



BASIC ASSESSMENT REPORT FOR INTERESTED AND AFFECTED PARTY COMMENT FOR THE PROPOSED ZANDSPRUIT X93-X96 RESIDENTIAL DEVELOPMENT

PORTIONS 92 -95 (A PORTION OF PORTION 21) OF THE FARM
ZANDSPRUIT 191 IQ

GAUT 002/20-21/E2550

July 2020

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Report Details

Report Details	Rev 1
Report Title	Basic Assessment Report (BAR) for the proposed Zandspruit X93, X94, X95 and X96 Residential Developments
Date Submitted	May 2020
Project Consultant	Bokamoso Landscape Architects and Environmental Consultants CC
Prepared by	Lizelle Gregory and Lizette Venter (BSc. Agric, BSc. Hons. In Environmental Management, MSc. In Aquatic Health). Five years' experience in the environmental field including specialist studies. Registered with SACNASP and SAWS.
Public Participation compiled and reviewed by	Lizelle Gregory and Lizette Venter
Final review by	Lizelle Gregory, (BLArch) Lizelle has 29 years' experience in the field of environmental management and is a member of the South African Council of the Landscape Architects Profession (SACLAP), the International Association of Impact Assessments (IAIA) and the Institute of Environmental Management and Assessment (IEMA). Professional Practice Number: 97078
Declaration	I, Lizelle Gregory, managing member of Bokamoso Landscape Architects and Environmental Consultants CC hereby confirm my independence in terms of Section 13.(1)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) 2014 EIA Regulations as amended.
Declaration	I, Lizette Venter, as authorised representative of Bokamoso Landscape Architects and Environmental Consultants CC hereby confirm my independence in terms of Section 13.(1)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) 2014 EIA Regulations as amended.
Copyright Warning	Unless otherwise noted, the copyright in all text and other content (including the manner of presentation) is the exclusive property of Bokamoso Landscape Architects and Environmental Consultants CC.

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)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, 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 (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. 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.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **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 authorisation being refused.**
10. 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 being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. 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.
13. 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 of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
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.

Not applicable

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

NO

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

Not applicable as it is not a mining application

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?

YES

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented?

NO

If no, why?

Only the first phase of the Public Participation Process has commenced. This is the report that will be made available to the public, stakeholders and all registered I&AP's for comments. The comments will be included in the BAR to be submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

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

Zandspruit X93-X96 Residential Development

This application for Environmental Authorisation is for a residential development to be known as the **Zandspruit X93-X96 Residential Development**. The study area, which is approximately 17ha in extent stretches across four farm portions, namely Portions 92, 93, 94 and 95 of the Farm Zandspruit 191 IQ. The study area falls within the area of Jurisdiction of the City of Johannesburg Metropolitan Municipality (CoJMM), Gauteng Province. **Refer to Figure 1 for the Locality Map and Refer to Figure 2 for the Aerial Map**

The study area is located approximately 200m to the north-east of Beyers Naude Drive (Road M5). Valentines Road runs along the south-eastern boundary of the site and Constantia Street runs along the north-eastern tip of the study area. The Jackal Creek Golf Estate is located to the immediate north of the proposed development site and Constantia Street. The northern boundary of the Laser Park industrial area runs approximately 100m to the south of the study area.

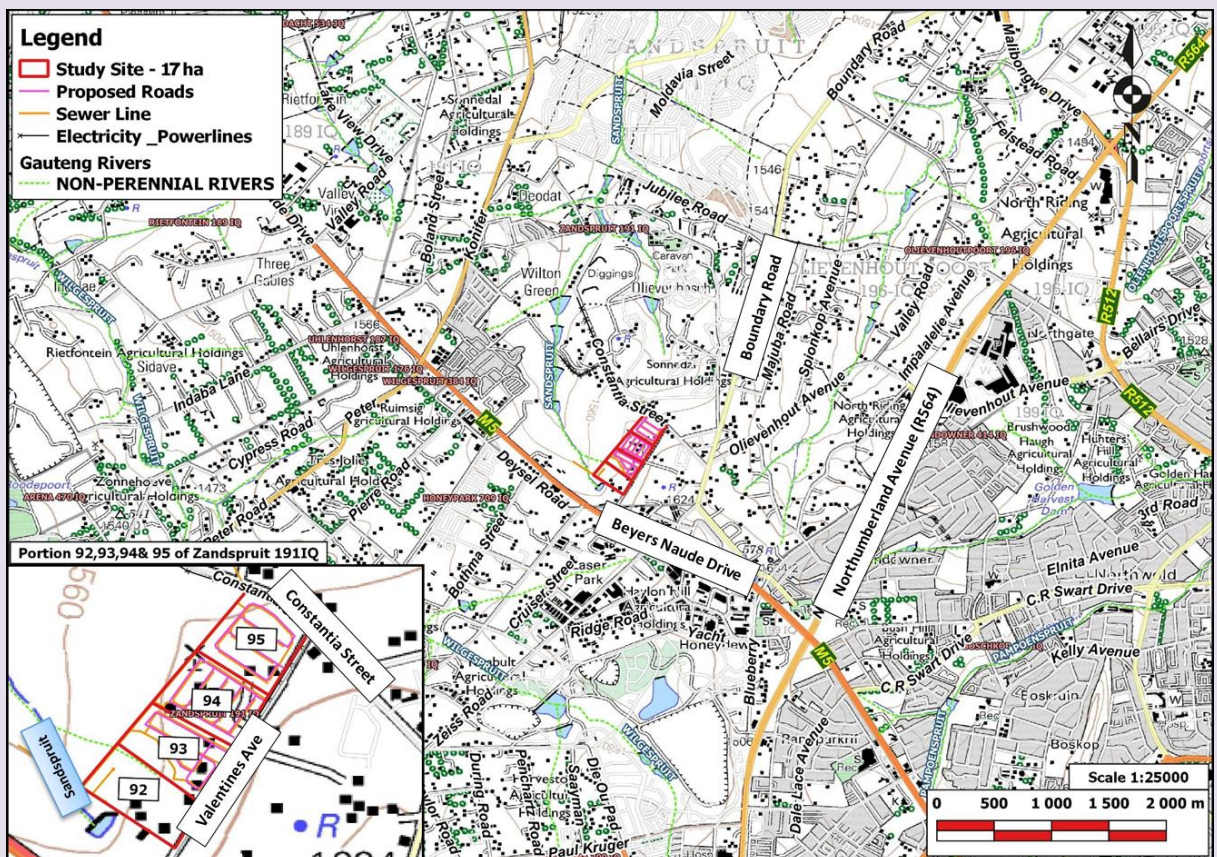


Figure 1: Locality Map



Figure 2: Aerial Map

The proposed development, to be known as Zandspruit X93-X96, mainly consists of residential erven and also includes a small park, streets and stormwater attenuation features.

The proposed township will consist of the following land uses:

Zoning	Land Use	No. of Erven	Area (ha)
Residential 1 (X94-X96)	180 - 250m ² erven sizes	352	7.8122
Residential 4 (X93)	120 du/ha (361 units)	1	3.0157
Municipal (X94-X96)	Attenuation Pond	3	0.3659
Special (X96)	Telecommunications Mast	1	0.0213
Public Open Space (X94-X96)	Park	8	0.2105
	Wetland (X93&X94)	2	1.9519
Street (X94-X96)	Streets		3.5926
Total		367	16.9701

The applicant will apply at the Gauteng Department of Agriculture and Rural Development (GDARD) for the authorisation of the following listed activities that will most probably be triggered by the proposed development:

Listing Notice 1: R983, and Listing Notice 3: R985, (4 December 2014, as amended on 7 April 2017).

Indicate the number of the relevant Government Notice:	Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3	Describe each listed activity as per the wording in the listing notices:	
R 983, 4 December 2014 as amended and updated on 07 April 2017	Listing Notice 1 Activity 19	The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic meters from a watercourse.	
<p>Relevance to the activity:</p> <p>The proposed Zandspruit 92 and 93 development sites are affected by a watercourse (a dam and a non-perennial drainage line/ river). The watercourse mainly affectes the western boundary of the proposed Zandspruit x 93 and communal boundary between the proposed Zandspruit 93 and 94.</p>			
R 983, 4 December 2014 as amended and updated on 07 April 2017	Listing Notice 1 Activity 27	<p>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for —</p> <ul style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. 	
<p>Relevance to the activity:</p> <p>The proposed development will require the clearance of an area of approximately 17ha in size. The area to be cleared is larger than 1ha and smaller than 20 ha and it includes some indigenous vegetation.</p>			
R 983, 4 December 2014 as amended and updated on 07 April 2017	Listing Notice 1 Activity 28	<p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</p> <ul style="list-style-type: none"> (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares... 	
<p>Relevance to the activity:</p> <p>The proposed development will cover 4 farm portions and the combined size of the farm portions is approximately 17 hectares. The study area is located within the Gauteng urban development zone and the area to be developed exceeds 5ha in size.</p>			

Indicate the number of the relevant	Activity No (s)	Describe each listed activity as per	Geographical areas based on the environmental attributes:
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Government Notice:	(relevant notice):	the wording in the listing notices:	
R 985, 4 December 2014 as amended and updated on 07 April 2017	Listing Notice 3 Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres.	<p>c. Gauteng</p> <ul style="list-style-type: none"> i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority; vii. Sites identified as high potential agricultural land in terms of Gauteng Agricultural Potential Atlas; viii. Important Bird and Biodiversity Area (IBA); ix. Sites or areas identified in terms of an international convention; x. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the NEMPAA; xi. Sites designated as nature reserves in terms of municipal Spatial Development Frameworks; or xii. Sites zoned for conservation use or public open space or equivalent zoning.
Relevance to the activity:			

The access road to the development as well as internal roads are planned to be up to 16 meters wide with a reserve less than 13,5 metres. According to the GPEMF, the study area is located within Zone 2 (High Control Zone). The study area is also located in an area which incorporates the endangered Egoli Granite Grassland, which is a primary vegetation unit.

<p>R 985, 4 December 2014 as amended and updated on 07 April 2017</p>	<p>Listing Notice 3 Activity 12</p>	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>(c) Gauteng: i. Within critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space. Conservation or had an equivalent zoning .</p>
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The development will include the clearance of more than 300m² of indigenous vegetation within an endangered eco-system, namely "Endangered Egoli Granite Grassland".

<p>R 985, 4 December 2014 as amended and updated on 07 April 2017</p>	<p>Listing Notice 3 Activity 14</p>	<p>The development of – i) ... ii) Infrastructure or structures with a physical footprint of 10 square meters or more; where such development occurs – (a) within a watercourse (b) in front of a development setback; or (c) where no development</p>	<p>(c) Gauteng: i. Within critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was</p>
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		setback has been adopted, within 32m meters of a watercourse	zoned open space. Conservation or had an equivalent zoning .
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Relevance to the activity:

The development will included the development of infrastructure or structures with a physical footprint of 10m² or more, within an endangered eco-system, namely "Endangered Egoli Granite Grassland", where such development will be associated with a watercourse (within parameters as set out in Listing Notice 3, Activity 14).

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
X	

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

A Section 21 (c) and (i) Water Use Licence Application / General Authorisation Registration in terms of the National Water Act, 1998 (Act No. 36 of 1998, as amended), will be submitted to the Department of Human Settlements, Water and Sanitation (DHSWS).

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

YES Bokamoso is currently preparing the application.	NO
YES	NO X

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

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) [NEMA].	National & Provincial	27 November 1998
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The NEMA is primarily an enabling act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act serve as a general framework within which environmental management and implementation plans must be formulated.

The Minister of Environmental Affairs and Tourism passed (on 8 December 2014) new Environmental Impact Assessment Regulations (the Regulations) in terms of Chapter 5 of the National Environmental Management Act, 1998 as amended (NEMA). The

2014 NEMA EIA Regulations was amended in April 2017 and such amendments must be read in conjunction with the 2014 NEMA EIA Regulations when identifying listed activities to be applied for.

The purpose of the EIA process is to determine the possible negative and positive impacts of the proposed activity on the surrounding environment and to provide measures for the mitigation of negative impacts and to maximize positive impacts.

On 7 April 2017, the Minister of Environmental Affairs made the following amendments to the Environmental Impact Assessment Regulations, 2014:

- **Amendments were made to** the published Government Notice No. R 982 in Government Gazette No. 38282, dated 4 December 2014 **(The 2017 amended Notice are published under** Government Notice No. R 326 in Government Gazette No. 40772, dated 7 April 2017);
- **Amendments were made to** Listing Notice 1 of 2014, published under Government Notice No. R 983 in Government Gazette No. 38282 **(The 2017 amended Listing Notice 1 are published under** Government Notice No. R 327 in Government Gazette No. 40772, dated 7 April 2017);
- **Amendments were made to** Listing Notice 2 of 2014, published under Government Notice No. R 984 in Government Gazette No. 38282 **(The 2017 amended Listing Notice 2 are published under** Government Notice No. R 325 in Government Gazette No. 40772, dated 7 April 2017); and
- **Amendments were made to** Listing Notice 3 of 2014, published under Government Notice No. R 985 in Government Gazette No. 38282 **(The 2017 amended Listing Notice 3 are published under** Government Notice No. R 324 in Government Gazette No. 40772, dated 7 April 2017).
- **Corrections were made to** the Listing Notices of 2014, published under Government Notice No. R 985 in Government Gazette No. 38282 **(The 2017 amended Listing Notice 3 are published under** Government Notice No. R 324 in Government Gazette No. 40772, dated 7 April 2017) on Government Notice R706, Government Gazette No. 40772, dated 13 July 2018.

The activities listed in Listing Notice 1 require that a Basic Assessment process be followed while the activities listed in terms of Listing Notice 2 require that the Scoping and EIA process be followed. Listing Notice 3 has been introduced to make provision for activities triggered in specific identified geographical areas only.

Implications for Development:

The application for the proposed Zandspruit X93-X96 Residential Development triggers activities listed under Listing Notice R. 983 (Listing Notice 1) and Listing Notice R. 985 (Listing Notice 3) (as amended on 7 April 2017 and 13 July 2018) and therefore a Basic Assessment Report will be submitted to the GDARD for consideration.

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

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

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

- a) Taking water from a water resource;
- b) Storing water;
- c) Impeding or diverting the flow of water in a water course;
- d) Engaging in a stream flow reduction activity contemplated in section 36;
- e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
- f) Discharging waste or water containing waste into a water resource through a pipeline, canal, sewer, sea outfall or other conduit;
- g) Disposing of waste in a manner which may detrimentally impact on a water resource;
- h) Disposing in any manner which contains waste from or which has been heated in any industrial or power generation process;
- i) Altering the bed, banks, course or disposing of water found underground if it is necessary for the safety of people;
- j) Removing, discharging, or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) Using water for recreational purposes.

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

If a Water Use Licence (WUL) is required, the Regulations regarding the Procedural Requirements for Water Use Licence Applications and Appeals, 2017 also becomes applicable.

