: Provided that the local authority may waive any such servitude.
- (b) No building or other structure or any part of its foundation shall be erected within the aforesaid servitude area and no large, rooted trees shall be planted within the area of such servitude or within 2m thereof.
- (c) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining the aforesaid servitude, any

material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards necessary, and furthermore the Municipality shall be entitled to reasonable access to the said property for the aforesaid purposes, subject to the provision that the Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.

- (d) The City of Tshwane Metropolitan Municipality shall be entitled to temporarily deposit on the land adjoining aforesaid servitude, any material it excavates during the laying, maintenance or removal of such services and other works which in its discretion it regards necessary and furthermore the Municipality shall be entitled to reasonable access to the said property for the aforesaid purposes, subject to the provision that the Municipality shall make good any damage caused during the laying, maintenance or removal of such services and other works.
- (e) The proposed Erf size shall be 479sqm from Erf 1-17 & 19 - 35, while Erf 18 shall be 560sqm and Erf 36 shall be 5.8 Ha. The township will consist of the following zoning "Residential 1 from Erf 1 to 35, Public Open Space on Erf 36 and proposed 13m Street

4.1.2. ERVEN 1- 35

The erven is subject to the following servitudes in favour of the Municipality, as indicated on the General Plan:

- a) A 3m wide stormwater servitude;
- b) A 2m wide electrical mini-substation servitude; and
- c) A 5m wide sewer servitude.

5. CONDITIONS WHICH, IN ADDITION TO THE EXISTING PROVISIONS OF THE RULING TOWN-PLANNING SCHEME, HAVE TO BE INCORPORATED IN THE TSHWANE TOWNPLANNING SCHEME, 2008 (REVISED 2014) IN TERMS OF CITY OF TSHWANE MANAGEMENT BY-LAWS, 2016

5.1 ERVEN 1 - 35 **KIRKNYE EXTENSION 78**

1	Use Zone	1: RESIDENTIAL 1
2	Uses permitted	Table B, Column 3.
3	Uses with consent	Table B, Column 4.
4	Uses not permitted	Table B, Column 5.
5	Definitions	Clause 5.
6	Density	1 Dwelling per erf.
7	Coverage	50%.
8	Height	2 storeys.
9	Floor area ratio	0,5.
10	Site development plan and landscape development plan	Not required.

11	Street building lines	5,0 m.
12	Building restriction areas	3,0 m; provided that the provision of Clause 13 (a) is excluded.
13	Parking requirements	Clause 28, Table G.
14	Paving of traffic areas	All parts of the erf upon which motor vehicles may move or park, shall be provided with a permanent dust-free surface, which surface shall be paved, drained and maintained to the satisfaction of the Municipality.
15	Access to the erf	Clause 7(1).
16	Loading and off-loading facilities	Not applicable.
17	Turning facilities	Not required.
18	Physical barriers	Clause 18(8).
19	Health measures	Clause 18(14).
20	Outdoor advertising	Advertisements and/or sign boards shall not be erected or displayed on the erf without the written consent of the Municipality first being obtained in terms of municipal by-laws for outdoor advertising.
21	Detrimental soil conditions	Clause 19.
22	Open space	Clause 14(3)(a).
	<p>23 General:</p> <p>(1) The control of stormwater shall meet the requirement of the Municipality.</p> <p>(2) The management and control of stormwater on the site(s) must be done to the satisfaction of the Municipality.</p> <p>(3) A stormwater management plan, unless otherwise determined by the Municipality, compiled by a person suitable qualified to the satisfaction of the Municipality, shall be submitted to the Municipality for approval prior to the submission/approval of building plans.</p> <p>(4) In addition to the above conditions the erf and buildings thereon are further subject to the general provisions of the Tshwane Town-planning Scheme, 2008 (Revised 2014).</p>	

ERF 36 **KIRKNEY EXT 78**

Proposed Zone Number	Size (ha)	Use Permitted
21. Private Open Space	5.87 Ha	As per Scheme
23. Proposed Street	0.5 Ha	As Per Scheme

ANNEXURE E

TITLE DEED

**T.E.D MATTHEWS
ATTORNEYS
Prokureur/Attorney**

2148

TEL: (011) 431-3304

DEED OF TRANSFER

in favour of

PROPERTY4US STOKVEL PROPRIETARY LIMITED

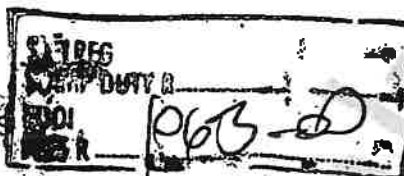
over

PORTION 136 OF FARM ZANDFONTEIN 317 JR

**T.E.D MATTHEWS ATTORNEYS
5 HETTY AVENUE,
FAIRLAND
Tel: (011) 431-3304**

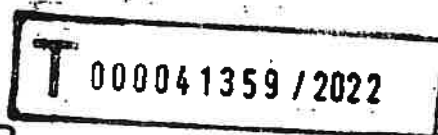
2148

T.E.D MATTHEWS ATTORNEYS
5 HETTY AVENUE,
FAIRLAND



Prepared by me


CONVEYANCER
ANDRE WESSEL DAVID GERMISHUIZEN
(18359)



DEED OF TRANSFER

BE IT HEREBY MADE KNOWN THAT:

ANDRE WESSEL DAVID GERMISHUIZEN (18359)

appeared before me, REGISTRAR OF DEEDS at PRETORIA, he/she the said
Appearer being duly authorised thereto by a Power of Attorney signed at
JOHANNESBURG on 25 January 2022 and granted to him/her by

WILHELM JACOBUS VOLSCHENK
Identity Number 440603 5052 08 8
Married out of community of property

And the Appearer declared that his/her said principal had truly and legally sold on 11 December 2020 and that he/she, the said Appearer, in his/her capacity aforesaid, did, by these presents, cede and transfer to and on behalf of

PROPERTY4US STOKVEL PROPRIETARY LIMITED
Registration Number 2020/064161/07

its Successors in Title or assigns, in full and free property

PORTION 136 (portion of Portion 110) OF THE FARM ZANDFONTEIN
Number 317
REGISTRATION DIVISION J.R., PROVINCE OF GAUTENG

MEASURING 7,8837 (SEVEN COMMA EIGHT EIGHT THREE SEVEN)
Hectares

HELD BY DEED OF TRANSFER NUMBER T10370/1975

Subject to the following conditions:

- (1) Die vorige Resterende Gedeelte van Gedeelte 37 van die gesegde plaas ZANDFONTEIN Nr 317, Registrasie Afdeling J.R., Transvaal groot as sulks Twee en Vyftig komma Sewe Nege Agt Nul (52,7980) hektaar (waarvan die eiendom hieronder getranspoteer 'n gedeelte uitmaak) gehou deur NICOLAAS GEORGE BECKER onder Akte van Transport Nr 9412/36 is geregtig tot 'n reg van weg twaalf komma vyf nege (12,59) meter wyd langs die oostelike grenslyn van Gedeelte Nr 79 ('n gedeelte van gesegde Gedeelte 37) van gesegde plaas Zandfontein groot Vyf komma Vier Vier Ses Drie (5,4483) hektaar en getranspoteer aan Francois Johannes Verster onder Akte van Transport Nr 7052/40 gedateer 10de dag van Mei 1940, soos aangetoon op Kaart S.G. Nr A.1316/40 geheg aan Akte van Transport Nr 7052/40.
- (2) Gesegde Gedeelte 110 van die gesegde plaas ZANDFONTEIN (waarvan die eiendom hieronder getranspoteer 'n gedeelte uitmaak) is geregtig tot 'n reg van weg Twaalf komma Vyf Nege (12,59) meter wyd langs die oostelike grenslyn van die tans Resterende Gedeelte van gesegde Gedeelte 37, groot as sulks Twintig komma Sewe Ses Vier Nege (20,7649) hektaar, gehou deur Nicolaas George Becker onder Akte van Transport Nr 9412/1936, en welke regte van weg aangetoon is op Kaart L.G. Nr A.6089/44 geheg aan gesegde Akte van Transport Nr 9095/1945.

- (3) Die gesegde Resterende Gedeelte van Gedeelte 110 (waarvan die eiendom hieronder getranspoteer 'n gedeelte uitmaak) is geregtig tot 'n reg van weg Twaalf komma vyf nege (12,59) meter wyd op Gedeelte 107 ('n gedeelte van Gedeelte 110) getranspoteer aan Cornelius Petrus Lukas Griesel onder Akte van Verdellingstransport Nr 9086/1945 langs die noordelike grêns van gesegde Gedeelte 107, welke reg van weg aangetoon is op die Kaart van gesegde Gedeelte 107, L.G. Nr A.801/45 geheg aan gesegde Akte van Verdellingstransport Nr 9096/1945 en aangetoon op die gesegde Kaart deur die figuur A B F G.
- (4) Gesegde Gedeelte 37 (waarvan die eiendom hieronder getranspoteer 'n gedeelte uitmaak) is spesiaal onderworpe aan die volgende voorwaardes, naamlik:
- (a) "This holding or any part thereof may not be used, sold, leased or disposed of for any other purpose than for agricultural or residential use.
- (b) No canteen, beerhall, restaurant, place for the sale of wines or spirituous liquors or place of business or store whatsoever, may be opened or conducted on this holding without the written approval of the GENERAL PROPERTIES PROPRIETARY) LIMITED first had and obtained.
- (c) The said Portion No 37 (of which the property hereby transferred forms a portion) shall be entitled to the rights of way as indicated on the General Plan of the Western Portion of the said farm filed in the Deeds Office, Pretoria."
- (5) Onderhewig aan die volgende voorwaardes ten gunste van die Algemene Publiek soos meer ten volle sal blyk uit Notariële Akte van Serwituut Nr 675/1953S geregistreer op 20 Augustus 1953, naamlik –
1. "The land may not be subdivided nor may any share in it or portion of it be sold, leased or disposed of in any way without the written approval of the Townships Board.