Implications for Development:

A non-perennial watercourse occurs within 100m of the study site. Therefore, in terms of Section 21 of the National Water Act, a Water Use Licence / General Authorisation Registration will be required. **Refer to Figure 3 for the Rivers and Wetlands Map**

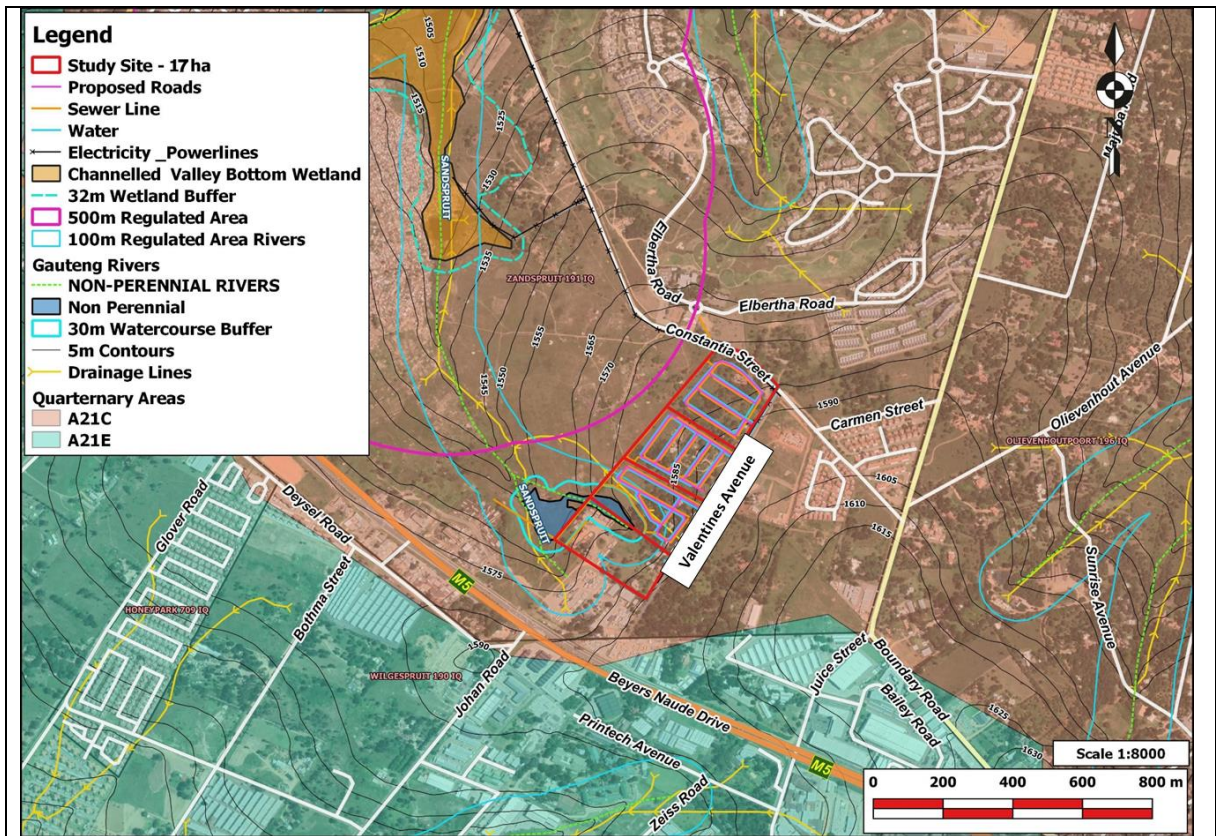


Figure 3: Rivers and Wetlands

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

Implications for Development:

According to the Gauteng Agricultural Potential Atlas (GAPA 3), the proposed development is situated on land with high agricultural potential (eastern sections of the proposed Zandspruit X95 and x96 development areas). The remaining parts of the larger study area are situated on land with low agricultural potential. **Refer to Figure 4 for an Agricultural Potential Map of the Study Area**

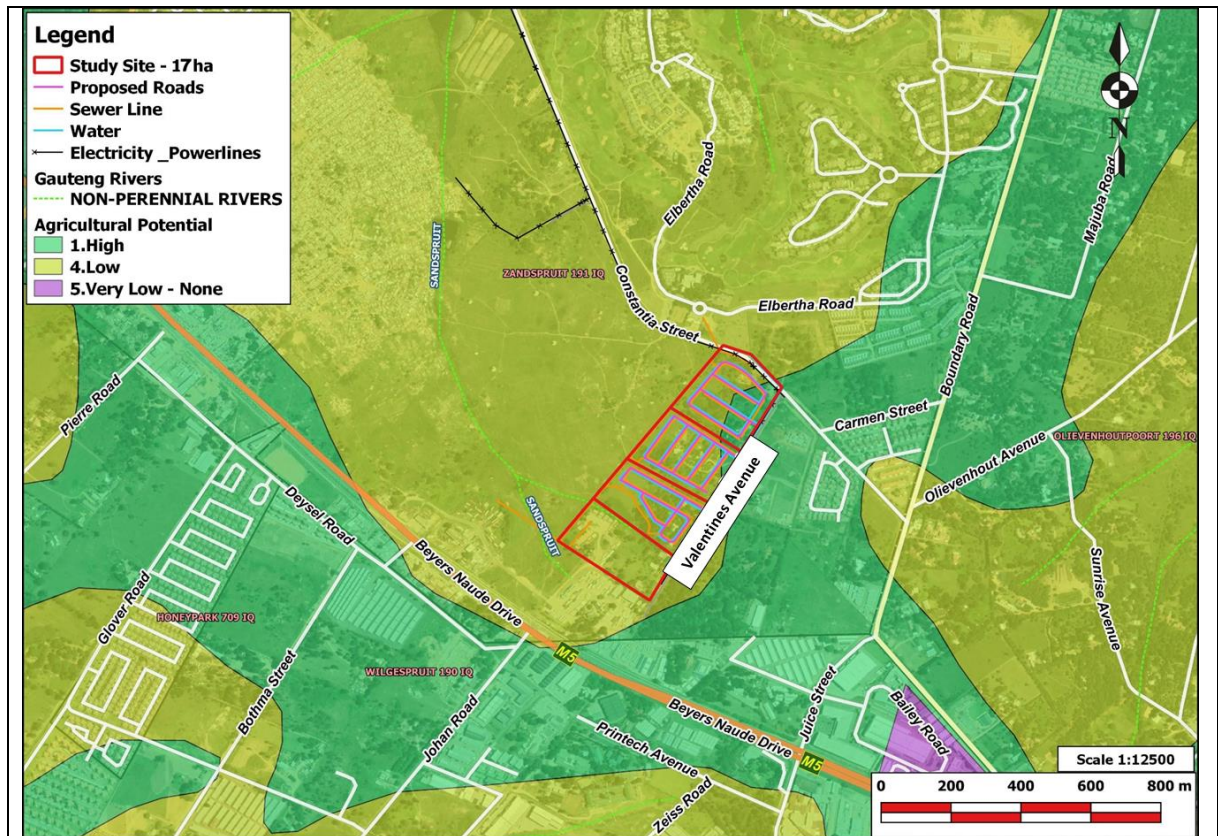


Figure 4: Agricultural Potential

National Heritage Resources Act, 1999 (Act No. 25 of 1999)

National & Provincial

1999

The National Heritage Resources Act legislates the necessity and heritage impact assessment in areas earmarked for development, which exceed 0.5ha and linear development exceeding 300m in length. The act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

In Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) the following categories are listed require that the competent heritage authority be notified of a proposed development:

“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 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any developments or other activity which will change the character of the site-
 - (i) exceeding 5000 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 has 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 provisional 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."

Implications for Development:

This aspect has been addressed on a pro-active basis. A Phase 1 Heritage Impact Assessment has been conducted and submitted to PHRAG and SAHRA. No sites of historical and cultural value have been found on the property.

National Environmental Management: Waste Act , 2008 (Act No. 59 of 2008, as amended)	National	11 July 2009
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It aims to consolidate waste management in South Africa, and contains a number of commendable provisions, including:

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

On the 29th of November 2013 the Minister of Water and Environmental Affairs amended the list of waste management activities that might have a detrimental effect on the environment.

Please take note of the other amendments/publications since 29 November 2013:

- 2 June 2014 – NEM: Waste Amendment Act, 2014 (Act No.26 of 2014)
- 2 May 2014 – Remediation of contaminated land and soil
- 2 May 2014 – Amendment List of Waste Management Activities that have or are likely to have detrimental effect on the environment

Implications for Development:

No listed waste management activities will take place on site and therefore a waste licence will not be required. Construction and operational phase general waste will be removed on a regular basis and disposed of at a registered landfill site.

Take note that landfill sites in South-Africa are no longer (since the end of 2019) allowed to receive liquid waste.		
National Environmental Management Protected Areas Act , 2003 (Act No. 57 of 2003, as amended)	National	2003
<p>The purpose of this act is to provide for the protection, conservation, and management of ecologically viable areas representative of South Africa's biological biodiversity and its natural landscapes.</p> <p>The Act also requires the establishment of a national system of protected areas in South Africa and the management and conservation of the biodiversity of the areas as listed in the system. The Listing Notices included as part of the 2014 NEMA EIA Regulations also include listed activities that take place within or in close proximity of Protected Areas. It is therefore important to confirm whether a study area is situated within or in close proximity of a Protected Area at the beginning of the EIA process.</p> <p><u>Implications for Development:</u> The proposed development site does not form part of a protected area and it does not occur near a protected area.</p>		
National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004)	National	2004
<p>The act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, equity, and bio prospecting, and the establishment of a regulatory body on biodiversity- South African National Biodiversity Institute.</p> <p>Objectives of the act:</p> <p>(a) With the framework of the National Environmental Management Act, to provide for:</p> <ul style="list-style-type: none"> (i) The management and conservation of biological diversity within the Republic and of the components of such biological diversity; (ii) The use of indigenous biological resources in a sustainable manner; and (iii) The fair and equitable sharing among stakeholders of benefits arising from bio-prospecting involving indigenous biological resources; <p>(b) To give effect to ratified international agreements relating to biodiversity which are binding on the republic;</p> <p>(c) To provide for co-operative governance in biodiversity management and conservation; and</p> <p>(d) To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this act.</p>		

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

Implications for Development:

According to published threatened ecosystems data, the site is situated within an ecosystem that is regarded as Endangered Ecosystem, namely the "Egoli Granite Grassland". **Refer to Figure 5 for the Threatened Ecosystems Map**

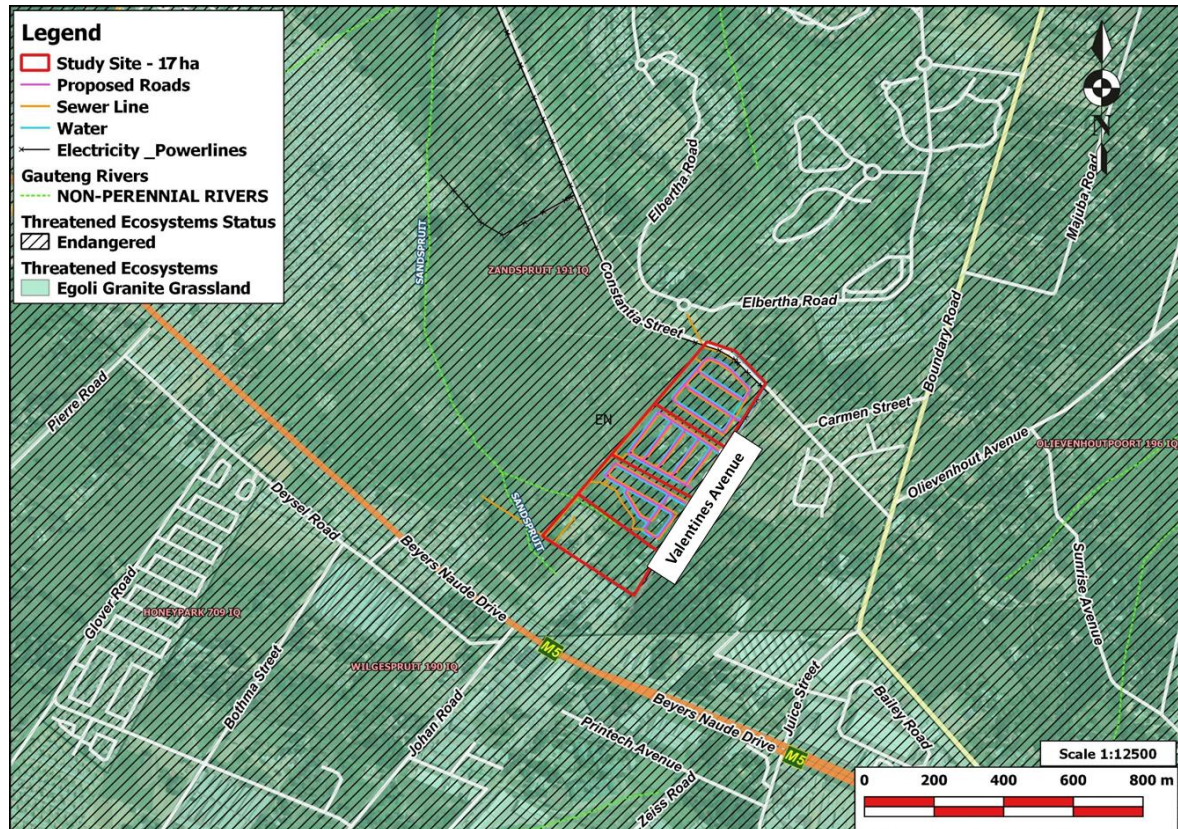


Figure 5: Threatened Ecosystems

National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004, as amended) [NEM:AQA]	National & Provincial	2004
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The NEM:AQA serves to repeal the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) and various other laws dealing with air pollution and it provides a more comprehensive framework within which the critical question of air quality can be addressed.

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

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

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

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

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

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

The following regulations and standards have been published in terms of this act:

- 31 October 2018 – Amendments to Listed Activities and associated minimum emission standards identified in terms of Section 21 of the NEM:AQA
- 22 May 2018 – Amendment of the National Pollution Prevention Plans Regulations, 2017
- 21 July 2017 – Declaration of Greenhouse Gasses as Primary Pollutants
- 3 April 2017 – National Greenhouse Gas Emissions Reporting Regulations
- 2 April 2015 – National Atmospheric Emission Reporting Regulations
- 14 March 2014 – National Pollution Prevention Plans Regulations
- 1 November 2013 – NEM:AQA National Dust Control Regulations
- 28 November 2013 - Declaration of Small Boilers as Controlled Emitters and Emission Standards

Implications for Development:

During the construction phase of the proposed development, generation of dust could become a factor to surrounding land owners, especially when considering that access to the site is via gravel roads.

However, if the development is well planned and the mitigating measures are successfully implemented as per the Environmental Management Programme Report (EMPr), the proposed development's contribution to air pollution can be prevented and/or mitigated to more acceptable levels.

Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) [SPLUMA]	National	2013
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The Spatial Planning and Land Use Management Act 16 of 2013 aims:

- to provide a framework for spatial planning and land use management in the Republic;

- to specify the relationship between the spatial planning and the land use management system and other kinds of planning;
- to provide for the inclusive, developmental, equitable and efficient spatial planning at the different spheres of government;
- to provide a framework for the monitoring, coordination and review of the spatial planning and land use management system;
- to provide a framework for policies, principles, norms and standards for spatial development planning and land use management;
- to address past spatial and regulatory imbalances;
- to promote greater consistency and uniformity in the application procedures and decision-making by authorities responsible for land use decisions and development applications;
- to provide for the establishment, functions and operations of Municipal Planning Tribunals;
- to provide for the facilitation and enforcement of land use and development measures; and
- to provide for matters connected therewith.

Implications for Development:

The proposed development is in line with SPLUMA and with the Spatial Development Frameworks of the municipality as the following principles have been applied to the development:

- Addressing spatial development imbalances by infill development of affordable housing within walking distance of public transport and development nodes.
- Providing inclusivity by means of access to public transport facilities and employment opportunities.
- The developer will provide for infrastructure development and upgrades as part of the development.
- Limiting urban sprawl and discourage expansion of informal settlements by infill development.

Gauteng Transport Infrastructure Act, 2001 (Act No. 8 of 2001, as amended)	Provincial	2001
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The act was created to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng; and to provide for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng; and to provide for matters connected therewith.

In terms of Section 46 of the act, no person may erect, construct, or lay, or establish a structure or object on or over, or below the surface of a provincial road or railway line or land in a building restriction area.

Gauteng Transport Infrastructure Amendment Act, 2003 - The aim of this Amendment Act is to amend the Gauteng Transport Infrastructure Act, 2001 so as to amend and

insert certain definitions; to provide for the necessary land use rights with respect to stations and for the necessary powers of the MEC to enter into contracts for road and rail projects; to amend the procedure in relation to route determination; to make a second environmental investigation at the stage of preliminary design of a road or railway line unnecessary where the competent environmental authority decides that the environmental investigation at the stage of route determination is adequate; and to provide for incidental matters.

Implications for Development:

The development site is not affected by any provincial or national roads.

Occupational Health & Safety Act (Act No. 85 of 1993) and Occupational Health & Safety Amendment Act (Act No. 181 of 1993)	National & Provincial	1993
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The act was created to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

Implications for Development:

This Act regulates all health and safety aspects during the construction and operational phases of the development and must be taken into consideration for all employees and the public.

The COVID-19 special health and safety precautionary measures for development must be taken into consideration and the consultants, specialists, project managers, developer and the involved contractors must allow for the implementation of precautionary measures during all the planning and construction phases in their project tenders and budgeting processes.

GDARD Ridges Guideline (updated in January 2004, April 2006 and February 2019)	Provincial	2001
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The purpose of this guideline is to set out the Department's policy on the conservation, development and use of ridges with a view to ensuring that –

- the use of ridges is sustainable;
- members of the public are able to make informed decisions regarding proposals for development on ridges and the use of ridges;
- officials make consistent decisions in respect of planning and environmental applications that involve negative impacts on ridges; and
- the Department's responsibility in respect of the protection of the environment is carried out in an efficient and considered manner.

Implications for Development:

A Class 3 Ridge is situated approximately 600m to the east of the site, but no ridges occur on the study site.

Refer to Figure 6 for the Ridges Map

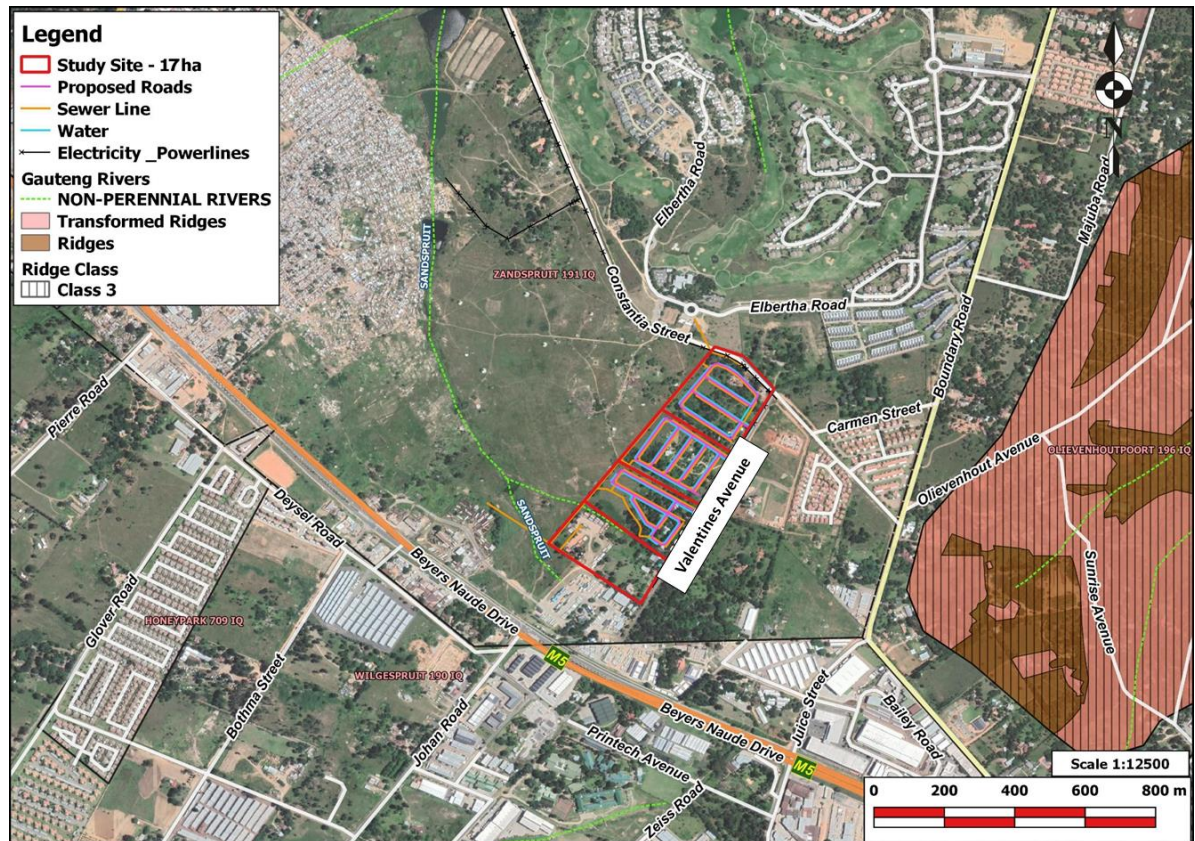


Figure 6: Ridges Map

Gauteng Conservation Plan (C-Plan) Version 3.3	Provincial	October 2011
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Gauteng Nature Conservation (hereafter Conservation), a component of the Gauteng Department of Agriculture and Rural Development (GDARD) produced the Gauteng Conservation Plan Version 3 (C-Plan 3) in December 2010. The conservation plan was edited on three occasions since then: C-Plan 3.1 was released in July 2011 after it became apparent that some areas were not desirable in Critical Biodiversity Areas (CBAs hereafter). Not all areas were addressed in the first round of editing, so this was done during September 2011 resulting in C-Plan Version 3.2. It was soon released however, that some CBAs became separated by the removal of undesirable areas causing some attributes not to be completely reflective of that CBAs any longer. C-Plan 3.3 became available in October 2011 (as amended) after this issue was addressed.

The main purposes of C-Plan 3.3 are:

- to serve as the primary decision support tool for the biodiversity component of the Environmental Impact Assessment (EIA) process;
- to inform protected area expansion and biodiversity stewardship programs in the province;

- to serve as a basis for development of Bioregional Plans in municipalities within the province.

Implications for Development:

The site is not regarded as a Critical Biodiversity Area or Ecological Support Areas in terms of the GDARD C-Plan. The site does however fall within Important Areas.

Refer to Figure 7 for the C-Plan

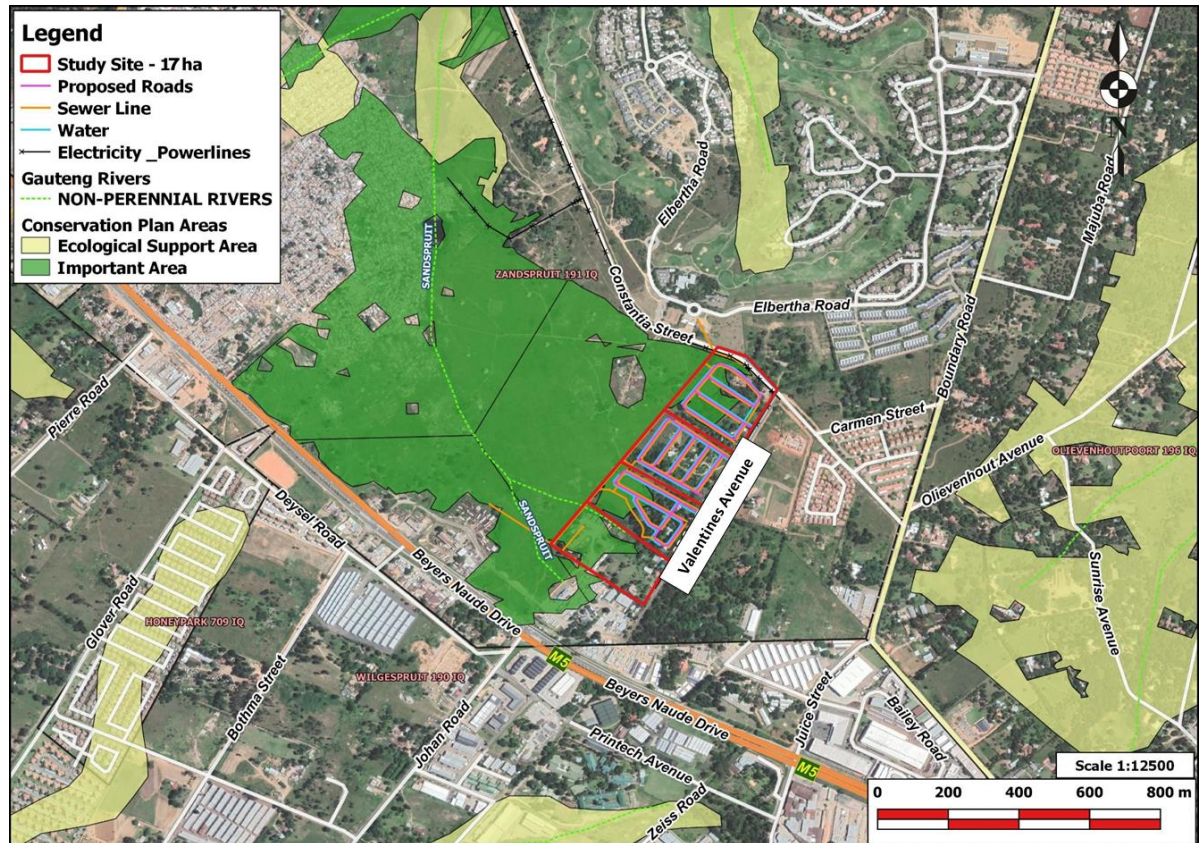


Figure 7: C-Plan Map

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

Implications for Development:

The study area does not fall within any of the seven Agriculture Hubs identified for the Gauteng Province. The West Rand Agricultural Hub is situated more than 25km to the west of the study area.

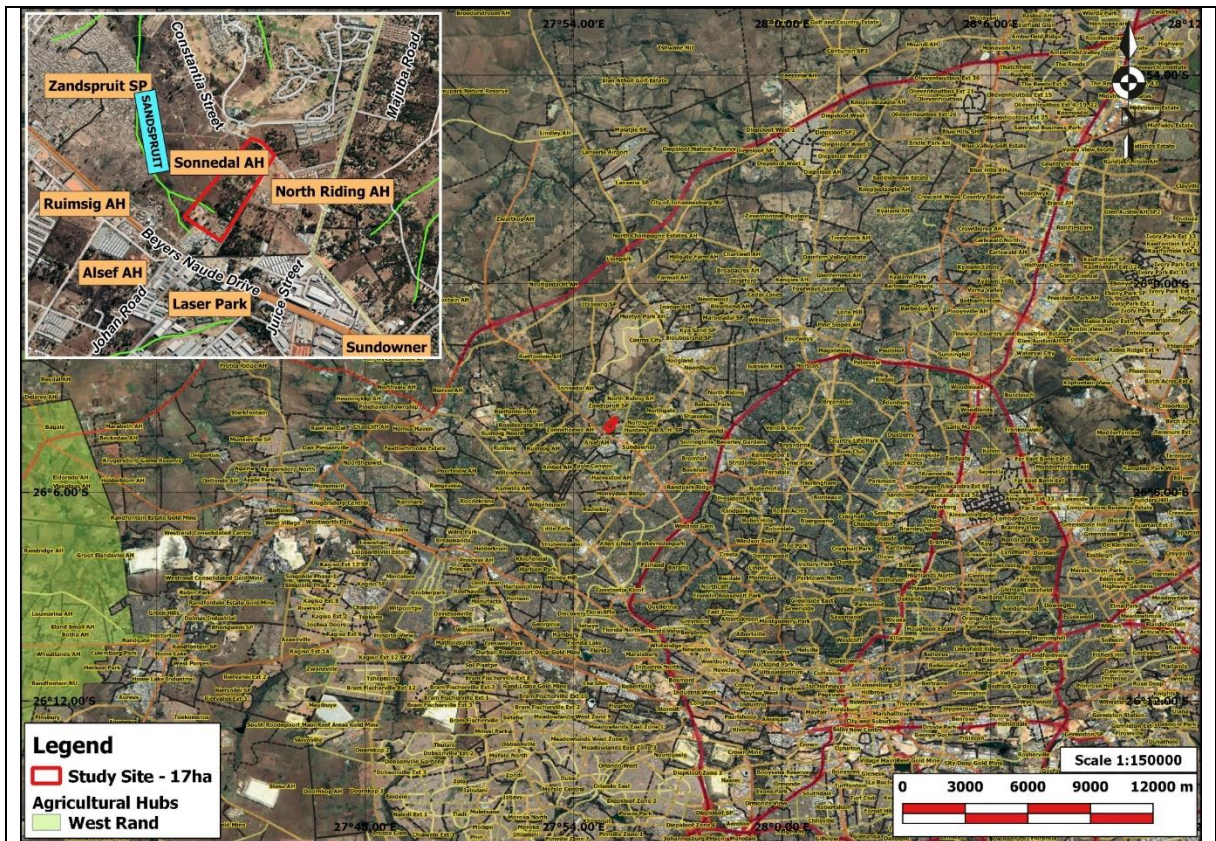


Figure 8: Gauteng Agricultural Hubs

Gauteng Draft Red Data Policy	Provincial	2001
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The main purpose of the Draft Red Data Policy is to protect red data fauna and flora species as well as areas with high bio-diversity within Gauteng Province. This policy requires that red data species, red data species habitats, areas with high biodiversity and areas with high ecological potential are conserved.

Implications for Development:

Gauteng C-Plan data indicates that the development site has potential habitat for Orange and Red Listed plant species as well as primary vegetation. The Orange Listed plant species *Hypoxis hemerocallidea* was observed on site and GDARD needs to be notified, prior to the commencement of construction, of the presence and planned relocation/ removal of the species. The species is regarded as important from a medicinal point of view and GDARD must be involved in the relocation/ removal process. No Red-Listed plant species have been recorded on the study site during the ecological surveys. **Refer to Appendix G1 for the Fauna and Flora Studies.**

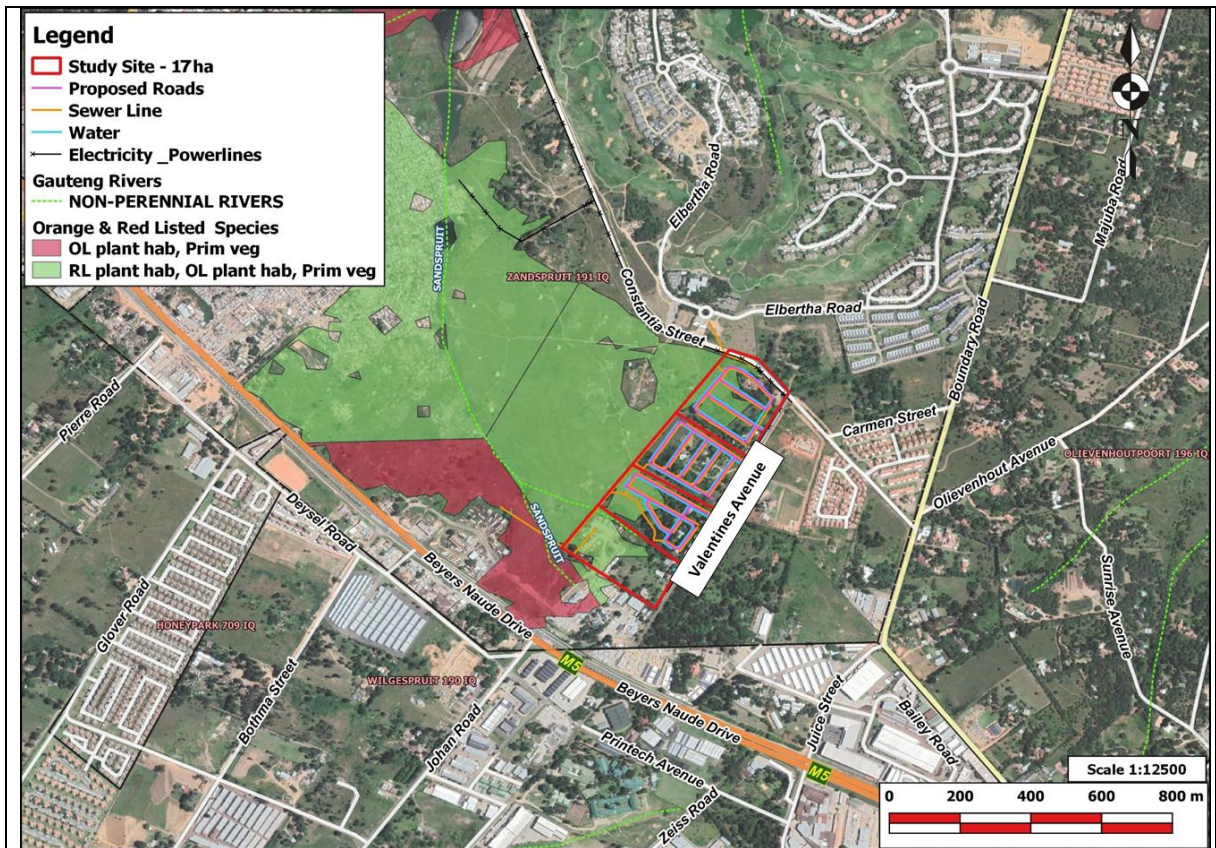


Figure 9: Gauteng C-Plan Red and Orange Listed Plants

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

Implications for Development:

If well planned and if mitigation measures are successfully implemented, the proposed development, which is a residential development, will not contribute to significant noise generation in the area, as it is adjacent to other residential and industrial developments and it is situated within the urban development boundary of Gauteng Province.