2. Not more than one dwelling house together with such outbuildings as are ordinarily required to be used in connection therewith, shall be erected on the land, or on any subdivision of the land approved in terms of Clause 1, except with the approval of the Townships Board.
3. The land shall be used for residential and agricultural purposes only and no store or place of business or industry whatsoever may be opened or conducted on the land without the written approval of the Townships Board.

Provided that in the event of the land being laid out as a settlement or township or being included in an existing township or being consolidated with another portion or other portions, subject to similar conditions, the conditions 1 to 3 above shall lapse."

(6) Hierdie eiendom is onderworpe aan 'n serwitut vir algemene munisipale doeleindes, groot 69 vierkante meter, gesedeer aan Die Stadsraad van Pretoria soos aangedui op kaart SG A9789/1991 gehou kragtens Akte van Sessie K1981/1992S.

SUBJECT to such conditions as are mentioned or referred to in the aforesaid Deed/s.

WHEREFORE the Appearer, renouncing all rights and title which the said

WILHELM JACOBUS VOLSCHENK, Married as aforesaid

heretofore had to the premises, did in consequence also acknowledge him to be entirely dispossessed of, and disentitled to the same, and that by virtue of these presents, the said


PROPERTY4US STOKVEL PROPRIETARY LIMITED
Registration Number 2020/064161/07

its Successors in Title or Assigns, now is and henceforth shall be entitled thereto, conformably to local custom, the State, however reserving its rights, and finally acknowledging the purchase price to be the sum of R750 000,00 (SEVEN HUNDRED AND FIFTY THOUSAND RAND).

IN WITNESS WHEREOF, I the said Registrar, together with the Appearer q.q., have subscribed to these presents and have caused the Seal of Office to be affixed thereto.

THUS DONE AND EXECUTED at the Office of the REGISTRAR OF DEEDS at PRETORIA on

30 MAY 2022



q.q.

In my presence



REGISTRAR OF DEEDS



2148

T.E.D MATTHEWS ATTORNEYS
5 HETTY AVENUE,
FAIRLAND



Prepared by me



CONVEYANCER
TERENCE EDWARD DALE MATTHEWS
(01270)

POWER OF ATTORNEY TO PASS TRANSFER

I, the undersigned

WILHELM JACOBUS VOLSCHENK
Identity Number 440603 5052 08 8
Married out of community of property

do hereby nominate, constitute and appoint HELANDIE CALAÇA (24611) and/or
TERENCE EDWARD DALE MATTHEWS (01270) and/or ANDRÉ WESSEL DAVID
GERMISHUIZEN (18359) and/or CORNELIA STEPHINA JOHANNA KEMP
(20216) and/or IAN ANTHONY FYSCHÉ (01639) and/or NKGWAKGE KENNY
MATSEKE (24677)

with power of substitution to be the true and lawful Attorney/s and Agent/s of the
Transferor to appear before the REGISTRAR OF DEEDS at PRETORIA and there
to declare that I did on 11 December 2020 sell to:-

PROPERTY4US STOKVEL PROPRIETARY LIMITED
Registration Number 2020/064161/07

for the sum of R750 000,00 (Seven Hundred and Fifty Thousand Rand)

the below mentioned property, namely-

PORTION 136 (portion of Portion 110) OF THE FARM ZANDFONTEIN
Number 317
REGISTRATION DIVISION J.R., PROVINCE OF GAUTENG

MEASURING 7,8837 (SEVEN COMMA EIGHT EIGHT THREE SEVEN)
Hectares

HELD BY Deed of Transfer Number T10370/1975



CAVEAT NO

6479

WOLLE NAAM VAN EIGENAAR/VERBANDHOUER: ~~STANDARD~~ CREDIT CORPORATION

WOLLE NO. NOMMER/MPY NOMMER/B K NOMMER:

WOLLE TITELNOMMER/VERBANDNOMMER: 1 B. 9765/75 @ B. 142/89

WOLLE VOLLEDIGE EIENDOMSBEKRYWING: Ged. 136. (ged. v. ged. 110) Zandfontein 317 IR

WOLLE WARD VAN INTERDIK: Stegse afdelkantoorafster gebiedse re ontkeuring + sessie van servituut vir. Munisipale doekindes = groot 69m² tgl. die Gadsraad v Pretoria

WOLLE SENIOR SE HANDTEKENING EN NAAMSTEMPEL: [Handwritten Signature]

WOLLE SENIOR SE HANDTEKENING EN NAAMSTEMPEL: [Handwritten Signature]

T

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K 1981/92

BC
DATE
DATUM

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FEES R353,00

1/5
①

Prepared by me,
Matthews
CONVEYANCER
Terence Edward Dale Matthews
LPCM 01270

**APPLICATION TO RECORD A CONTRACT IN TERMS OF SECTION 20 OF THE
ALIENATION OF LAND ACT, 1981 (ACT 68 OF 1981)**

I, the undersigned,

WILHELM JACOBUS VOLSCHENK
Identity Number 440603 5052 08 8
Married out of community of property

B: 000003856 * 2021 AL
DATE
DATUM 2021-02-10

being the Seller, do hereby make oath and say that the hereinafter mentioned land was sold in terms of a Contract as defined in the Alienation of Land Act, 1981 (Act 68 of 1981), to the hereinafter mentioned purchasers on 11 December 2020

and

I do hereby make application to the REGISTRAR OF DEEDS at PRETORIA to record the contract against the title deed of the land in terms of Section 20 of the said Act

and

I do hereby confirm that to the best of my knowledge there is no prior contract in force that is required to be recorded against the title deed in question.

PARTICULARS OF LAND AND PURCHASERS

1. REGISTERED OWNER

WILHELM JACOBUS VOLSCHENK
Identity Number 440603 5052 08 8
Married out of community of property

2. DESCRIPTION OF THE LAND

PORTION 136 (portion of Portion 110) of the farm ZANDFONTEIN Number 317,
Registration Division J.R., Province of Gauteng

Measuring 7,8837 (seven comma eight eight three seven) hectares

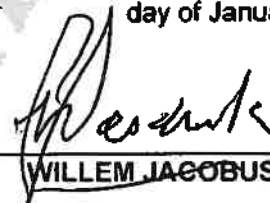
Held by Deed of Transfer Number T10370/1975

[Signatures]

3. PURCHASER

PROPERTY4US STOKVEL PROPRIETARY LIMITED
Registration Number 2020/64161/07

SIGNED AT JOHANNESBURG on the 14 day of January 2021.



WILLEM JACOBUS VOLSCHENK

SIGNED and SWORN/AFFIRMED to before me at JOHANNESBURG on this 15 day of JANUARY 2021 the Deponent having acknowledged that he/she knows and understands the contents of this Affidavit, which is deposed to in accordance with the regulations governing the administration of an oath as more fully set out in Government Notice R 1258 of the 21st July 1972, as amended by Government Notice 1648 dated the 19th of August 1977 and Government Notice 903 dated the 10th July 1998.



COMMISSIONER OF OATHS

FULL NAMES:
STATUS:
STREET ADDRESS:

TERENCE EDWARD DALE MATTHEWS
Commissioner of Oaths / Kommissaris van Ede
Practising Attorney R.S.A. / Praktiserende Prokureur
5 Hetty Avenue
Fairland
Johannesburg

CONTRACT recorded by the REGISTRAR OF DEEDS at PRETORIA on



REGISTRAR OF DEEDS

ANNEXURE F

RUN OFF CALCULATIONS

Flood Determination : Rational Formula
Client :
Project Description : Portion 136 , Zandfontein **Pre Development** **NOTE : For Catchments < 15 km²**
Source : NTC : Manual on Road Drainage, Revised Edition, 1986 **Project Number :** 57

Catchment
 River/Stream Name : N/A
 Description : Pre Development
 Structure : N/A
 Calculated by : NJR
 Chainage : MAP : 700 mm/a
 Date : 08-Mar-23

Rural (Watercourse)		Urban (Streets Only)		Lake (Overland Area < 5 km ² & Flat)	
Size of catchment	A ₁ = 0.02154 km ²	A ₂ = 0.00000 km ²	A ₃ = km ²		
Longest water course	L ₁ = 0.282 km	L ₂ = 0.000 km	L ₃ = km		
Delta height	H ₁ = 22 m	H ₂ = 0.000 m	H ₃ = m		
Average slope	S= 0.07801 m/m	S ₂ = 0 m/m	S ₃ = m/m		
Area Dolomite	dA ₁ = 0 km ² /km ²	dA ₂ = km ² /km ²	dA ₃ = km ² /km ²		