The noise impacts will mainly be during the construction phase and is will therefore only be short term of nature. One should note that there are not many practical mitigation measures for noise pollution, but certain measures can be implemented to mitigate the severity. **(Refer to Appendix H (EMPr) for a list of suitable guidelines and mitigation measures).**

Johannesburg Spatial Development Framework (SDF), 2016-2040	Municipal	2016
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The Johannesburg SDF seeks to address five major issues in Johannesburg's spatial and social landscape:

- Increasing pressure on the natural environment and green infrastructure.

- Urban sprawl and fragmentation.
- Spatial inequalities and the job-housing mismatch.
- Exclusion and disconnection emanating from high potential underused areas (the mining belt and the Modderfontein area), gated developments, and disconnected street networks (high cul-de-sac ratios and low intersection densities); and
- Inefficient residential densities and land use diversity.

Implications for Development:

The proposed development is in line with the main principles of the SDF as it addresses urban sprawl and provides housing near employment opportunities and development nodes.

Johannesburg Regional Spatial Development Framework (RSDF), 2016	Municipal	2015
-------------------------------------------------------------------------	------------------	-------------

A Spatial Development Framework (SDF) provides the framework for making resource-effective decisions. It can be a powerful lever for transforming cities and is instrumental in the realisation of a city's vision. Furthermore, it is a guide that can have an impact on the development of a city over the next 15 years and more if properly conceived and systematically executed. Thus, the purpose of the compilation of an SDF is to present a clear strategic vision for the future spatial growth of the region.

The Metropolitan Spatial Development Framework (MSDF) and the RSDF's are plans outlining the desired spatial development of the metropolitan area as contemplated in terms of Section 25(e) of the Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000). The RSDF is a core component of a municipality's economic, sectoral, spatial, social, institutional and environmental vision.

Implications for Development:

The proposed development is situated within Region C of the Johannesburg RSDF and has been planned in accordance with the policies and principles of the RSDF.

Gauteng Provincial Environmental Management Framework	Provincial	2014
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The Gauteng Department of Agriculture and Rural Development (GDARD) decided to produce an Environmental Management Framework for the whole of Gauteng (GPEMF). The GPEMF replaces all other EMFs in Gauteng with the exception of the Cradle of Humankind World Heritage Site, which is incorporated within the GPEMF.

The objective of the GPEMF to guide sustainable land use management within the Gauteng Province. The GPEMF, inter alia, serve the following purposes:

- To provide a strategic and overall framework for environmental management in Gauteng;
- Align sustainable development initiatives with the environmental resources, developmental pressures, as well as the growth imperatives of Gauteng;

- Determine geographical areas where certain activities can be excluded from an EIA process; and
- Identify appropriate, inappropriate and conditionally compatible activities in various Environmental Management Zones in a manner that promotes proactive decision-making.

The Province has been divided into 5 management zones of which Zone 1: Urban Development Zone and Zone 5: Industrial and Large Commercial focus zone, proposes the exclusion of certain NEMA listed activities in order to streamline development.

The remaining zones of the EMF are not excluded from the listed activities of NEMA, namely:

Zone 2: High control zone within the urban development zone

Zone 3: High control zone outside of the urban development zone

Zone 4: Normal control zone

Please note that on 13 April 2017, a Notice of Intention to Adopt Gauteng Provincial Environmental Management Framework (GPEMF) Standards and Exclusions of Activities was published for comments in Notice No. 351.

Implications for Development:

The proposed site is situated within Zone 1 and Zone 2 of the GPEMF. Zone 1 is regarded as Urban Development Zone and Zone 2 is a High Control Zone. Certain listed activities as listed in Listing Notice 1, for developments within Zone 1, qualify for an exclusion registration, however, Listing Notice 1 Activities triggered in Zone 2 does not qualify for an exclusion registration.

The site is surrounded by urban development (Zone 1 of the GPEMF) and has little connectivity to other natural areas. Therefore, we are of the opinion that the proposed development will be in line with the GPEMF and other similar urban development / townships planned for the surrounding areas.

Refer to Figure 9 for the GPEMF Map.

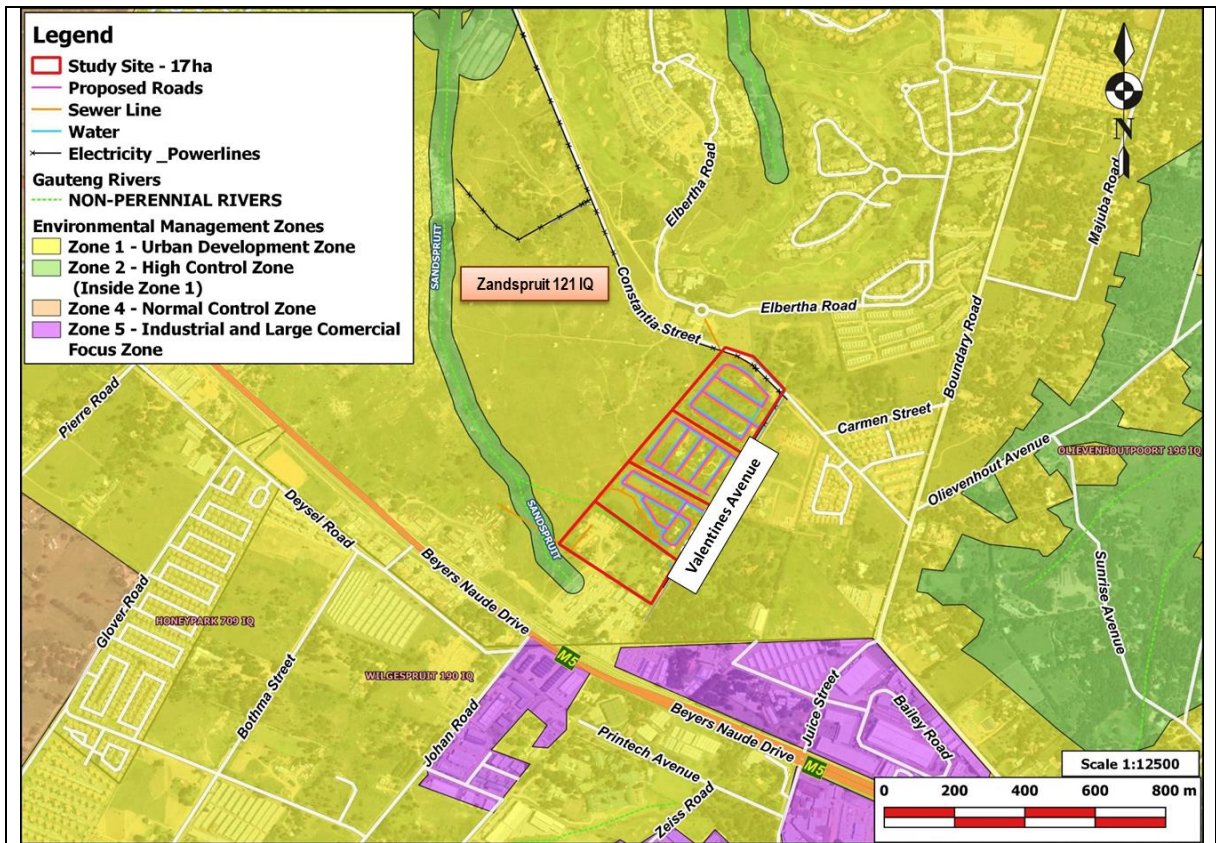


Figure 10: Gauteng Provincial Environmental Management Framework (GPEMF)

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

Legislation, policy or guideline	Description of compliance
National Environmental Management Act, 1998 (Act No. 107 of 1998, as amended) [NEMA]	The application for the proposed Zandspruit X93-96 Residential Development triggers activities listed under Listing Notice R. 983 (Listing Notice 1) and Listing Notice R. 985 (Listing Notice 3) (as amended on 7 April 2017 and 13 July 2018) and therefore a Basic Assessment Report will be submitted to the GDARD for consideration.
National Water Act, 1998 (Act No. 36 of 1998, as amended)	A non-perennial watercourse occurs within 100m of the study site. Therefore, a Section 21 (c) and (i) Water-Use License Application/ a General Authorisation (GA) Registration will be triggered.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	According to the Gauteng Agricultural Potential Atlas (GAPA 3), a small portion of the study area (eastern sections of the proposed Zandspruit X95 and X96) incorporates high agricultural potential soils. The remaining parts of the site are situated on land with low agricultural potential. It is also important to note that the study area is not located within any of the 7 Agricultural Hubs as identified by GDARD.

	The study area is furthermore surrounded by urban development and this includes various surrounding sites with latent urban development rights.
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	A Phase 1 Heritage Impact Assessment has been conducted and will be submitted to PHRAG and SAHRA for comment. No sites of historical and cultural value have been found on the property.
National Environmental Management: Waste Act, 2009 (Act No.59 of 2009, as amended) [NEM:WA]	No listed waste management activities will take place on site and therefore a waste licence will not be required. Construction and operational phase general waste will be removed on a regular basis and disposed of at a registered landfill site.
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003), as amended	The proposed development site does not form part of a protected area and it does not occur near a protected area.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004, as amended) [NEM:BA]	According to published threatened ecosystems data, the site is situated within an ecosystem that is regarded as Endangered, namely the Egoli Granite Grassland vegetation unit.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	<p>During the construction phase of the proposed development, generation of dust could become a factor to surrounding land owners, considering that access to the site is via gravel roads.</p> <p>However, if the development is well planned and the mitigating measures are successfully implemented as per the Environmental Management Programme Report (EMPr), the proposed development's contribution to air pollution can become low.</p>
Spatial Planning and Land User Management Act, 2013 (Act No. 16 of 2013) [SPLUMA]	<p>The proposed development is in line with SPLUMA and with the Spatial Development Frameworks of the municipality as the following principles have been applied to the development:</p> <ul style="list-style-type: none"> • Addressing spatial development imbalances by infill development of affordable housing within walking distance of public transport and development nodes. • Providing inclusivity by means of access to public transport facilities and employment opportunities. • The developer will provide for infrastructure development and upgrades as part of the development.

	<ul style="list-style-type: none"> Limiting urban sprawl and discourage expansion of informal settlements by infill development.
Gauteng Transport Infrastructure Act, 2001 (Act No. 8 of 2001, as amended)	The development site is not affected by any provincial or national roads.
Occupational Health & Safety Act, 1993 (Act No. 85 of 1993) and Occupational Health & Safety Amendment Act (Act No. 181 of 1993)	<p>This Act regulates all health and safety aspects during the construction and operational phases of the development and must be taken into consideration for all employees and the public.</p> <p>All new health and safety precautionary measures associated with the COVID-19 pandemic must be taken into consideration and must be complied with.</p>
GDARD Draft Ridges Guideline (updated in January 2004, April 2006 and February 2019);	A Class 3 Ridge is situated approximately 600m to the east of the site, but no ridges occur on the study site. The study area is not affected by the Ridges Policy.
Gauteng Conservation Plan (C-Plan) Version 3.3	The site is not regarded as a Critical Biodiversity Area or Ecological Support Areas in terms of the GDARD C-Plan. The site is however regarded as an Important Areas in the C-Plan.
GDARD Agricultural Hub Policy	The study area does not fall within any of the seven Agriculture Hubs identified for the Gauteng Province. The West Rand Agricultural Hub is situated more than 25km away from the study area (to the west of the study area).
Gauteng Draft Red Data Policy	<p>Gauteng C-Plan data indicates that the development site has potential habitat for Orange and Red Listed plant species as well as primary vegetation.</p> <p>The Orange Listed plant species <i>Hypoxis hemerocallidea</i> was observed on site and GDARD needs to be notified prior to the actual commencement of construction of the planned construction timeframe. This pro-active notification will enable the ECO and GDARD to plan for the early and effective relocation, removal of the species identified on the site.</p> <p>No Red Listed species were recorded on the site during the survey.</p>
Gauteng Noise Control Regulations	If well planned and if mitigation measures are successfully implemented, the proposed

	<p>development, which is a residential development, will not contribute to significant noise generation in the area, as it is adjacent to other residential and industrial developments.</p> <p>The noise impacts will mainly be during the construction phase and is will therefore be only short term of nature. One should note that there are not many practical mitigation measures for noise pollution, but certain measures can be implemented to mitigate the severity.</p>
<p>Johannesburg Spatial Development Framework (SDF), 2016-2040</p>	<p>The proposed development is in line with the main principles of the SDF as it addresses urban sprawl and provides housing near employment opportunities and development nodes.</p>
<p>Johannesburg Regional Spatial Development Framework (RSDF), 2016</p>	<p>The proposed development is situated within Region C of the Johannesburg RSDF and has been planned in accordance with the objectives and principles of the RSDF.</p>
<p>Gauteng Provincial Environmental Management Framework (GPEMF), 2014</p>	<p>The proposed site is situated within Zone 1 and Zone 2 of the GPEMF. Zone 1 is regarded as urban Development Zone and Zone 2 is a High Control Zone. Certain listed activities in Listing Notice 1 for developments within Zone 1 qualify for an exclusion registration, however, listed activities in Zone 2 will not qualify for an exclusion registration. It is therefore regarded as necessary to compile and submit a Basic Assessment (BA), in terms of the 2014 NEMA EIA Regulations, as amended, for the proposed development.</p> <p>The site is surrounded by urban development (Zone 1 of the GPEMF) and has little connectivity to other natural areas. Therefore, we are of the opinion that the proposed development will be in line with the GPEMF and other urban development planned for the surrounding areas.</p> <p>The study area is located in close proximity of the Cosmo City development and is regarded as ideally situated for a residential development. The study area is also surrounded by services and roads and the proposed development will be regarded as infill development and will promote the optimum utilisation of services.</p>

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

Layout Alternatives:

The study area incorporates four farm portions and the intention is to plan and implement separate development clusters on each farm portion involved. The developer also considered an integrated layout across the study area, but eventually decided to divide the study area into different townships and the proposed township boundaries are in line with the boundaries of the farm portions involved.

The final layouts for the proposed Townships were determined by the site access positions, the availability of services and the environmental opportunities and constraints. The presence and extent of the a non-perennial watercourse, which mainly affected the proposed Zandspruit X93 and X43 had to be confirmed before the layouts could be finalised. A higher density residential development is proposed for the proposed Zandspruit X93 township, because such development will allow for a development footprint that is more compact and which accommodates the watercourse area and its associated buffers.

Locality Alternatives:

The developer considered various sites in the Johannesburg area for the proposed residential typologies and residential development concept and regarded the study area and its surroundings as ideally situated for the development.

The various farm portions involved are owned by different land-owners and the developer is in the process of negotiating the development agreements with the land-owners (i.e. a joint venture/ the purchase of the portions of land that are regarded as developable from an environmental point of view etc.). Bokamoso is however not involved in any of the negotiations and cannot supply more detail regardin this matter.