RUN-OFF FACTOR

Area distribution factor = $\alpha + \beta + \gamma = 1$

Rural	Urban	Lakes	
$\alpha = 1$	$\beta = 0$	$\gamma = 0$	1 (Total must be 1)

RURAL				URBAN C _U			
Surface Slope	(%) C _{RS}	Permeability	(%) C _{RP}	Vegetation	(%) C _{RV}	Use	(%)
Vlei's & pans	0%	Very Permeable	0%	Thick Bush & Plantation	20%	Lawns and parks	0%
Flat Area	0%	Permeable	70%	Light Bush & Farm-lands	40%	Industrial areas	0%
Hilly	70%	Semi Permeable	30%	Grass-lands	40%	City residential	0%
Steep Areas	30%	Impermeable	0%	No Vegetation	0%	Streets	0%
Total	100%	Total	100%	Total	100%	Total	0%

Recommended values of run-off factor :

Component	Classification	RURAL (C _R)			URBAN (C _{U2})		
		<600	600-900	>900	Use	Factor	Use
Surface Slope C _n	Vlei's & pans	0.01	0.03	0.05	Lawns & Parks		
	Flat Area	0.06	0.08	0.11	Sandy, Flat(<2%)	0.05	0.10
	Hilly	0.12	0.16	0.20	Sandy, Steep(>1%)	0.15	0.20
	Steep Areas	0.22	0.26	0.30	Heavy soil, Flat(<2%)	0.13	0.17
Permeability C _d	Very Permeable	0.03	0.04	0.05	Heavy soil, Steep(>1%)	0.25	0.35
	Permeable	0.06	0.08	0.10	Industry		
	Semi Permeable	0.12	0.16	0.20	Light Industry	0.50	0.80
	Impermeable	0.21	0.26	0.30	Heavy Industry	0.60	0.90
Vegetation C _p	Thick Bush & Plantation	0.03	0.04	0.05	Residential areas		
	Light Bush & Farm-lands	0.07	0.11	0.15	Houses	0.30	0.50
	Grass-lands	0.17	0.21	0.25	Flats	0.50	0.70
	No Vegetation	0.26	0.28	0.30	Business		
				City Centre	0.70	0.95	
				Suburban	0.50	0.70	
				Streets	0.70	0.95	
				Maximum Flood Lake	1.00	1.00	

	Rural			Urban	Lake
	Surface C _n x C _{RS}	Permeability C _d x C _{RP}	Vegetation C _p x C _{RV}		
	0.000	0.000	0.008	Lawns and parks	0
	0.000	0.056	0.044	Industrial areas	0
	0.112	0.048	0.084	City residential	0
	0.078	0.000	0.000	Streets	0
C _H	0.190	0.104	0.136		
Run-off Factor = C _{R1} = C _H + C _D + C _P =				C _{U1} = 0.000	C _{L1} = 0.000

Run-off factor = $C = C_{R1} \times \alpha + C_{U1} \times \beta + C_{L1} \times \gamma = 0.43$

Return Period (years)	R	2	5	10	20	25	50	100
Adjustment Factor	Ft	0.75	0.8	0.85	0.9	0.92	0.95	1
Combined Factor	C _C	0.323	0.344	0.366	0.387	0.396	0.409	0.430

(Ft x C)

TIME OF CONCENTRATION (Inland)

Watercourse $T_{c1} = \{(0.87 \times L_1^2) / (1000 \times S)\}^{0.385}$ $T_{c2} = 0.06682$ hr

Urban $T_{c2} = 0.96 \times \{(L^{1.2} (H^{0.2} \times A^{0.1}))\}$ $T_{c3} = 0$ hr

Overland $T_{c3} = 0.604 \times \{(r \times L) / (S^{0.5})\}^{0.467}$ $T_{c1} = 0$ hr

$T_c = T_{c1} + T_{c2} + T_{c3} = 0.06682$ hr

Values for Overland	r
Clean soil	0.1
Paved area	0.02
Sparse grass	0.3
Moderate	0.4
Thick bush	0.8
Use	0.4

Average Intensity (mm/hr) = $I = \{(7.5 + 0.034 \times MAP) / (T_c + 0.24)^{0.88}\} \times R^{0.3}$ Inland

Average Intensity (mm/hr) = $I = \{(3.4 + 0.023 \times MAP) / (td + 0.20)^{0.75}\} \times R^{0.3}$ Coastal

Return Period (years)	R	2	5	10	20	25	50	100
Average Intensity (mm/hr) = I		110.29	145.18	178.74	220.05	235.29	289.67	356.63

PEAK FLOW (Inland)

Return Period (years)	R	2	5	10	20	25	50	100
Combined Factor	C _C	0.32	0.34	0.37	0.39	0.40	0.41	0.43
Average Intensity (mm/hr)	I	110.29	145.18	178.74	220.05	235.29	289.67	356.63
Area (Km ²)	A	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Peak Flow (m ³ /s)	Q	0.21	0.30	0.39	0.51	0.56	0.71	0.92

Q = CIA/3.6

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

Flood Determination : Rational Formula									
Client :					NOTE : For Catchments < 15 km ²				
Project Description :		Portion 136 , Zandfontein Pre Development - Area Above Site			Source : NTC : Manual on Road Drainage, Revised Edition, 1986		Project Number : 57		
Catchment		Calculated by : NJR			Date : 08-Mar-23				
River/Stream Name :		N/A			Chainage :				
Description :		Pre Development			MAP :		700 mm/a		
Structure :		N/A							
Rural (Watercourse)			Urban (Streets Only)			Lake (Overland Area < 5 km ² & Flat)			
Size of catchment	A ₁ =	0.03907 km ²	A ₂ =	0.00000 km ²	A ₃ =				
Longest water course	L ₁ =	0.417 km	L ₂ =	0.000 km	L ₃ =				
Delta height	H ₁ =	105 m	H ₂ =	0.000 m	H ₃ =				
Average slope	S=	0.2518 m/m	S ₂ =	0 m/m	S ₃ =				
Area Dolomite	dA ₁ =	0 km ² /km ²	dA ₂ =		dA ₃ =				
RUN-OFF FACTOR									
Area distribution factor = $\alpha + \beta + \gamma = 1$									
Rural		Urban		Lakes					
$\alpha = 1$		$\beta = 0$		$\gamma = 0$		1 (Total must be 1)			
RURAL					URBAN C _U				
Surface Slope	(%) C _{RS}	Permeability	(%) C _{RP}	Vegetation	(%) C _{RV}	Use			
Vlei's & pans	0%	Very Permeable	0%	Thick Bush & Plantation	20%	Lawns and parks			0%
Flat Area	0%	Permeable	70%	Light Bush & Farm-lands	40%	Industrial areas			0%
Hilly	70%	Semi Permeable	30%	Grass-lands	40%	City residential			0%
Steep Areas	30%	Impermeable	0%	No Vegetation	0%	Streets			0%
Total	100%	Total	100%	Total	100%	Total			0%
Recommended values of run-off factor :									
RURAL (C _R)					URBAN (C _U)				
Component	Classification	Mean average Rainfall (MAP)(mm)			Use	Factor			Use
		<600	600-900	>900		From	To		
Surface Slope C _n	Vlei's & pans	0.01	0.03	0.05	Lawns & Parks				
	Flat Area	0.06	0.08	0.11	Sandy, Flat(<2%)	0.05	0.10		0
	Hilly	0.12	0.16	0.20	Sandy, Steep(>1%)	0.15	0.20		
	Steep Areas	0.22	0.26	0.30	Heavy soil, Flat(<2%)	0.13	0.17		
Permeability C _d	Very Permeable	0.03	0.04	0.05	Heavy soil, Steep(>1%)	0.25	0.35		0
	Permeable	0.06	0.08	0.10	Industry				
	Semi Permeable	0.12	0.16	0.20	Light Industry	0.50	0.80		0
	Impermeable	0.21	0.26	0.30	Heavy Industry	0.60	0.90		
Vegetation C _p	Thick Bush & Plantation	0.03	0.04	0.05	Residential areas				
	Light Bush & Farm-lands	0.07	0.11	0.15	Houses	0.30	0.50		0
	Grass-lands	0.17	0.21	0.25	Flats	0.50	0.70		0
	No Vegetation	0.26	0.28	0.30	Business				
					City Centre	0.70	0.95		
					Suburban	0.50	0.70		0
					Streets	0.70	0.95		0
					Maximum Flood Lake	1.00	1.00		0
		Rural		Vegetation		Urban		Lake	
		Surface C _n x C _{RS}	Permeability C _d x C _{RP}	C _p x C _{RV}		C _U x C _{U2}			
		0.000	0.000	0.008		Lawns and parks		0	
		0.000	0.056	0.044		Industrial areas		0	
		0.112	0.048	0.084		City residential		0	
		0.078	0.000	0.000		Streets		0	
		C _H 0.190	C _D 0.104	C _P 0.136					
		Run-off Factor = C _{R1} = C _H + C _D + C _P =			0.430		C _{U1} =		0.000
							C _{L1} =		0.000
Run-off factor = C = C _{R1} x α + C _{U1} x β + C _{L1} x γ = 0.43									
Return Period (years)	R	2	5	10	20	25	50	100	
Adjustment Factor	Ft	0.75	0.8	0.85	0.9	0.92	0.95	1	
Combined Factor	C _C	0.323	0.344	0.366	0.387	0.396	0.409	0.430	(Ft x C)
TIME OF CONCENTRATION (Inland)									
Watercourse	T _{c1} =	$\{(0.87 \times L_1^2) / (1000 \times S)\}^{0.385}$			T _{c2} =	0.05752 hr			
Urban	T _{c2} =	$0.96 \times \{(L^{1.2} (H^{0.2} \times A^{0.1}))\}$			T _{c3} =	0 hr			
Overland	T _{c3} =	$0.604 \times \{(r \times L) / (S^{0.5})\}^{0.467}$			T _{c1} =	0 hr			
					T _c = T _{c1} + T _{c2} + T _{c3} = 0.05752 hr				
Average Intensity (mm/hr) =	I =	$\{(7.5 + 0.034 \times \text{MAP}) / (T_c + 0.24)^{0.89}\} \times R^{0.3}$			Inland				
Average Intensity (mm/hr) =	I =	$\{(3.4 + 0.023 \times \text{MAP}) / (t_d + 0.20)^{0.75}\} \times R^{0.3}$			Coastal				
Return Period (years)	R	2	5	10	20	25	50	100	Inland
Average Intensity (mm/hr) =	I	113.35	149.21	183.70	226.16	241.82	297.72	366.54	Coastal
PEAK FLOW (Inland)									
Return Period (years)	R	2	5	10	20	25	50	100	
Combined Factor	C _C	0.32	0.34	0.37	0.39	0.40	0.41	0.43	
Average Intensity (mm/hr)	I	113.35	149.21	183.70	226.16	241.82	297.72	366.54	
Area (Km ²)	A	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Peak Flow (m ³ /s)	Q	0.40	0.56	0.73	0.95	1.04	1.32	1.71	Q = CIA/3.6
0 0 0 0 0 0 0 0									
0 0 0 0 0 0 0 0									

Appendix F: Environmental Management Programme Report



MOTIVATIONAL MEMORANDUM: APPLICATION FOR REZONING IN TERMS OF SECTION 16(1) OF CITY OF TSHWANE MUNICIPAL SPATIAL PLANNING AND LAND USE MANAGEMENT BY-LAW, (2016), ON ERF 932 SINOVILLE, GAUTENG PROVINCE

MARCH 2023

PREPARED FOR: Property4US Stokvel (Pty) Ltd
1692 Moska Street
Zandfontein, Pretoria
0002

PREPARED BY: MOKONE TOWN PLANNERS AND PROPERTY CONSULTANTS (PTY) LTD
Kutlwanong Democratic Centre
Office No: SU40
357 Visagie Street
Pretoria
0002
Tel: +27 (0)12 881 1803
Cell: 079 054 7652
Email: Info@mokoneconsulting.co.za
Website: www.mokoneconsulting.co.za

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DECLARATION OF INTEREST

I, **Phakwago Kabelo**, as authorised representative of Mang Geoenviro Services hereby confirm my independence as an Environmental Assessment Practitioner and declare that neither I nor Mang Geoenviro Services have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Mang Geoenviro Services was appointed as Environmental Assessment Practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Environmental Authorisation process for the establishment of the Kirkney township.

Signature:

Date:

ABBREVIATIONS

Contractor	(C)
Designated Environmental Officer	(DEO)
Gauteng Department of Agriculture and Rural Development	(GDARD)
Department of Energy	(DE)
Environmental Management Programme/ Plan	(EMPR)
Independent Environmental Auditor	(IEA)
Environmental Control Officer	(ECO)
Environmental Consultant	(EC)
Environmental Assessment Practitioner	(EAP)
Employer's Representative/ Implementing Agent	(ER)
Operations Manager	(OM)

APPENDICES

- Appendix A – Environmental Code of Conduct
- Appendix B – Environmental Complaints Registers
- Appendix C – Environmental Incidents Registers
- Appendix D – Environmental Training Register
- Annexure E – EA / ROD
- Appendix F – EAP CV/ Expertise

DEFINITIONS

Construction:

Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Disturbance:

Any event or series of events that disrupts ecosystem, community, or population structure and changes resources, substrate availability, or the physical environment.

Earth Works:

This involves construction machinery, dampening and general preparation of the site for construction purposes.

Environmental Incident:

- *Any action undertaken (or omitted) by the proponent or his duly appointed representatives (e.g. contractors) that results in overly/unnecessary disturbance or damage to the environment.*
- *Any action undertaken (or omitted) by the proponent or his duly appointed representatives (e.g. contractors) that could lead to (has potential for) overly/unnecessary disturbance or damage to the environment.*
- *Non-adherence to environmental legal requirements/laws (including the stipulations of authorisations issued in respect of a proposed activity e.g. those contained in a Record of Decision).*

Environmental Management Plan:

A guideline document/directive outlining the Plan (EMP) for mitigation, monitoring and institutional measures to be taken during project implementation and operation to avoid or control adverse environmental impacts, as well as the actions needed to implement these measures (World Bank, 1999:1).

Environmental Officer:

Person/party appointed to monitor compliance with the Environmental Management Plan.

Formalisation:

To make formal, especially for the sake of official or authorized acceptance.

Interested & Affected party:

Environmental Management Programme for the proposed township establishment on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR within the City of Tshwane Metropolitan Municipality, Gauteng Province.

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

Impact:

A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Mitigation Measures:

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

INTRODUCTION

Objectives of an EMPr

The EMPr has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the establishment and operation of the proposed establishment of the Kirkney township under the jurisdiction of the City of Tshwane Metropolitan Municipality in Gauteng Province. The objective of the EMPr is also to ensure that all relevant factors are considered to ensure an environmentally responsible development. The purpose of the EMPr is to provide specifications for "good environmental practice" for application during these phases.

This EMPr informs all relevant parties (the Project Coordinator, the Contractor, the Environmental Control Officer (ECO)) and all other staff employed by the contractor at the site as to their duties in the fulfilment of the legal requirements for the establishment and operation of the proposed development in Kirkney township, with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

All parties should note that obligations imposed by the EMPr are legally binding in terms of the environmental authorisation granted by the relevant environmental permitting authority.

The objectives of an EMPr are to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events;
- Provide feedback for continual improvement in environmental performance;
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels;
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project;
- Identify measures that could optimize beneficial impacts;
- Create management structures that addresses the concerns and complaints of I&APs with regards to the development;
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity;
- Ensure that safety recommendations are complied with;

- Specify time periods within which the measures contemplated in the final environmental management programme must be implemented, where appropriate;

Structure and Function of an EMPr

An EMPr is focused on sound environmental management practices, which will be undertaken to minimise adverse impacts on the environment through the lifetime of a development. In addition, an EMPr identifies what measures will be in place or will be actioned to manage any incidents and emergencies that may occur during operation of the facility.

As such the EMPr provides specifications that must be adhered to, in order to minimise adverse environmental impacts associated with the construction and operations of the township. The content of the EMPr is consistent with the requirements as set out in Appendix 4 of the EIA regulations stated below, for the construction and operation phases.

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

(a) Details of –

- (i) The EAP who prepared the environmental management programme; and
- (ii) The expertise of the EAP to prepare an environmental management programme, including curriculum vitae;

(b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;

(c) A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;

(d) Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –

- (i) Planning and design;
- (ii) Pre-construction;
- (iii) construction activities;
- (iv) Rehabilitation of the environment after construction and where applicable post closure; and
- (v) where relevant, operation activities;

(e) a description and identification of impact outcomes required for the aspects contemplated in (d).

(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable include actions to –

- (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
- (ii) Comply with any prescribed environmental management standards or practices;

- (iii) Comply with any applicable provisions of the Act regarding closure, where applicable;
- (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;
- (g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);
- (h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);
- (i) An indication of the persons who will be responsible for the implementation of the impact management actions;
- (j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;
- (k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);
- (l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;
- (m) An environmental awareness plan describing the manner in which –
 - (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and
 - (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and
- (n) Any specific information that may be required by the competent authority.

Legal Requirements

The proposed establishment of the Kirkney township must be established according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the Contractor as to his/her duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the approved EMPr are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

The Contractor shall identify and comply with all South African national and provincial environmental legislation, including associated regulations and all local by-laws relevant to the project. Key legislation currently applicable to the construction and implementation phases of the project must be complied with.

The list of applicable legislation provided below serves as a guideline only and is not exhaustive: -

- Constitution Act (No. 108 of 1996)
- Environmental Conservation Act (No. 73 of 1989)
- EIA Regulations (2014)
- National Environment Management Act (No. 107 of 1998)
- National Environmental Management: Biodiversity Act (No. 10 of 2004)
- National Water Act (No. 36 of 1998)

- National Environmental Management: Waste Management Act (No. 59 of 2008)
- National Heritage Resource Act (No. 25 of 1999)
- Informal Land Rights Act (No. 109 of 1996)
- National Forests Act (No. 84 of 1983)
- National Heritage Resource Act (No. 25 of 1999)
- Occupational Health and Safety Act (No. 85 of 1993)

Environmental Authorization

In accordance with the requirements of the National Environmental Management Act (Act No 107 of 1998) (NEMA), and relevant EIA regulations made in terms of this Act and promulgated in August, 2010 and amended in 2014 (Government Notice 982), and listed activities under (Government Notice R 983, 984, 985), the proposed project activities were subjected to a Basic Assessment process.