What is important is that all the land-owners and the developer are aware of the proposed development application and Bokamoso was appointed to assist with the development application process from an environmental point of view.

There is currently a large backlog in the development of housing in Gauteng Province and the developer, who specialises in the development of various housing typologies (mainly affordable housing) specifically approached the land-owners for the development of their land after they "pin pointed"/ "hand-picked" the vacant area within the urban development boundary as suitable for an urban residential development from a services, accessibility, land-use

compatibility point of view and ecological point of view. The developer also considered the development zones as depicted in the GPEMF when they selected the study area for residential development purposes.

The site is located in close proximity of similar residential developments, including the Cosmo City Development. The study area is also situated adjacent to land that already received the go-ahead for a large residential development initiative driven by the CoJMM. The site is considered as infill development and will provide housing for workers in surrounding areas.

The study area is also located in close proximity of an industrial area and other job-creating facilities.

Land-use Alternative:

From a land-use perspective, the area is currently zoned "agriculture". However, the area has not been used for agricultural purposes for many years and it is now located with the Gauteng Urban Development Boundary.

The No-Go Alternative:

The no-go alternative will result in no residential development. No positive impacts are foreseen for the no-go alternative, as it would result in the application site remaining in its current state. The study area comprises of various underutilised farm portions in the middle of an urban area. Only a small section of the study area has high agricultural potential. Alien vegetation, illegal dumping, security problems and informal land occupation, are the main problems currently experienced on the study area and its surroundings.

The study area and its surroundings incorporate several watercourses and land invasions and illegal dumping could eventually cause the total destruction of the ecological integrity of the larger continuous open space network linked to the watercourses associated with the study area and its surroundings.

If well planned, implemented and managed, the proposed development on the study area could contribute to the protection of the remaining open spaces associated with the watercourses, whilst simultaneously uplifting the social and economic environments.

Provide a description of the alternatives considered

No.	Alternative type,	Description
1	Proposal	The proposed residential development will comprise of 352 erven zoned as "Residential 1", one (1) erf zoned as "Residential 4", three (3) erven zoned as "Municipal", One (1) erven zoned as "Special", 10 erven zoned as "Public Open Space" and associated roads.

		Refer to Figure 10 for the layout of the proposed development. Also Refer to Appendix C for the facility illustration
2	Alternative 1	
3	Alternative 2	

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

N/A

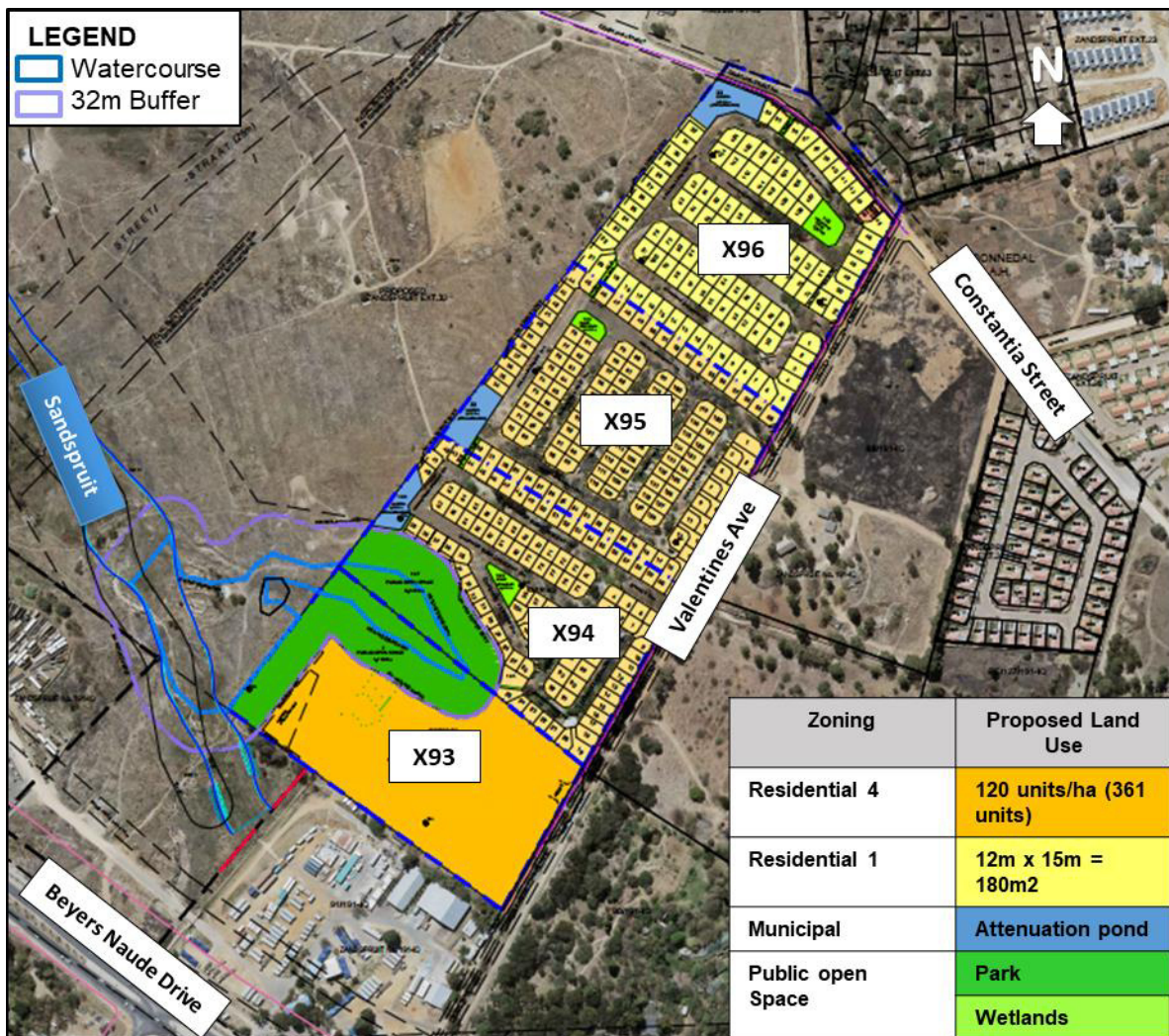


Figure 11: Proposed layout for Zandspruit X93, X94, X95 and X96 (See Appendix I for enlarged figures)

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*)

Size of the activity:

Size of study area – (including open space associated with the watercourse areas (to be excluded from the development footprint area): ± 17ha – it might be necessary to install some services and

infrastructure in watercourse and watercourse buffer areas – the impacts will however be short term in nature and the areas will be rehabilitated immediately after the installation of services

Alternatives:
Alternative 1 (if any)

_____ ha
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

Size of the site/servitude:
± 16 – 19ha ha – if adjacent road upgrades and external services connections are required in the immediate vicinity of the study area are required

Alternatives:
Alternative 1 (if any)

_____ ha
Ha/m²

5. SITE ACCESS

Proposal

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

YES	NO
X Access is gained from Valentines Road, which connects with Constantia Street (by means of a T-Junction in the north-east)	
	m

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

Describe the type of access road planned:

Traffic Impact Assessment (TIA) was conducted by Nande Engineering Development Consultants (Pty) Ltd. in 2020. **Refer to Appendix G7 for the TIA.**

Upgrades will be required on the main roads providing access to the proposed development in order to improve operational traffic flow to acceptable standards.

The following upgrades are proposed for the period ending 2025:

Intersection of Beyers Naude Drive, Juice Street and Braam Road

- Traffic Signal Optimisation
- 30m right-turn short lane on the southern approach (Braam Road)
- 120m through short lane on the eastern approach (Beyers Naude Drive)
- 90m right-turn short lane on the eastern approach (Beyers Naude Drive)
- 30m right-turn short lane on the northern approach (Juice Street)
- 40m exit short lane on the northern approach (Juice Street)
- 120m through short lane on the western approach (Beyers Naude Drive)
- 120m exit short lane on the western approach (Beyers Naude Drive)

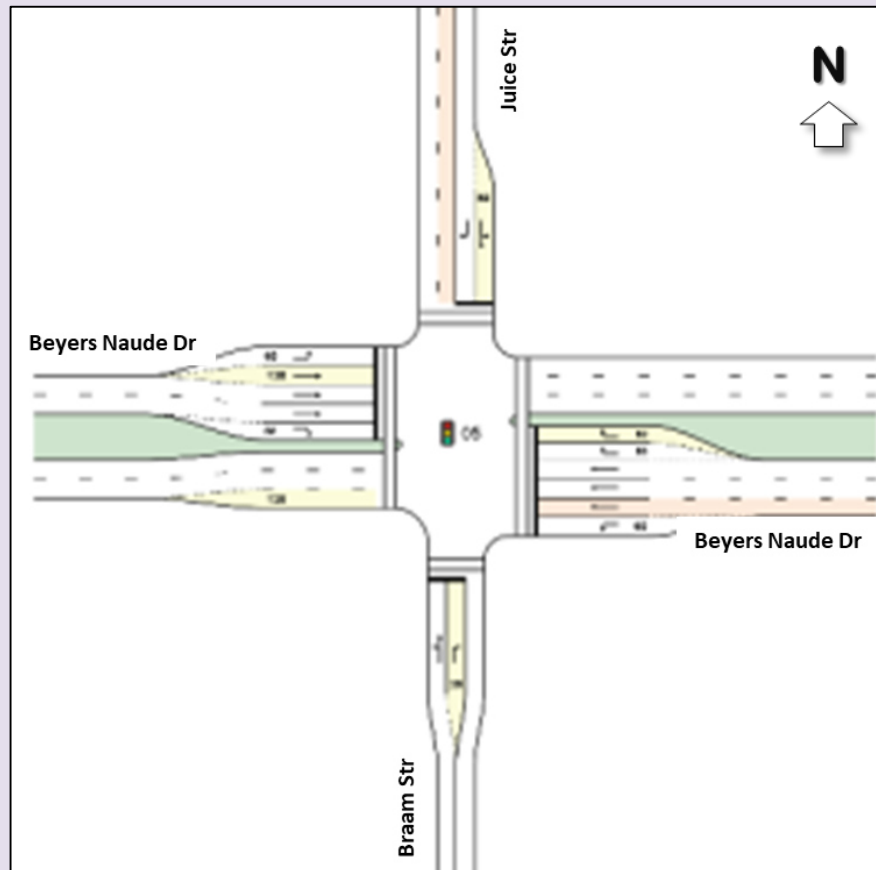


Figure 12: Proposed upgrades for Beyers Naude Drive, Juice Street and Braam Street Intersection

Corner of Boundary Road and Juice Street

- Convert the stop control to a traffic circle
- It is still to be confirmed whether there is available road reserve space to accommodate a traffic circle that meets JRA design standards.

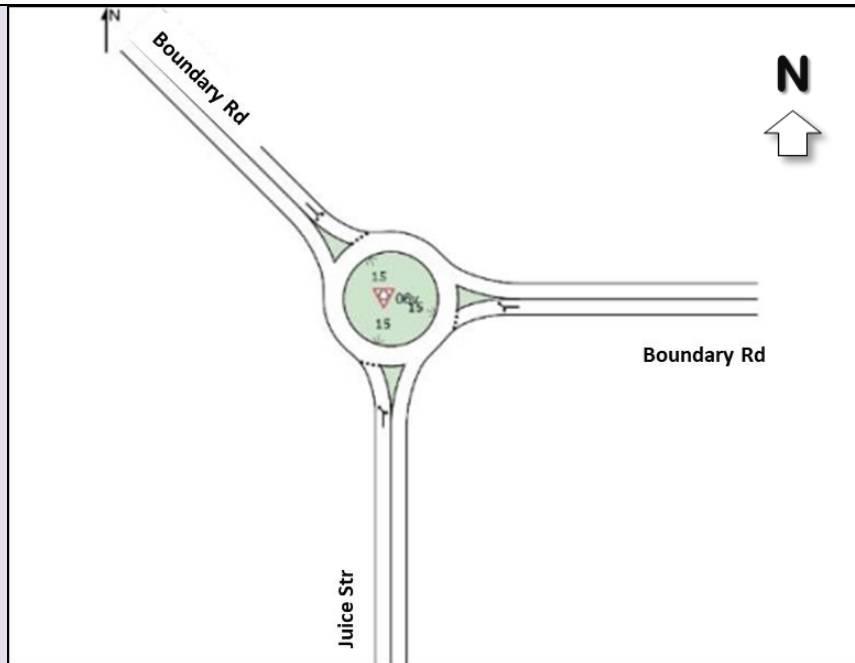


Figure 13: Proposed traffic circle configuration at the corner of Juice Street and Boundary Road

Corner of Boundary Road and Constantia Street

- Traffic Signal Installation
- 60m through-left turn lane on the southern approach (Boundary Road)
- 60m exit lane on the southern approach (Boundary Road)
- 60m through lane on the northern approach (Boundary Road)
- 30m right-turn lane on the northern approach (Boundary Road)
- 30m right-turn lane on the northern approach (Boundary Road)
- 60m exit lane on the northern approach (Boundary Road)
- 30m left-turn lane on the western approach (Constantia Street)

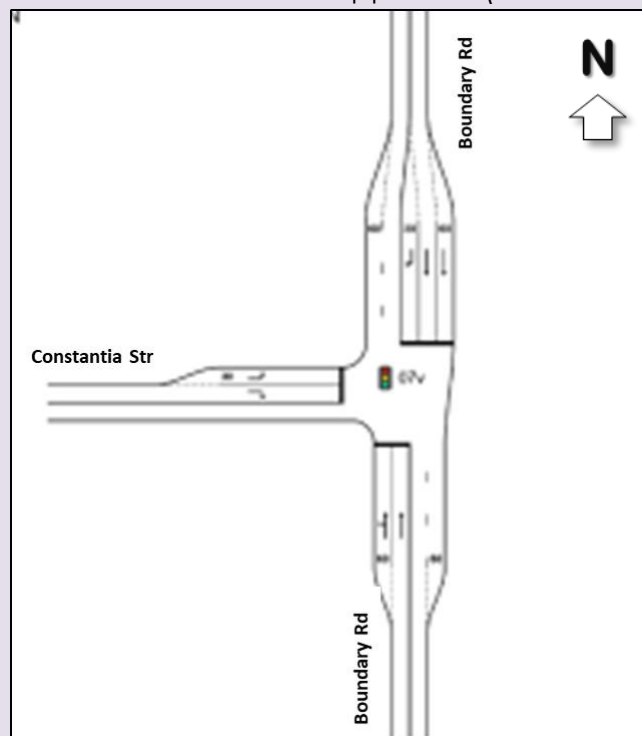


Figure 14: Proposed upgrades at the corner of Boundary Road and Constantia Street

External access configuration proposed for the development

All of the proposed Townships applied for in this BAR, will enjoy access from Valentines Avenue. Valentines Avenue is currently a gravel road, but it will be necessary to upgrade the road and to pave it with asphalt if access to the four townships is to be obtained via Valentines Avenue.

Valentines Avenue will be a 16m wide road reserve. Each extension access road for each extension will have a 16m wide road reserve where it intersects with Valentines Avenue. The site accesses and Valentines Avenue intersections will operate as stop controlled T-junctions.