In terms of the EIA process, all reports generated from the environmental studies form part of a series of documents for the project. The Basic Assessment process identified issues and impacts and provide mitigation measures for significant environmental impacts. Additional Specialist Assessments served to supplement the assessment contained in the Basic Assessment process.

This Environmental Management Programme (EMPr) interprets the findings of the Basic Assessment Reports, and prescribes project-specific specifications to be achieved. In addition to the requirements of Appendix 4 of GNR 982, this EMPr is based on the principles of Integrated Environmental Management (IEM).

DETAILS OF THE EAP

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

(a) Details of –

- (i) The EAP who prepared the environmental management programme; and
- (ii) The expertise of the EAP to prepare an environmental management programme, including curriculum vitae;

Mokone Town Planners and Property Consultants (Pty) Ltd

Kutlwanong Democratic Centre, Office SU40, 357 Visagie Street

Pretoria, 0002

Cell: +27 (0) 79 054 7652

Tel: 012 881 1803

Email: phakwagokabelo@gmail.com

Project Team:

Phakwago M. Kabelo

PROPOSED ACTIVITY

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

- (b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;
- (c) A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;

Description of proposed activity

The proposed development entails the establishment of Kirkney township on portion 136 (portion of portion 110) of the farm Zandfontein 317-JR within City of Tshwane Metropolitan Municipality. The proposed development site is on an extent area of approximately 7.88 hectares. However, the proposed development will only utilize an extent area of 1.63 hectares for the erection of residential facilities, roads and open space.

The proposed development site is situated on a vacant land within the vicinity of residential area. The geographical coordinates of the site are as follows:

Latitude: 25°43'31.57"S

Longitude: 28°5'20.43"E

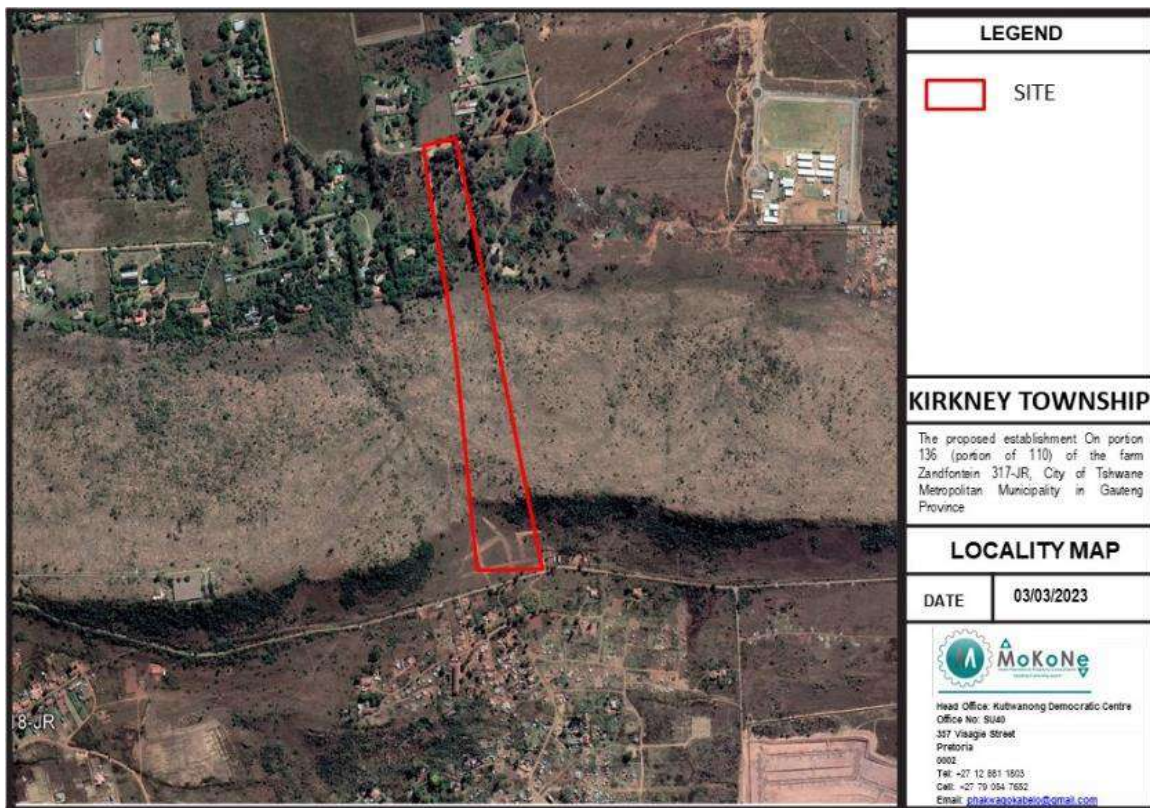


Figure 1: Locality map of the proposed development site.

SCOPE OF THE EMPR

In order to ensure a holistic approach to the management of environmental impacts during the establishment and operation of the proposed township, this EMPr sets out the methods by which proper environmental controls are to be implemented by the Contractor and all other parties involved.

The EMPr is a dynamic document subject to influences and changes as are wrought by variations to the provisions of the project specification.

Layout of the EMPr

The EMPr is divided into three phases of development. Each phase has specific issues unique to that period of the construction and operation of the proposed development. The impacts are identified and given a brief description. The three phases of the development are then identified as below:

Planning and Design Phase

This section of the EMPr provides management principles for the planning and design phase of the project. Environmental actions, procedures and responsibilities as required from the developer during the planning and design phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfactory of the Project Coordinator and ECO.

Pre-Construction Phase

This section of the EMPr provides management principles for the preconstruction phase of the project. Environmental actions, procedures and responsibilities as required during the preconstruction phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfactory of the Project Coordinator and ECO.

Construction Phase

This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required during the construction phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfactory of the Project Coordinator and ECO.

Operational and Maintenance Phase

This section of the EMPr provides management principles for the operation and maintenance phase of the project. Environmental actions, procedures and responsibilities as required from the developer during the operation and maintenance phase are specified.

MITIGATION AND MANAGEMENT MEASURES

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

(d) Information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of –

- (i) Planning and design;
- (ii) Pre-construction;
- (iii) Construction activities;
- (iv) Rehabilitation of the environment after construction and where applicable post closure; and
- (v) where relevant, operation activities;

(e) a description and identification of impact outcomes required for the aspects contemplated in (d).

(f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable include actions to –

- (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
- (ii) Comply with any prescribed environmental management standards or practices;
- (iii) Comply with any applicable provisions of the Act regarding closure, where applicable;
- (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;

Planning and Designing Phase

Planning/ Designing Phase			
Activity	Responsibility	Monitoring	Timeframe
Obtaining an environmental authorization from GDARD prior to the establishment of the township.	ER	Applicant	Once off
Signing of service agreement between the applicant and the relevant service providers	Applicant	Applicant	Once off
Appointment of the contractor	Applicant	Applicant	Once off

Construction Phase

Construction Phase			
Activity	Responsibility	Monitoring	Timeframe
Layout			
The Contractor is to adhere to the following with regards to the Materials Storage Area and Contractors Camp: <ul style="list-style-type: none"> ✓ All servitudes and existing services must be verified prior to construction; ✓ The camp site must be fenced before construction commences; and ✓ Site establishment must not take place on steep slopes, or sites declared as no-go areas. 	C	ER & DEO	Before construction
Adequate parking must be provided for site staff and visitors. This must be demarcated so not as to encroach into the surrounding environment.	C	ER & DEO	Duration of Construction Phase
Temporary Fencing			

Areas where construction activities (including temporary access tracks) are prohibited are referred to as no-go areas. Entry into these areas by any person, vehicle or equipment without the ER's written permission will result in a penalty.	C	ER & DEO	Duration of Construction Phase
The Contractor must erect temporary fencing along the perimeter of the contractor's site camp and designated no-go areas.	C	ER & DEO	Duration of Construction Phase
The contractor must maintain all demarcation fencing and barriers in good order for the duration of construction activities or as otherwise instructed.	C	ER & DEO	Duration of Construction Phase
Topsoil removal and Stockpiling			
The Contractor shall remove topsoil from all areas where topsoil will be impacted on by construction activities, including temporary activities such as storage and stockpiling areas.	C	ER & DEO	Ongoing
The Contractor must ensure that the foundation type is a reinforced strip foundation and/ or remove and replace material below foundations.	C	ER & DEO	Ongoing
Any soil excavated and not utilised for rehabilitation must be removed from site or incorporated into landscaping.	C	ER & DEO	Ongoing
Where possible, re-vegetation as soon as possible and as construction progresses. Indigenous vegetation must be used for re-vegetation.	C	ER & DEO	Ongoing
All stockpiles must be restricted to designated areas and are not to exceed a height of 2 meters	C	ER & DEO	Ongoing
The contractor must ensure that the removal of the vegetation is minimum during the construction to avoid the increasing risk of erosion.	C	ER & DEO	Ongoing
Topsoil stockpiles must be protected from erosion by wind and rain by providing suitable storm water and cut-off drains (approved by the ER) and / or the establishment of temporary indigenous vegetation.	C	ER & DEO	Ongoing

The Contractor must be held responsible for the replacement, at his expense, of any unnecessary loss of topsoil due to his failure to work according to the requirements of this EMPr.	C	ER & DEO	Ongoing
Ground water protection			
The contractor must ensure that the site do not contain shallow water table and it will not have stagnant water.	C	ER & DEO	Ongoing
The Contractor must ensure that the area has a low permeability soils.	C	ER & DEO	Ongoing
The contractor must ensure that the site does not consist of gravel, coarse sands or areas underlain by narrow cracks of bedrock.	C	ER & DEO	Ongoing
The contractor must ensure hazardous waste is stored properly to avoid leaching in groundwater during rainfall.	C	ER & DEO	Ongoing
The contractor must ensure that there are no spillage from vehicles which may impact the groundwater and the surface water.	C	ER & DEO	Ongoing
Workshop, Equipment Maintenance and storage			
All vehicles and equipment must be kept in good working order to maximize efficiency and minimise pollution.	C	ER & DEO	Ongoing
Stockpiling			
The Contractor must plan his activities so that materials can be transported directly to and placed at the point where it is to be used.	C	ER & DEO	Ongoing
The areas for the stockpiling of excavated / imported material must be indicated and demarcated on the site plan submitted in writing to the ER for his approval, together with the Contractor's proposed measures for prevention, containment and rehabilitation against environmental damage	C	ER & DEO	Ongoing
Stockpiles must be positioned and sloped to create the least visual impact.	C	ER	Ongoing

The contractor must excavate the in-situ material down below 2.8m to spoil and stockpile. Excavated sand may be mixed with course material and be utilized for construction and foundation lining.	C	ER	Ongoing
Storm Water Control			
Temporary storm water control measures must be installed as and when necessary, to prevent and minimise the erosion of exposed soils and compromising the foundation base.	C	ER & DEO	Ongoing
Ponding of water must be prohibited on the site; therefore, storm water must be removed from the proximity of the infrastructure effectively and efficiently to either municipal storm water systems or natural river courses.	C	ER & DEO	Ongoing
The contractor must ensure that there is a risk management plan on site for safe removal of storm water from the proximity of the infrastructure to the municipal storm water system or natural river courses.	C	ER & DEO	Ongoing
Storm water canals must be aligned where the canals cross the site and carry large quantities of water.	C	ER & DEO	Ongoing
Electricity Connections			
No squatting or tree planting must be allowed in restricted areas.	C	ER & DEO	Ongoing
Ground level must be maintained within City of Tshwane restriction area.	C	ER & DEO	Ongoing
Hazardous Substances			
Should any hazardous material/substances (e.g. petrochemicals, paints, etc.) need to be stored on the site, this must be under controlled conditions. All hazardous materials/substances must be stored in a secured, appointed area that is fenced and has restricted entry. All storages must take place using suitable, sealable containers to the approval of the ER. These containers must be placed within a bunded area which has the capacity to contain 110% of the total volume it stores. The floor and wall of the bund area must be impervious to prevent infiltration of any spilled / leaked material into the soil.	C	ER & DEO	Ongoing

Material Safety Data Sheets (MSDS's) must be readily available for all chemicals / hazardous substances to be used on site. Where possible and available, MSDS's must include additional information on ecological impacts and measures to minimise and mitigate against any negative environmental impacts in the result of an accidental spill.	C/ER	ER & DEO	Before commencement of construction
Ensure that any hydrocarbon/chemical/hazardous substance spills are cleaned up as soon as possible.	C	ER & DEO	Ongoing
Noise Control			
It must be ensured that noise levels are kept to a minimum during the Construction Phase. All machinery and equipment to be utilised on the site should be fitted with mufflers and must be maintained in good working order to minimise noise levels. It is recommended further that the Contractor encourage construction workers to minimise shouting and hooting on the site. Construction work must be completed in a short time to limit the longevity of these impacts.	C	ER & DEO	Ongoing
The Contractor must prohibit all operations that result in undue noise disturbance to local communities and / or dwellings to daylight hours on workdays (Monday to Friday) or as otherwise agreed with the ER.	C	ER & DEO	Ongoing
The Contractor must warn any local communities and / or residents that could be disturbed by noise generating activities well in advance and shall keep such activities to a minimum.	C	ER & DEO	Ongoing
The Contractor must be responsible for compliance with the relevant legislation with the respect to noise.	C	ER & DEO	Ongoing
The entire Contractors' equipment must be fitted with effective exhaust silencers and shall comply with the SANS recommended code of practice Code 0103:1983, for construction plant noise generation.	C	ER & DEO	Ongoing
Waste Management			
General construction waste: Must be removed from bins at enough intervals to prevent overflow. This waste must be stored in skips within a designated waste storage area in the Contractor's Camp. General	C	ER	Ongoing

waste must be transported to the local municipal General Waste Landfill Site by the Municipality, the Contractor or a private waste disposal Contractor. Service agreements in this regard must be obtained by the Applicant / Contractor prior to the commencement of construction activities. It is recommended that general wastes be separated on site and delivered to appropriate depots for recycling. This would be facilitated by the provision of separate and labelled bins / skips.			
The Contractor must ensure that all site personnel are instructed in the proper disposal of all waste.	C	ER	Ongoing
Demarcated and fenced areas where waste can be safely contained and stored on a temporary basis within the Contractors Camp must be established. General waste storage areas must be separate from hazardous waste storage areas. When adequate volumes (not more than 1 month) have accumulated, waste must be removed from site and disposed of at a licensed facility.	C	ER	Ongoing
Waste must not be buried or burned on site.	C	ER	Ongoing
Dust Control			
Construction vehicles must comply with speed limits and haul distances shall be minimised. Material loads shall be suitably covered and secured during transportation.	C	ER & DEO	Ongoing
Exposed soils and material stockpiles must be protected against wind erosion. The location of stockpiles must take into consideration the prevailing wind directions and locations of sensitive receptors.	C	ER & DEO	Ongoing
The Contractor must implement dust suppression measures (e.g. Water spray vehicles, covering material stockpiles, etc.) if and when required.	C	ER & DEO	Ongoing
Environmentally friendly soil stabilisers must be used as additional measures to control dust on gravel roads and construction areas if complaints are received regarding dust generation. This is especially pertinent as excessive dust could disturb moving vehicles on adjacent roads, creating a potential traffic hazard.	C	ER & DEO	Ongoing

The Contractor must ensure that the generation of dust is minimised and shall implement a dust control programme, as necessary, to maintain a safe working environment and minimise nuisance for surrounding residential areas/dwellings.	C	ER & DEO	Ongoing
Protection of Fauna and Flora			
The Contractor must ensure his employees do not undertake any hunting, trapping, shooting, poisoning or other disturbance of any fauna on-site or in the areas surrounding the site.	C	ER & DEO	Ongoing
The Contractor must place drilling holes away from any red listed and/ or protected plant species	C	ER & DEO	Ongoing
The contractor must conserve the areas that will not be developed, Particularly protected pant species within the high sensitive area present in the proposed development site.	C	ER & DEO	Ongoing
The contractor should rehabilitate exposed areas with indigenous plants as soon as construction is finished	C	ER & DEO	Ongoing
No squatting or tree planting must be allowed in restricted areas.	C	ER & DEO	Ongoing
Killing, destroying, poaching and hunting of any wild animals is prohibited.	C	ER & DEO	Ongoing
The construction footprint (e.g. for establishment of access roads and boundary wall) must be approved with the assistance of an ECO to ensure that intact vegetation is not unnecessarily damaged.	C	ER & DEO	Ongoing
Alien invasive management programme must be in place to assist with adequate handling of alien plants e.g. hand pulling, chemical, cutting, etc.	C	ER & DEO	Ongoing
All sites disturbed by construction must be monitored to control emerging exotic or invasive plants.	C	ER & DEO	Ongoing
An ongoing management plan must be implemented for the clearing/eradication of alien species.	C	ER & DEO	Ongoing
The use of pesticides must be prohibited unless approved by the ER.	C	ER & DEO	Ongoing
Fire Control			
The Contractor must ensure that basic fire-fighting equipment is available at all construction activities on site.	C	ER & DEO	Ongoing

The Contractor must appoint a Fire Officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire.	C	ER & DEO	Ongoing
The Contractor must ensure that all site personnel are aware of the procedure to be followed in the event of a fire.	C	ER & DEO	Ongoing
Protection of Heritage and cultural features			
If any archaeological or paleontological artefacts or remains / graves are uncovered during earthmoving activities, work in the vicinity of the find shall cease immediately. The Contractor must immediately notify the ER, who must contact the relevant Competent Authority (SAHRA) who will take appropriate steps.	C	ER & DEO	Ongoing
The Contractor must abide by the specifications as set out by the Competent Authority or the Heritage Specialist appointed to investigate the find.	C	ER & DEO	Ongoing
The Contractor must not, without a permit issued by the relevant heritage resources authority, destroy damage, excavate, alter, deface or otherwise disturb archaeological material.	C	ER & DEO	Ongoing
Environmental Education & Awareness			
It is the Contractors' responsibility to provide the site foreman with no less than 1 hour's environmental training and to ensure that the foreman has enough understanding to pass this information onto the construction staff.	C	ER & DEO	Prior to moving on site
The Contractor / ECO must be on hand to explain any technical issues and to answer questions.	C/ECO	ER & DEO	Ongoing