Figure 15: Proposed X93 access design



Figure 16: Proposed X94 access and internal road layout



Figure 17: Proposed X95 access and internal road layout

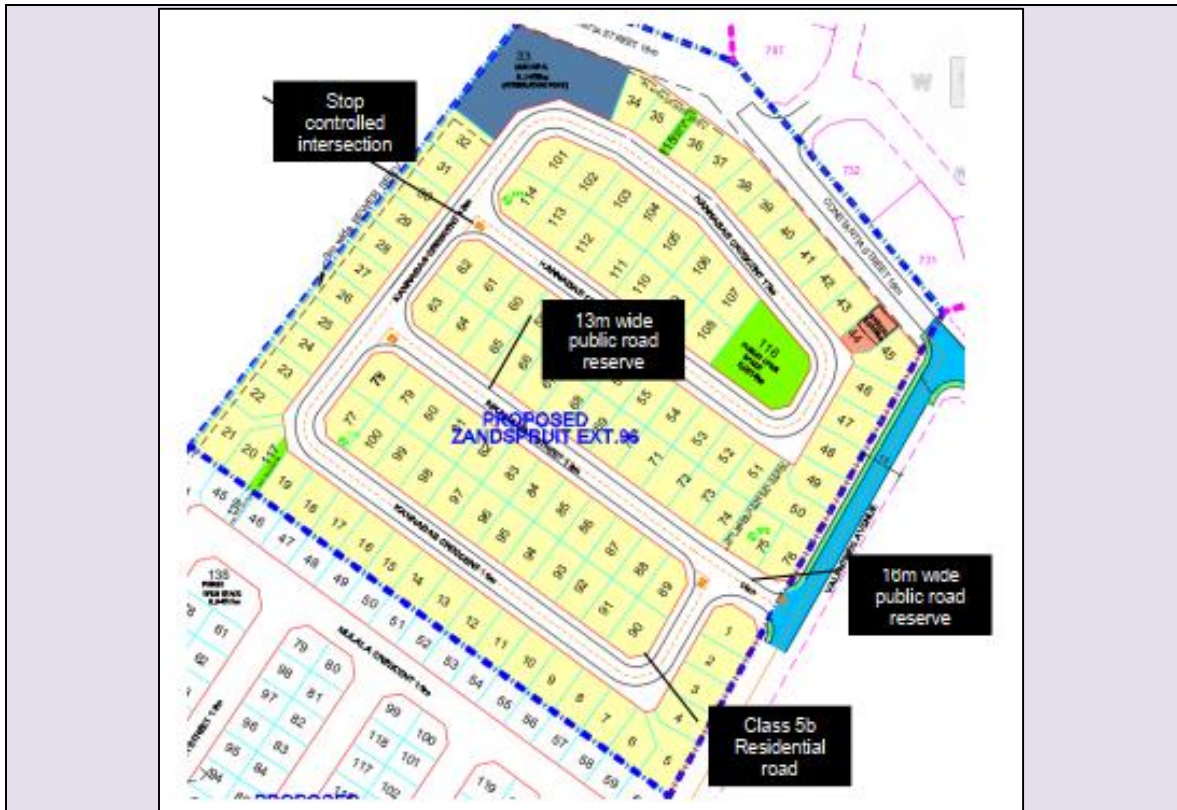


Figure 18: Proposed X96 access and internal road layout

It is proposed that the Zandspruit X 94 - X96 internal roads be Class 5b public residential roads. The road reserves are proposed to be 13m wide, which meets the minimum road reserve of the JRA urban access management requirements. These public roads would be designed according to the JRA Road Design standards.

The proposed public roads will provide direct access for Zandspruit X94-X96 townships single dwelling erven. All the internal intersections will operate as stop controlled intersections.

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).

Refer to Appendix C for the concept Site Development Plan/ Facility illustration

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.

Refer Appendix A

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.

Refer Appendix B

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.

Refer Appendix C

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

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

Section B has been duplicated for sections of the route times

Instructions for completion of Section B for location/route alternatives

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

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

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

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

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

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

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

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)

The proposed Zandspruit X93 - X96 Residential Development is situated on Portions 92 - 95 (a portion of Portion 21) of the Farm Zandspruit 191 IQ.

2. ACTIVITY POSITION

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

Alternative:

Latitude (S):

Longitude (E):

26° 4'2.92"S

27°55'5.55"E

In the case of linear activities:

Alternative:

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

Latitude (S):

Longitude (E):

°	°
°	°
°	°

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

Addendum of route alternatives attached

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	T	0	I	Q	0	0	0	0	0	0	0	0	0	0	1	9	1	0	0	0	9	2
	T	0	I	Q	0	0	0	0	0	0	0	0	0	0	1	9	1	0	0	0	9	3
	T	0	I	Q	0	0	0	0	0	0	0	0	0	0	1	9	1	0	0	0	9	4
	T	0	I	Q	0	0	0	0	0	0	0	0	0	0	1	9	1	0	0	0	9	5
ALT. 1																						
ALT. 2																						
etc.																						

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20 North to south	1:20 – 1:15	1:15 – 1:10 East to west	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------------------------------------	-------------	-----------------------------------------	--------------	-------------	---------------------

4. LOCATION IN LANDSCAPE

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

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

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 X
YES X	NO
YES	NO X
YES	NO X
YES	NO X
YES X	NO
YES X	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).

The Geotechnical report was compiled by Intraconsult in January 2020.

The site is underlain by the Halfway House Granite Inlier and their derivatives. Surface soil conditions have a variable thickness of transported soils blanketing colluvium consisting of dense to medium dense clayey silty sands. The transported soils directly overly materials that have been ferruginised to varying degrees and

contain sub-outcropping harder rock horizons across and adjacent to this extension.

Refer to Figures 19 and 20 for Geology and Dolomitic Areas Maps

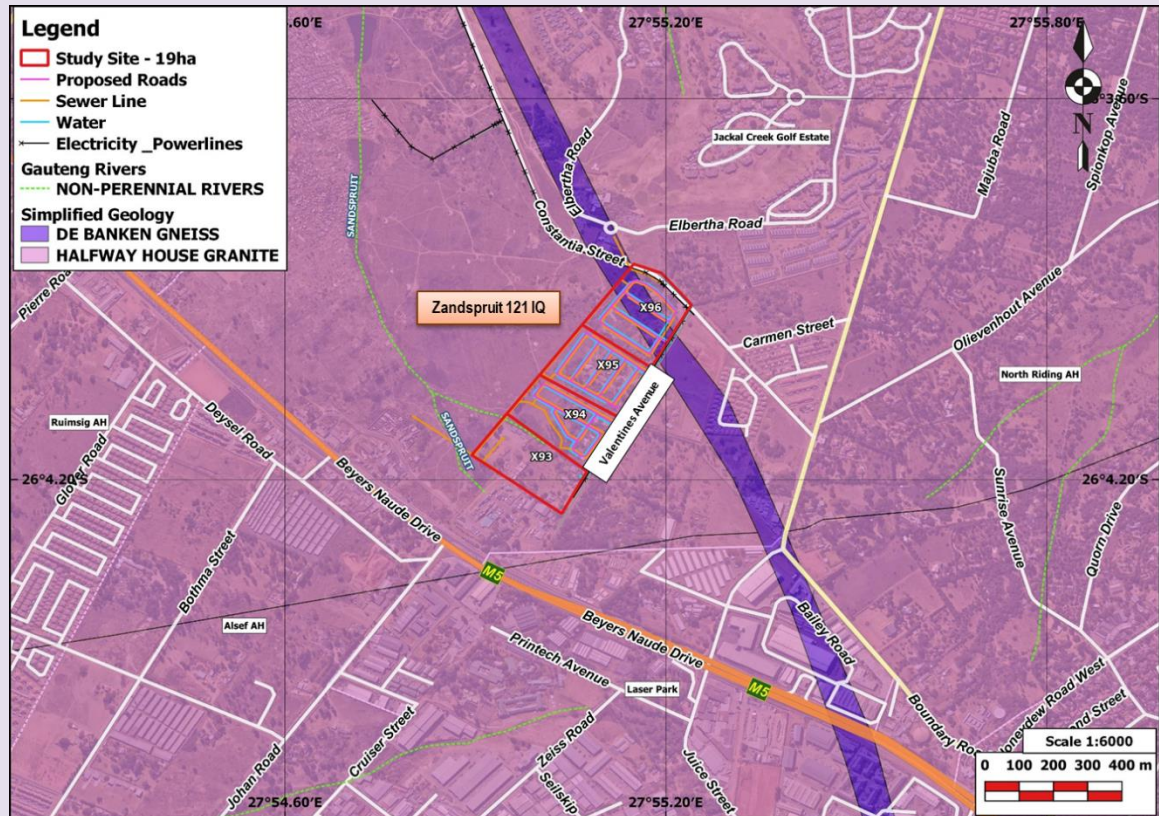


Figure 19: Geology Map

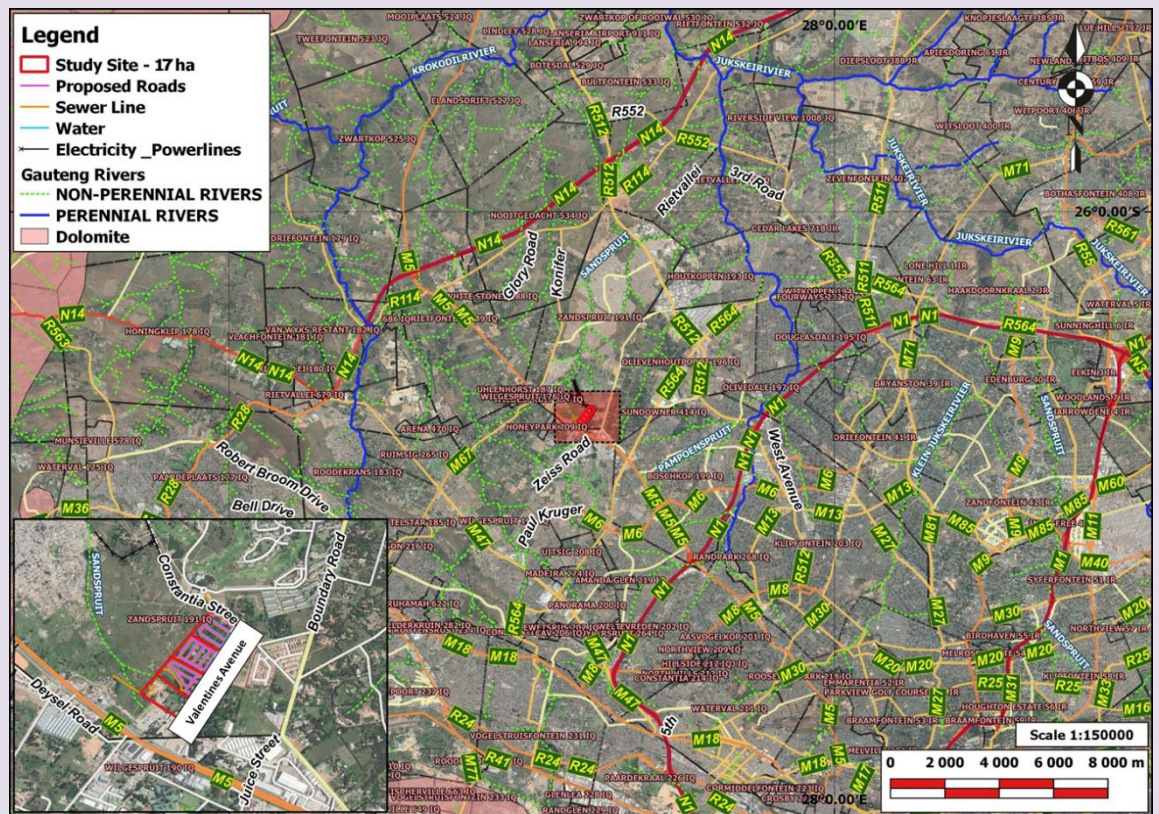


Figure 20: Dolomite Map

Geotechnical investigation results:

Perched water table

Groundwater seepage was noted in many of the trial holes. The levels of the perched water conditions could rise during periods of high rainfall.

Collapse potential of soils

Presence of potentially problematic soils was confirmed.

Swell / shrink potential of soils

Colloidal substances in soils are known to expand on absorption of water and contract on drying out. Soils sampled on the site have low potential for swell / shrink.

Corrosiveness / aggressiveness of inter-particulate groundwater

The hillwash, pebble marker and residual granite are all mildly corrosive.

Soil compressibility

The compressibility of soils for road construction is good (for hillwash) to excellent (for pebble marker and residual granite).

Evaluation of dispersive soils

The site is not associated with dispersive soils.

Permeability of soils

The shallow soils across the site have been subjected to weathering, erosion and other pedogenic and past geological conditions. The shallow portion of the soils consist of layers of transported material, unweathered and weathered in situ material and poorly to well-developed pebble marker.

Erosion potential

The fine nature of most of the soils encountered on the site will present an erosion problem during periods of heavy rains or windy conditions.

Potentially active soils (H-H3)

Soils do not have a high activity value. Swell / volume difference in change is less than 0.1%.

Potentially collapsible soils (C-C2)

Open tested soils have been uncovered in a number of the trial holes across the site. Moderate to severe problems can be expected when soils are wet and loaded.

**The primary geotechnical sub-areas for the site are:
(Also Refer to Figure 21 below)**

Most favourable – development can take place without any precautionary measures required.

Intermediate (2) – some geotechnical constraints are present which require precautionary measures

Least favourable (3) – urban development is not recommended

Near surface conditions recorded on the Soil Map (IR1605)

SUB AREA DESIGNATIONS	COMMENTARY
2(R3) [H1/C1/S]	Anticipate pockets of sub-outcrop medium and hard rock materials in the 0.0 to 1.5m profile and below. Also potentially collapsible (C1) near surface soils.
3W	Unfavourable sub-areas for urban development:- Dam.
3R1	Unfavourable sub-areas for urban development:- Outcrops of medium hard to hard rock granite.



Figure 21: Geotechnical zones for Zandspruit X93-96

Construction considerations:

Use of surface material for pipe bedding

Select granular bedding – not available on site and will need to be imported

Select fill – natural soils are available on site with careful selection
General fill – can be considered after removal of large cobbles and boulder size fractions

Earthworks for services trenches

Earthworks requirements for service trenches found intermediate hard rock and medium hard rock on site which can be removed by a stronger excavator and explosives in some sections of the site.

Other considerations

Dumped refuse has been found in the trial holes and must be expected as a general hazard potentially influencing development.

Foundations recommendations

Large parts of the site have potentially problematic soils over the bedrock. Site specific investigations will be required during the construction phase of the project.

Some parts of the site contain various thickness of open textured collapsible colluvial soils. Careful stormwater management and surface drainage design and measures are mandatory for the safe development of the site. Accumulation of surface water must be avoided throughout the site, specifically around buildings.

Conclusions and recommendations:

- Geological maps and trial holes indicate the presence of Halfway House Granite bedrock across the site.
- The soil profile for the installation of underground services and roads is considered as consisting of generally good, natural subgrade materials.
- SABS 1200D intermediate and hard rock should be anticipated in the upper soil profile of some sections of the site.
- Selected granular pipe bedding will need to be imported.
- Zandspruit lies within areas that could be impacted by ex-mining induced earth tremors.
- All layout plans should be revised on an ongoing basis and finally certified by the geotechnical engineer.
- It is recommended that a specialist inspects open works during the construction phase of the site to confirm the findings.

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

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

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):
<input type="text"/>	<input type="text"/>

c) are any caves located within a 300m radius of the site(s)

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

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):
<input type="text"/>	<input type="text"/>

d) are any sinkholes located within a 300m radius of the site(s)

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

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

Latitude (S):	Longitude (E):
°	°

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

6. AGRICULTURE

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

YES Only on a very small section of the site – the eastern sections of X95 & south-eastern section of X96	NO
---------------------------------------------------------------------------------------------------------------------	----

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 % =	Natural veld with heavy alien infestation % = 29	Veld dominated by alien species % =	Landscaped (vegetation) % = 28
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % = 33	Bare soil % = 10

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 X Orange Listed Species	No
--------------------------------------------------------	----

If YES, specify and explain:

The Orange Listed species, *Hypoxis hemerocallidea*, is present on the site and must be relocated and removed prior to construction.

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 X	No
------------------------	----

If YES, specify and explain:

The Orange Listed species, *Hypoxis hemerocallidea*, is present on the site and must be relocated and removed prior to construction.

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

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

If YES, specify and explain:

The fauna and flora assessment of the study area was conducted in November 2019, during the summer season and is attached to this BA Report as **Appendix G1**.