Operational Phase

Operational Phase			
Water Quality Management			
The City of Tshwane Metropolitan Municipality must be contacted with regard to any discharge to sewer.	OM	Ongoing	Site Inspection
Management of Contaminated Land			
Contaminated land investigations, including soils, groundwater and surface water monitoring and sampling to be implemented should impact is observed. This will take into account the source-pathway-receptor (S-P-R) linkages and should serve to determine the nature and extent of any impacts to the receiving environment as a result of site activities. These investigations are to be carried out with consideration of the relevant legal processes. Risk assessment to be undertaken if considered necessary.	OM to outsource as Appropriate	Ongoing	Site investigation
Risk based corrective action (RBCA) to be implemented based on the findings of the site investigations. Remedial plans will be developed based on conceptual site model (CSM) and should consider S-P-R linkages. Remedial actions may include physical, chemical and/or microbiological intervention.	OM to outsource as Appropriate	Ongoing	Site remediation
Post-remediation monitoring plan to be implemented to determine effectiveness of remedial actions and serve as an early-warning system for potential re-occurrence.	OM to outsource as Appropriate	Ongoing	Ongoing monitoring
Drainage Systems			
Stormwater culverts and drains must be covered with metal grids to prevent blockages.	OM	Ongoing	Site inspection
Control of Littering			
Adequate waste disposal bins are to be provided around the township. These are to be regularly emptied and the contents thereof collected by an approved Waste Service Provider.	OM	Ongoing	Site inspection

The recycling of waste is encouraged. As such, the provision of separate recycling bins for the disposal of paper, tins and plastic should be erected and displayed in a suitable and visual location on site. A reputable Recycling Waste Company must be appointed to collect recyclable waste (if applicable).	OM	Ongoing	Site inspection
Waste Storage and Removal			
Burning of waste is not permitted, under any conditions.	OM	Ongoing	Site inspection
Ablution facilities serviced by septic tanks (if applicable) are to be sign posted informing the public not to deposit foreign substances or objects into the system.	OM	Ongoing	Site inspection
Health and Safety			
Ensure that all staff is trained in what to do in the case of an emergency such as an on-site fire.	OM	Ongoing	Site inspection
Staff personnel are to be trained in first aid.	OM	Ongoing	Site inspection
Fire Control			
Emergency numbers must be displayed with the correct details of the nearest firefighting station at all times.	OM	Ongoing	Site inspection
Ensure that relevant signage e.g. no smoking, is displayed in potentially dangerous areas and is abided by.	OM	Ongoing	Site inspection

Decommissioning Phase

At this stage decommissioning is not foreseen in the near future. At the time it might become applicable, an Environmental Impact Assessment must be undertaken in terms of Listed Activity Nr 31 (i) of R326 of the National Environmental Management Act, 1998 (Act No 107 of 1998), as amended; or else compliance with the environmental legislation requirements applicable at that time must take place.

GENERAL ENVIRONMENTAL MANAGEMENT

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

- (g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);
- (h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);

Training and Environmental Awareness

It is important to ensure that an appropriate level of environmental awareness is effectively communicated with all personnel involved with the project to ensure continued environmental due diligence and on-going minimization of environmental harm. Training needs should be identified based on the available and existing capacity of site personnel to undertake the required EMPr management actions and monitoring activities. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

The environmental training is aimed at: promoting environmental awareness; informing the project participants of all environmental procedures, policies and Programmes applicable; providing generic training on the implementation of environmental management specifications; and providing job-specific environmental training in order to understand the key environmental features of the site and the surrounding environment.

Training will be done in a verbal format. The training will be a once-off event. In addition to training, general environmental awareness must be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This ensures that environmental accidents are minimised and environmental compliance maximized.

Environmental Monitoring

A monitoring programme must be implemented for the duration of the construction phase of the proposed development. This programme will include:

- Establishing a baseline of pre-construction site conditions validated with photographic evidence.
- Monthly audits to be conducted by an independent ECO for the duration of the construction phase to ensure compliance to the EMPr conditions, and where necessary make recommendations for corrective action. These audits can be conducted randomly and do not require prior arrangement with the Project Coordinator.



- Compilation of an audit report with a rating of compliance with the EMPr. The ECO shall keep a photographic record of the demarcated sites and construction area. The Contractor shall be held liable for all unnecessary damage to the environment. A register shall be kept of all complaints from the community. All complaints / claims shall be handled immediately to ensure timeous rectification / payment by the responsible party.
- Compilation of a final audit report after all site construction and rehabilitation are completed.

Monitoring and Record Keeping

The performance of laborers should be monitored by the ECO to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended. The ECO must compile a status quo of the site prior the development and be used as a frame of reference when monitoring the impacts. The following documents will be used to monitor the impacts of the development through comparison with the predevelopment status quo.

- **Incidents report** – all the incidents and accidents that occurs at the site must be recorded in this document.
- **Waste Generation and Management Checklist** – the checklist will monitor the effectiveness of the waste management strategies implemented.

All the incidents and accidents at the site should be recorded accordingly. Photographic records must be kept for all site incidents and accidents.

ROLES AND RESPONSIBILITIES

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

- (i) An indication of the persons who will be responsible for the implementation of the impact management actions;

The Applicant

Property4US Stokvel (Pty) Ltd

1692 Moska Street

Zandfontein, Pretoria

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- The overall responsibility for ensuring compliance lies with Property4US Stokvel.
- Property4US Stokvel shall ensure that the contract all staff members, sub-contractors (if any) and suppliers understand and adhere to the EMPR.
- Property4US Stokvel shall ensure that all sub-contractors (if any) and suppliers are contractually bound to adhere to the EMPR and Environmental Code of Conduct.



Contractor

The contractor is responsible for the overall execution of the activities envisioned in the construction phase including the implementation and compliance with recommendations and conditions of the EMPr. The Contractor must therefore ensure compliance with the EMPr at all times during construction activities and maintain an environmental register which keeps a record of all environmental incidents which occur on the site during establishment of the township. These incidents may include:

- Public involvement / complaints
- Health and safety incidents
- Incidents involving Hazardous materials stored on site
- Non-compliance incidents

The Contractor is also responsible for the implementation of corrective actions issued by the ECO and Project Coordinator within a reasonable or agreed period of time.

Environmental Control Officer (ECO)

For the purposes of implementing the conditions contained herein, the Property4US Stokvel must appoint an ECO for the contract. The ECO shall be the responsible person for ensuring that the provisions of the EMPr and its Environmental Code of Conduct as well as the environmental authorisation are complied with during the construction period. The ECO's duties in this regard will include, inter alia, the following:

- Conduct regular site visits to be able to report on and respond to any environmental issues;
- Report compliance and non-compliance issues to the municipal representative and authorities as applicable;
- Advise the Contractor on environmental issues within the defined work areas;
- Review access and incident records that may pertain to the environment and reconcile the entries with the observations made during site inspection, monitoring and auditing;
- Recommend corrective action when required for aspects of non-compliance with the EMPr;
- Take immediate action on site where clearly defined and agreed "no-go" areas are violated or in danger of being violated and to inform Gauteng Department of Agriculture and Rural Development (GDARD) representative of the occurrence immediately and to take action;
- Be contactable by the public regarding matters of environmental concern as they relate to the operation of the works; and
- Take immediate action on site when prescriptive conditions are violated, or in danger of being violated and to inform the GDARD representative of the occurrence and action taken.

COMPLIANCE WITH THE EMPR

According to appendix 4 of GN R 982, an Environmental Management Programme must include:



- (j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;
- (k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);

A copy of the EMPr must be kept on site at all times during the construction period. The EMPr will be binding on all contractors operating on the site and must be included within the Contractual Clauses. It should be noted that in terms of Section 28 of the National Environmental Management Act (No. 107 of 1998) those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

Non-compliance


The contractors shall act immediately when notice of non-compliance is received and take corrective action. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints.

Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

The Contractor is deemed not to have complied with the EMPr if, *inter alia*:

- There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and roads;
- There is contravention of the EMPr specifications which relate to activities outside the boundaries of the construction site.
- Environmental damage ensues due to negligence;
- Construction activities take place outside the defined boundaries of the site; and/or
- The Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time period.

It is recommended that the engineers/contractors institute penalties for the following less serious violations and any others determined during the course of work, as detailed below:

- Littering on site.
 - Lighting of illegal fires on site.
 - Persistent or unrepaired fuel and oil leaks.
 - Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
 - Excess dust or excess noise emanating from site.
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- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.

Emergency preparedness

The Contractor shall compile and maintain environmental emergency procedures to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the construction period. Such activities may include, *inter alia*:

- Accidental waste water discharges to water and land.
- Accidental exposure of employees to hazardous substances.
- Accidental fires.
- Accidental spillage of hazardous substances.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans shall include:

- Emergency organisation (manpower) and responsibilities, accountability and liability.
- A list of key personnel and contact details.
- Details of emergency services available (e.g. the fire department, spill clean-up services, etc.).
- Internal and external communication plans, including prescribed reporting procedures where required by legislation.
- Actions to be taken in the event of different types of emergencies.
- Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.
- Training plans, testing exercises and schedules for effectiveness.

The Contractor shall comply with the emergency preparedness and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act (No. 85 of 1993), the NEMA (No. 107 of 1998), the National Water Act (No. 36 of 1998) and the National Waste Act (No. 59 of 2008) as amended and/or any other relevant legislation.

Incident reporting and remedy

If a leakage or spillage of hazardous substances occurs on site, the local emergency services must be immediately notified of the incident. The following information must be provided:

- the location;
- the nature of the load;



- the extent of the impact; and
- the status at the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire).

Written records must be kept on the corrective and remedial measures decided upon and the progress achieved therewith over time. Such progress reporting is important for monitoring and auditing purposes. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

Penalties

Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the EMPr, Property4US Stokvel and/or contractor shall be liable. The following violations, and any others determined during the course of work, should be penalised:

- Hazardous chemical/oil spill and/or dumping in non-approved sites.
- Damage to sensitive environments.
- Damage to cultural and historical sites.
- Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
- Uncontrolled/unmanaged erosion.
- Unauthorised blasting activities (if applicable).
- Pollution of water sources.
- Unnecessary removal or damage to indigenous trees.

The following steps will be followed by the ECO on behalf of Property4US Stokvel, when observing a transgression:

1. **Transgression observed:** Give a warning to the Contractor, with time to remedy the situation. Report transgression and agreed remedial action to the developer.
2. **Transgression not remedied:** Report the Contractor directly to GDARD and Project coordinator and issue a financial penalty to the Contractor (see list of fines below) with an agreed time period to remedy the situation with the assistance of GDARD (if necessary).
3. **Failure to remediate:** Depending on the severity and impact significance of the transgression, which must be assessed and discussed with the developer prior to reporting to competent authority, the ECO may undertake to report directly to GDARD (Compliance) recommending that for:
 - HIGH impact: GDARD to issue a notice to cease construction.
 - MEDIUM impact: GDARD to issue a notice instructing City of Tshwane Metropolitan Municipality to implement recommended remedial action.
 - LOW impact: ECO to notify, but up to discretion of GDARD to apply sanction.



In all cases, however, non-compliance with a condition must be reported to GDARD in the monthly audit reports. However, the ECO will also report on corrective actions proposed and implemented.

REPORT

According to appendix 4 of GN R 982, an environmental management programme must include:

(l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;

Administration

Before the construction and decommissioning activities begin, the Contractor shall give to the ECO and the Project Coordinator a written method statement setting out the following:

- Location of the campsite and storage area.
- Details of the construction and decommissioning activities.
- Identification of impacts that might result from the activity (e.g. soil erosion).
- Identification of activities that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity or aspect (e.g. soil stabilisation using...).
- Methodology and/or specifications for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of impacted environment.

The Contractor may provide such information in advance of any activities provided that new submissions shall be given to the ECO and/or engineer whenever there is a change or variation to the original.

The ECO and/or engineer may provide comment on the methodology and procedures proposed by the Contractor but he shall not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems.

Good housekeeping

The Contractor shall undertake "good housekeeping" practices during construction and decommission. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole.

Good housekeeping extends beyond the wise practice of construction methods to include the care for and preservation of the environment within which the construction is situated.



Record keeping

The Project coordinator and the ECO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the ECO shall issue to the Contractor a notice of non-compliance whenever transgressions are observed. The ECO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the engineer in the monthly report. These reports shall be made available to GDARD when requested.

Document control

The Contractor and Project coordinator shall be responsible for establishing a procedure for electronic document control. The document control procedure should comply with the following requirements:

- Documents must be identifiable by organisation, division, function, activity and contact person.
- Every document should identify the personnel and their positions, who drafted and compiled the document, who reviewed and recommended approval, and who finally approved the document for distribution.
- All documents should be dated, provided with a revision number and reference number, filed systematically, and retained for a five-year period.

The Contractor shall ensure that documents are periodically reviewed and revised, where necessary, and that current versions are available at all locations where operations essential to the functioning of the EMPr are performed. All documents shall be made available to the ECO and other independent external auditors.

ENVIRONMENTAL AWARENESS

According to appendix 4 of GN R 982, an Environmental Management Programme must include:

- (m) An environmental awareness plan describing the manner in which –
- (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and
 - (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and

Contractors shall ensure that its employees and any third party who carries out all or part of the Contractor's obligations are adequately trained with regard to the implementation of the EMPr, as well as regarding environmental legal requirements and obligations. Training shall be conducted by the ECO where necessary.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. the executive, middle management and labour. Environmental awareness training programmes shall contain the following information:

- The names, positions and responsibilities of personnel to be trained.



- The framework for appropriate training plans.
- The summarised content of each training course.
- A schedule for the presentation of the training courses.

The ECO shall ensure that records of all training interventions are kept in accordance with the record keeping and documentation control requirements as set out in this EMPr. The training records shall verify each of the targeted personnel's training experience.

The Property4US Stokvel shall ensure that adequate environmental training takes. All employees shall be given an induction presentation on environmental awareness and the content of the EMPr. The presentation needs to be conducted in the language of the employees to ensure it is understood. The environmental training shall, as a minimum, include the following:

- The importance of conformance with all environmental policies.
- The environmental impacts, actual or potential, of their work activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.
- Environmental legal requirements and obligations.
- Details regarding floral/faunal species of special concern and protected species, and the procedures to be followed should these be encountered during the construction of approach roads or construction camps.
- The importance of not littering.
- The importance of using supplied toilet facilities.
- The need to use water sparingly.
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.
- Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered.

Monitoring of environmental training

The Contractor must monitor the performance of construction workers to ensure that the points relayed during their introduction have been properly understood and are being followed. If necessary, the ECO and / or a translator



should be called to the site to further explain aspects of environmental or social behaviour that are unclear. Toolbox talks are recommended.

CLOSURE PLANNING

- **Final site cleaning** - the contractor shall clear and clean the site and ensure that all equipment and residual materials not forming part of the permanent works is removed from site before issuing the completion certificate or as otherwise agreed.
- **Rehabilitation** - the contractor (landscape architect/horticulturist) shall be responsible for rehabilitating and re-vegetation of all areas disturbed/areas earmarked for conservation during construction to the satisfaction of the engineer and ECO.

Post-construction audit

A post-construction environmental audit must be carried out and submitted to GDARD at the expense of the developer so as to fulfil conditions of the Environmental Authorisation granted. Objectives should be to audit compliances with the key components of the EMPr, to identify main areas requiring attention and recommend priority actions. The audit should be undertaken annually and should cover a cross section of issues, including implementation of environmental controls, environmental management and environmental monitoring.

Results of the audits should inform changes required to the specifications of the EMPr or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

Management review and revision of the EMPr

The EMPr is to be reviewed annually for the first three years and then once every five years thereafter, by an independent environmental consultant, unless otherwise specified by the authorities. The auditor is to highlight issues to be addressed in the EMPr or changes required during the annual audit. These points are to be included as an annexure to the EMPr and to be considered during the review process. Recommended changes to the EMPr must be forwarded to GDARD for approval and comment, before subsequently being incorporated into the EMPr.

General review of EMPr

The EMPr will be reviewed by the ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on site.

Any such changes or updates will be registered in the ECO's record, as well as being included as an annexure to this document. Annexure of this nature must be distributed to all relevant parties.



CONCLUSIONS

Although all foreseeable actions and potential mitigations or management actions are contained in this document, the EMPr should be seen as a day-to-day management document. The EMPr thus sets out the environmental and social standards, which would be required to minimise the negative impacts and maximise the positive benefits of the construction and operational activities. The EMPr could thus change daily, and if managed correctly lead to a successful construction and operational phases.

All attempts should be made to have this EMPr available, as part of any tender documentation, so that the Engineer and Contractor are made aware of the potential cost and timing implications needed to fulfil the implementation of the EMPr, thus adequately costing for these.

General review of EMPr

The EMPr will be reviewed by the ECO on an on-going basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on site.

ANNEXURE A

Environmental Code of Conduct

The applicant is committed to ensuring that the operation of the development is done according to the highest environmental standards so that the ecological footprint of the development is minimised where possible.

The applicant requires that all personnel involved in the operation process accept their responsibilities towards the EMP and the environment. This includes all permanent, contract or temporary workers as well as any other person



involved with the project or visiting the site. Ignorance, negligence, recklessness or a general lack of commitment will not be tolerated.

If you do not understand the rules, you must seek assistance to ensure compliance. The following people can assist you in ensuring compliance with the EMP.

Your Supervisor:

Environmental Control Officer:.....

Project Manager:.....

ANNEXURE B

Environmental Complaints Register					
Name of Complainant	Contact Details	Nature of Complaint	Responsible Person	Date Action Taken	Details of Action Taken



ANNEXURE E
ENVIRONMENTAL AUTHORISATION / ROD



ANNEXURE F
EAP CV/EXPERTISE



Appendix G: Additional Information

EAP Registration

**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2021/3538

Herewith certifies that

Marei Kabelo Phakwago

is registered as an

Environmental Assessment Practitioner

***Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as
amended).***

Effective: 01 March 2023

Expires: 29 February 2024

Chairperson

Registrar