The study area falls within the following vegetation type: Egoli Granite Grassland of the Mesic Highveld Grassland Bioregion within the Grassland Biome. **Refer to Figures 22-24 for the vegetation and bioregion maps.**

The study site is situated within the quarter degree square (QDS) 2627BB of the Egoli Granite Grassland vegetation unit. The unit features undulating plains and low hills (Mucina and Rutherford, 2010) dominated by *Hyparrhenia hirta* grassland. The vegetation unit is listed as Endangered as only 3% is conserved out of a total conservation target of 24%.

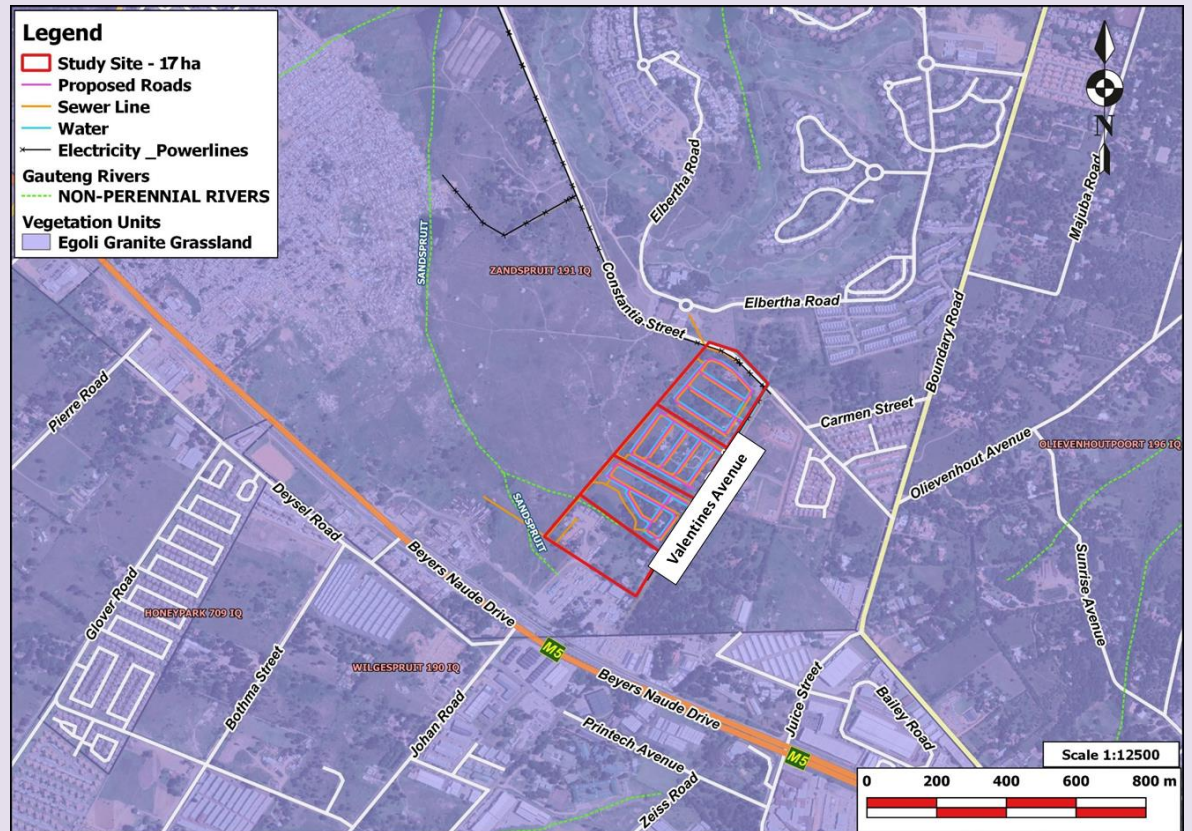


Figure 22: Vegetation Map

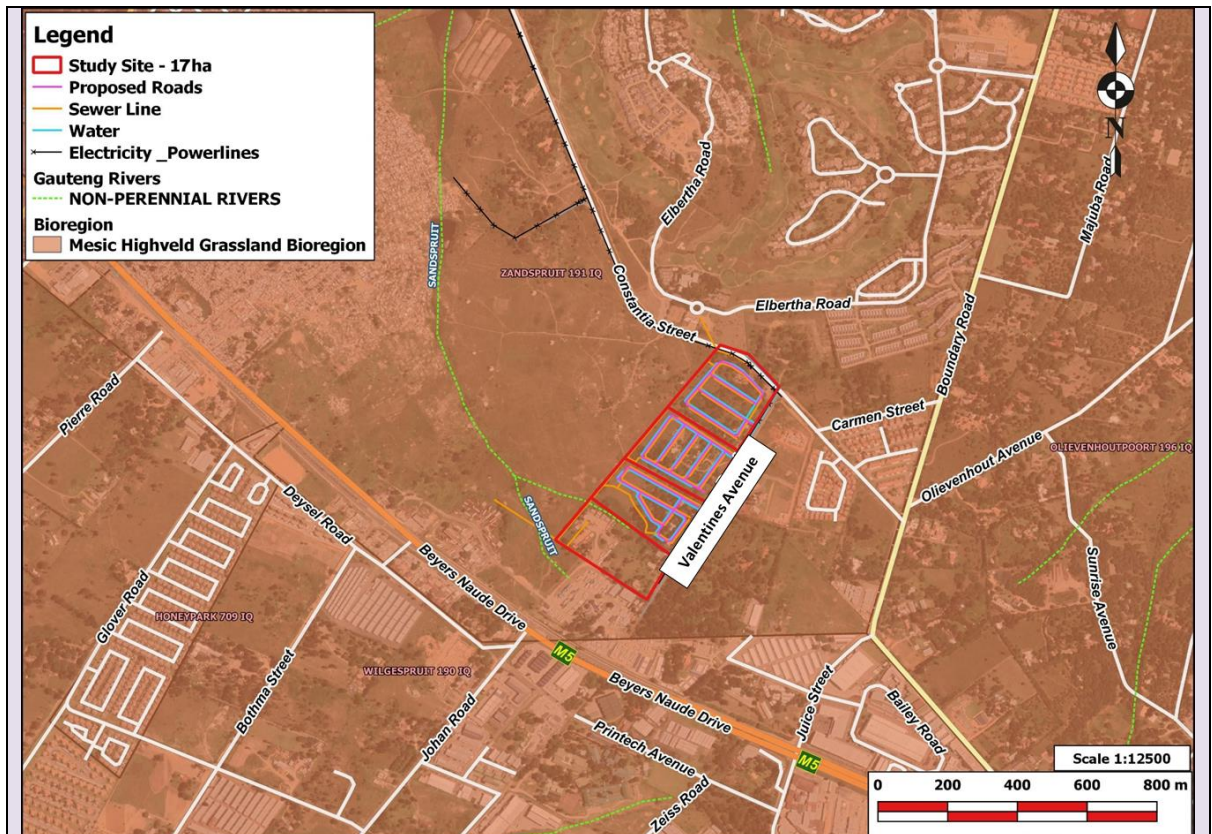


Figure 23: Bioregion Map

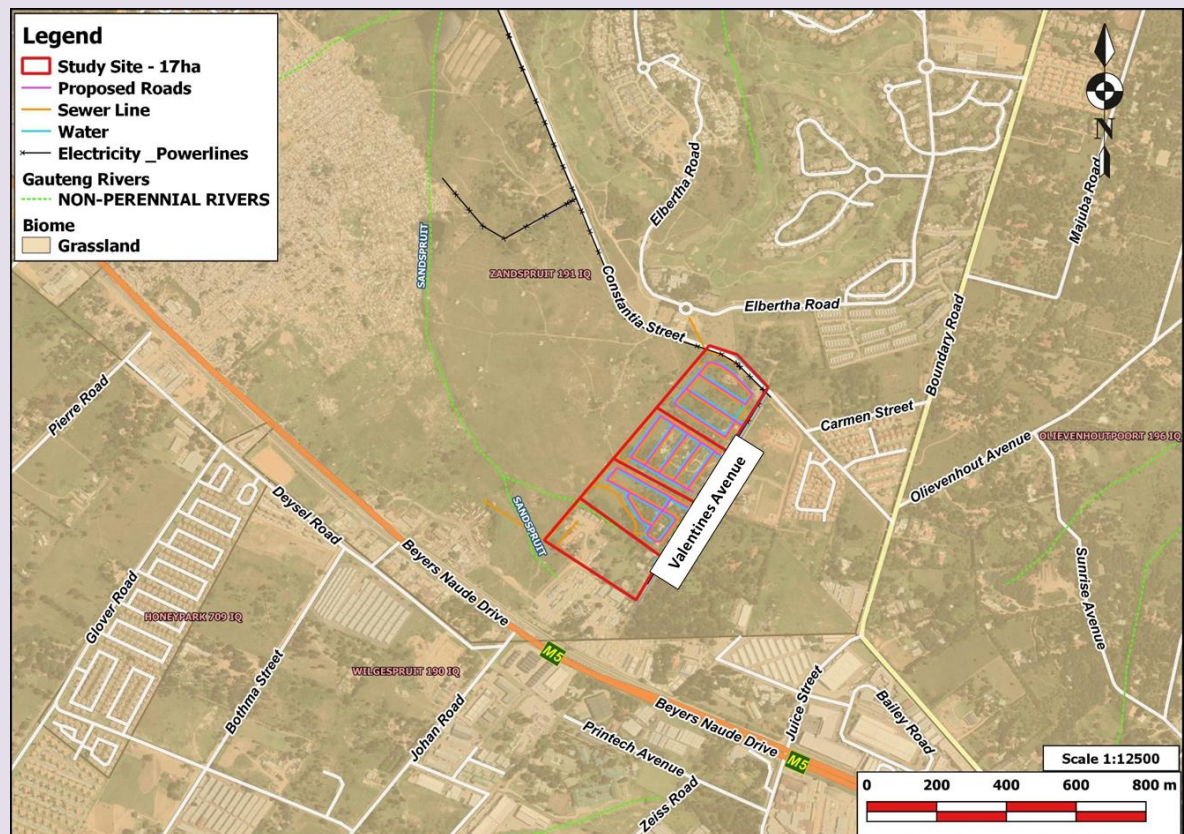


Figure 24: Biome Map

One study unit was identified on the site, namely Transformed Vegetation. A total of 48 plant species (including four medicinal species) were identified and 25 alien invasive species. The study unit comprises of mostly alien invasive trees and

graminoids, with a prevalence of ornamental species due to residential development. The dominant plant species include *Hyparrhenia hirta* and *Helichrysum rugulosum*. Dominant exotic tree species include *Acacia mearnsii*, *Melia azedarach* and *Robinia pseudoacacia*.

No Red List plant species was found but the Orange List plant species *Hypoxis hemerocallidea*, was found during this survey.

No mammals, reptiles or amphibians were observed on site during the survey. Out of the bird species recorded on site during the survey, none are Red Listed or of conservation concern.

The study unit provides suitable habitat for bird species and there were a number of Southern Masked Weaver (*Ploceus velatus*) nests found on the study unit. Bird species that were observed included the House Sparrow (*Passer domesticus*), Laughing Dove (*Streptopelia senegalensis*), Pied Crow (*Corvus albus*), Red Bishop (*Euplectes orix*), Rufous Naped-lark (*Mirafra africana*), Willow Warbler (*Phylloscopus trochilus*), Southern Masked Weaver (*Ploceus velatus*), Dark-capped Bulbul (*Pycnonotus tricolor*).



Figure 25: Ecological Sensitivity Map

The vegetation in this unit has low-medium sensitivity (**Refer to Figure 25**) due to the presence of Orange List species. Connectivity is limited in all directions as the study site is surrounded by urban development and farms. The study unit is highly transformed due to anthropogenic impacts from surrounding areas.

The following mitigation measures need to be applied if the development commences:

- An Environmental Management Programme (EMPr) must be developed for the construction and operational phase of the proposed development. It should include a comprehensive surface runoff and storm water management plan, indicating how all surface runoff generated as a result of the proposed activities (during both the construction and operational phases) will be managed.
- GDARD should be contacted to make an arrangement for the relocation of the Orange List plant species *Hypoxis hemerocallidea*.
- As far as possible, plants naturally growing on and in close vicinity to the study site should be incorporated into landscaped areas.

From an ecological perspective, the specialist does not have an objection to the development commencing.

Was a specialist consulted to assist with completing this section	YES X	NO
If yes complete specialist details		
Name of the specialist:	Nkoliso Magona	
Qualification(s) of the specialist:	MSc (Botany)	
Postal address:	P.O Box 11375 Maroelana	
Postal code:	0161	
Telephone:	012 346 3810	Cell: -
E-mail:	reception@bokamoso.net	Fax: 086 570 5659
Are any further specialist studies recommended by the specialist?	YES	NO X
If YES, specify:		
If YES, is such a report(s) attached?	YES	NO
If YES list the specialist reports attached below		

The Fauna and Flora Report is attached as **Appendix G1**

Signature of specialist: Refer to specialist report Date: **November 2019**

Take note: The specialist report was reviewed and certified by a suitably qualified external specialist in order to ensure the independence of the report.

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 ^	27. Landfill or waste treatment site ^	28. Historical building	29. Graveyard	30. Archaeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam ^	34. Small Holdings	35. Gravel Road
Other land uses (describe):	36.			

NOTE: Each block represents an area of 250m X250m

NORTH

	NORTH								
	1	1	1	1	9	9	EAST		
	2	1	1	SITE	1	1	34		
WEST	1	2	1	SITE	SITE	34	9	9	34
	14/15	SITE	2	SITE	SITE	34	9	9	34
	1	14/15	SITE	1	1	14/15	34		
	14/15	14/15	14/15	14/15	14/15	17			
	SOUTH								

Please note:

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

Have specialist reports been attached

YES	NO
X	

If yes indicate the type of reports below

--

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 Zandspruit X93, X94, X95 and X96 development falls within Region C of the City of Johannesburg, Ward 114 (**Refer to Figure 26 below**). Data was gained from StatsSA Census 2011.

The total area of Ward 114 is 9.2 km² with a population of 35 000 (3 800 per km²).

Population demographics:

- 95% are black African, 3% are white
- 57% male
- Majority of working age 20-39 years
- Main languages Sepedi (17%), Zulu (14%), Tshivenda (13%), Setswana (11%)
- 78% South African nationals

Housing and services:

- 43.8% informal shacks
- Majority homes rent free or not owned/paid for (only 7% owned)
- Water provided to 78% of homes
- 46.9% flushed or chemical toilets, then pit latrines. 3.9% no toilets
- 71.1% refuse disposal services

Education and employment:

- 74.1% have Grade 9 or higher education
- 35.8% have matric or higher education
- 59.2% of population is employed
- 21% of population has no income
- 27% of population earns R20-40 000/annum (R1 667 – R3 333/month)

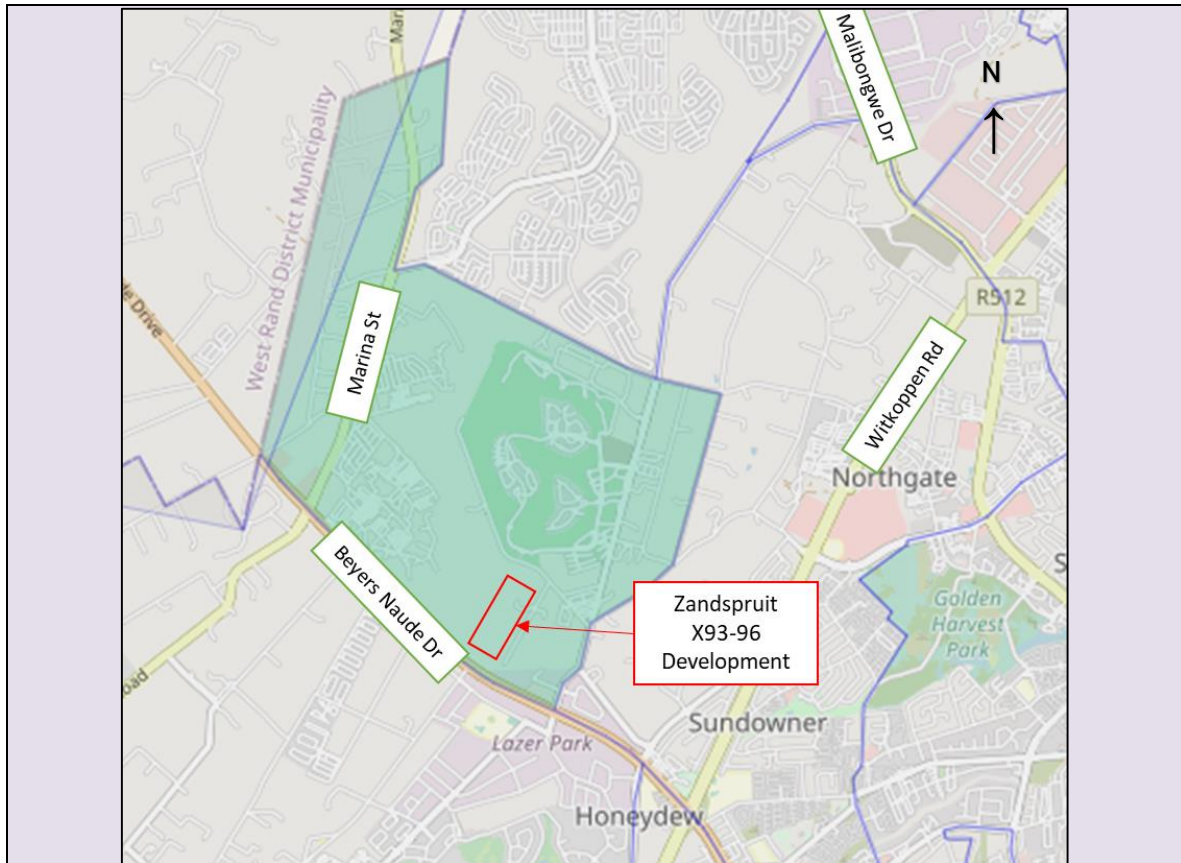


Figure 26: Ward 114 Map Indicating the Proposed Development Site Location

Ward 114 contains both Zandspruit informal settlement and the Jackal Creek Golf Estate creating a high income diversity, as both poor and rich people live within the same ward.

The ward, however, does not demonstrate class integration as the residents of Zandspruit cannot walk freely into the gated communities within their ward and have a vastly different living experience when compared to residents in the golf estate.

Zandspruit is considered as one of the marginalised areas prioritised in the City of Johannesburg's Growth Management Strategy, due to the low income, service delivery and housing quality of the residents, specifically those of the informal townships.

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 paleontological sites, on or close (within 20m) to the site?

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

If YES, explain:

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

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

A Heritage Impact Assessment was conducted for the study site. **Refer to Appendix G2 for the Heritage Impact Assessment.**

The specialist confirmed that there are no cultural heritage (archaeological & historical) sites in the specific study area. The physical site visit and research of historical data did not identify any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance.

The area was previously farmed and owned by the Van Zyl Family and the family members confirmed that they are not aware of any sites or structures older than 60 years on the property.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (such as unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during construction then an expert should be contacted to investigate and provide recommendations on the way forward.

The heritage specialist concluded that from a Cultural and Heritage point of view, the proposed Zandspruit X93-96 development should be allowed to continue.

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

YES	NO X
YES	NO X

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

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

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

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

In terms of the Guideline Document for Environmental Impact Assessment (EIA) Regulations promulgated in terms of NEMA, as amended, stakeholders (I&APs) were notified of the Environmental Evaluation Process as follows:

- Site notices were erected (at prominent points on and around the study area);
- Land owners and occupiers were notified via hand delivered notices as well as email communication;
- Notices regarding the project were further e-mailed, faxed and sent via registered mail to a list of interested and affected parties that registered for the project;
- A list of all persons, organizations and organs of state that were registered as interested and affected parties in relation to the application is attached as Proof of Advertisement;
- An advertisement was placed in the Beeld Newspaper;
- SAHRA was informed of the proposed development in writing;
- The following institutions and organs of state were also identified as I & AP's and added to the register of the I & AP's:
 - City of Johannesburg Metropolitan Municipality;
 - Department of Agriculture, Forestry and Fisheries (DAFF);
 - City Power;
 - Department of Land Claims;
 - Department of Human Settlement, Water & Sanitation (DHSWS);
 - Rand Water;
 - Council of Geoscience;
 - Department of Mineral Resources (DMR);
 - South African Heritage Resources Agency (SAHRA);
 - Provincial Heritage Resources Agency - Gauteng (PHRAG);
 - Telkom;
 - Eskom;
 - SANRAL;
 - Gauteng Department of Roads and Transport (GDRT); and
 - Ward Councillor – Ward 114

The Basic Assessment Report will be made available for 30-day review period to the Stakeholders and the I&AP's.

It is requested that all I&Ap's and organs of state review the report and supply their valuable inputs within the 30 day period afforded for comments. I&APs and organs of state are welcome to contact Lizelle Gregory at Bokamoso if there are any questions of clarity regarding the application.

1. 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 X This is the 1 st version of the BAR document compiled for comment purposes
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If yes, has any comments been received from the local authority?

YES	NO X It is requested that the local authority supply comment regarding this BAR for purpose of addressing it before submitting the BAR to GDARD. A 30-day period is allowed for comment.
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If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

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

The preliminary stakeholder and I&AP Registration process has been completed. All comments received from stakeholders during the review phase of this BAR will be included in the report to be submitted to the competent authority.

2. 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 X Not yet
-----	-----------------------------------------

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

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

This report represents the BAR for comment. Comments regarding the proposed development can be forwarded to Bokamoso during the 30day review and such comments will be addressed in a final Comments and Response Report. If the comments that were raised require significant changes to the BAR that was made available, the BAR will be amended and the amended report will again be made available for comment, prior to submitting it to the competent authority for a decision.

It is therefore requested that all I&APs, stakeholders and organs of state peruse this BAR and supply comments, in writing, within the 30 day timeframe as determined by the applicable legislation.

3. 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.

4. 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

Appendix 10 – Comments from I&APs on the application

Appendix 11 - Other

Refer to **Appendix E**

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
X	

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

$\pm 200\text{m}^3$

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

During construction the disposal of solid waste will be the responsibility of the main contractor appointed by the developer.

An area on the application site will be earmarked for temporary dumping of solid waste to be disposed of during the construction phase. The demarcated area must be easily accessible for waste trucks to collect waste. The waste, including builder's rubble, must be disposed of at the nearest registered landfill site. The waste contractor must supply the main contractor with the waste manifests for the waste collected and disposed of on a weekly basis.

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

All solid waste resulting from construction activities will be disposed of at the nearest registered landfill site. No solid waste will be dumped on open or adjacent properties.

If the contractor/ waste contractor wishes to re-use some of the waste (i.e. rocks) for construction purposes on the site or elsewhere, the matter must be discussed with the Environmental Control Officer (ECO) and the ECO must confirm whether it will be possible to re-use the waste elsewhere.

Will the activity produce solid waste during its operational phase?

YES	NO
X	

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

$\pm 150\text{m}^3$

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

During the operational phase, all disposal of solid waste will be the responsibility of the City of Johannesburg Metropolitan Municipality and Pikitup.

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 X	NO
----------	----

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

All solid waste resulting from construction activities will be disposed at the nearest registered landfill site. No solid waste will be dumped on open or adjacent properties. Solid waste will be removed by Pickup and the developer is in the process of procuring confirmation letters.

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

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

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

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

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

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

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

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

It is proposed that all waste construction materials be sorted into recyclable and non-recyclable materials. The recyclable materials should be re-used wherever possible or collected and recycled by a reputable recycling company.

Liquid effluent (other than domestic sewage)

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

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

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

m ³	
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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 onsite?

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

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

m ³	
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If yes describe the nature of the effluent and how it will be disposed.

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

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

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

If yes, provide the particulars of the facility:

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

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

--

Liquid effluent (domestic sewage)

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

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

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

12.365 Kl/m	
-------------	--

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

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

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

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

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

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

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

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

YES	NO
-----	----

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

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

The proposed development will not generate any significant emissions.

2. WATER USE

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

Municipal X	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:

litres

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 X	YES
------------------------	-----

If yes, list the permits required

A Section 21 Water Use Licence Application (WULA) will be submitted to the Department of Human Settlements, Water and Sanitation (DHSWS) for the construction of storm water infrastructure, sewer lines and water pipelines. A Section 21 (c) and (i) water-use license is triggered.

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 e.g. Municipality / Eskom / Renewable energy source

The Zandspruit Extension 93 – 96 Development will be supplied with electricity by the proposed 88/11kV Zandspruit substation. The supply authority for the area is Eskom.

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

4. ENERGY EFFICIENCY

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

The applicant should consider the following measures in terms of energy efficiency:

- Buildings can be orientated in a northerly direction for maximum sunlight;
- Where possible, energy saving light bulbs must be used;
- Time switches for outdoor lighting;
- Geysers must be fitted with insulation blankets; and
- Solar panels can possibly be used for geysers and for outdoor lighting.

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

Solar power generation will be encouraged for the development, however this cannot be used as the sole energy source since constant lighting will be required. A municipal electrical source is therefore crucial, and back-up generators are recommended for power cuts.

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)).

• ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

This is the first version of the BAR and is now made available for review purposes.

All comments received on the application to date have been incorporated into the Comments and Response Report forming part of the attached Public Participation report. **(Refer to Appendix E)**

All the comments received by the I&APs after the 30-day comment period will be captured and addressed in an updated Comments and Reponse Report. If required, the BAR will be updated to incorporate/ address the comments as recived by the I&APs and organs of state.

If the changes to the BAR are significant such changes will be made available to the relevant I&APs prior to the submission of the finalised BAR to GDARD.

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):

All comments received on the application have been incorporated into the Comments and Response Report forming part of the attached Public Participation Report **(Refer to Appendix E)**.

The more detailed comments received regarding this Basic Assessment Report will be listed and addressed in an updated comments and response report.

If the comments as raised by I&APs, stakeholders and organs of state require significant amendments to the layout of the proposed retail park, such amendments will be incorporated as part of an amended BA Report to be made available for a 2nd round (also for a 30 day period) before submitting the BAR to the competent authority.

If only minor amendment are required (amendments that are not regarded as substantial) the amendments will be addressed in the BAR to be submitted to the competent authority for consideration. If regarded as necessary, the EAP will supply the I&APs with an updated comments and response report, which lists the amendments before submitting the BAR to GDARD.

- **IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASES**

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

Significance Description Methodology

The significance of Environmental Impacts was assessed in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

Likelihood	Description	Rating
Improbable	Low possibility of impact to occur either because of design or historic experience	2
Probable	Distinct possibility that impact will occur	3
Highly probable	Most likely that impact will occur	4
Definite	Impact will occur, in the case of adverse impacts regardless of any prevention measures	5

The severity factor is calculated from the factors given to “intensity” and “duration”. Intensity and duration factors are awarded to each impact, as described below.

The Intensity factor is awarded to each impact according to the following method:

Intensity	Description	Rating
Low intensity	Natural and man-made functions not affected.	1
Medium intensity	Environment affected but natural and man-made functions and processes continue.	2
High intensity	Environment affected to the extent that natural or man-made functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional.	4

Duration is assessed and a factor awarded in accordance with the following:

Duration	Description	Rating
Short term	<1 to 5 years - Factor 2	2
Medium term	5 to 15 years - Factor 3	3
Long term	Impact will only cease after the operational life of the activity, either because of natural process or by human intervention.	4
Permanent	Mitigation, either by natural process or by human intervention, will not way or in such a time span that the impact can be considered transient.	4

The severity rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

$$\begin{aligned}
 \text{The Severity factor} &= \text{Intensity factor X Duration factor} \\
 &= 2 \times 3 \\
 &= 6
 \end{aligned}$$

A Severity factor of six (6) equals a Severity Rating of Medium severity (Rating 3) as per table below:

Severity Factor	Severity	Rating
Calculated values 2 to 4	Low Severity	2
Calculated values 5 to 8	Medium Severity	3
Calculated values 9 to 12	High Severity	4
Calculated values 13 to 16	Very High severity	5

A Significance Rating is calculated by multiplying the Severity Rating with the Probability Rating.

Significance	Rating	Influence
Low significance	Rating 4 to 6	Positive impact and negative impacts of low significance should have no influence on the proposed development project.
Medium significance	Rating >6 to 15	Positive impact: Should weigh towards a decision to continue Negative impact: Should be mitigated to a level where the impact would be of medium significance before project can be approved.
High significance	Rating 16 and more	Positive impact: Should weigh towards a decision to continue, should be enhanced in final design. Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least medium significance rating.

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.

Proposal

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development									
POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
PLANNING AND DESIGN PHASE									
Bio-Physical									
Geotechnical and Soils	Direct and indirect	Collapse potential of soils	Yes	Negative	High	High	<ul style="list-style-type: none"> • Geotechnical engineer to inspect all excavation works throughout the construction phase and provide the appropriate mitigation measures to be applied for each area. Some measures that can be applied for the site include: <ul style="list-style-type: none"> - Over excavation for foundations is needed to prevent collapse of soils and foundation settling. - The use of raft foundations and damp proofing for perched water conditions. - Paved areas to be permeable and landscaping to include bio-swales and other vegetated areas to limit erosion of soils and scoring of buildings from stormwater. - Order extra fill material for foundations. - Erosion control measures to be applied (sand bags, silt fencing, hay bales). - It is recommended that light single-story structures be constructed on rationally designed foundations. - Fill materials to be imported for select granular pipe bedding. - Select and granular fill materials to be carefully selected on site. 	High for all anticipated impacts	Low
		Corrosive soils	Yes	Negative	Moderate	Low			
		Perched water conditions	Yes	Negative	High	High			
		Expansive (swell / shrink) soils	Yes	Negative	Low	Low			
		Erodible soils	Yes	Negative	High	High			

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
		Compressible soils	Yes	Positive	High	High	<ul style="list-style-type: none"> Soils have good to excellent compressibility for foundations. 	N/A	N/A
		Unstable foundation material	Yes	Negative	Medium	Medium	<ul style="list-style-type: none"> Areas to be investigated during excavation for refuse content which can affect stability of the soils. 	High	Low
		Blasting and major cut and fill requirements	No	Positive	Medium	Medium	<ul style="list-style-type: none"> No major cut and fill is required for the development. Blasting may be required in areas with hard bedrock if strong excavators not sufficient. 	N/A	N/A
Topography	Direct	Sloped nature of the site can cause stability problems during deep excavations	No	Negative	Low	Low	<ul style="list-style-type: none"> Geotechnical engineer to inspect all excavation works throughout the construction phase. 	High	Low
Hydrology	Direct and Indirect	Stormwater can cause erosion of soils .	Yes	Negative	Medium	Medium	<ul style="list-style-type: none"> Plan for the implementation of temporary storm water management measures during the construction phase to prevent erosion. Where possible, construction to commence during the dry season. 	High for all the anticipated impacts	Low
	Direct and indirect	Activities within the buffer areas	Yes	Negative	Low	Low	<ul style="list-style-type: none"> Measure out the buffer area. Cordon off the buffer and non-perennial watercourse areas with visible signage and tape. 	High	Low
<u>Socio-Economic</u>									
Financial	Direct and indirect	No financial provision for rehabilitation.	Yes	Negative	High	Low	<ul style="list-style-type: none"> Make provision for rehabilitation and emergency incidents prior to construction. Peruse all the mitigation measures as supplied by all the specialists and ensure that there is sufficient funds available to apply the required mitigation measures. Must be included as part of the EMPr conditions. 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
	Direct	Job creation	No	Positive	High	Medium	<ul style="list-style-type: none"> Where possible, nearby residents should be employed for construction. Skilled and semi-skilled job creation to be provided as far as possible. 	High	High
Cultural/historical	Direct	Heritage discovery potential	No	Negative	Low	Low	<ul style="list-style-type: none"> In terms of heritage associated with the project, no sites of heritage or cultural significance were found on site. Should the workers discover any subsurface archaeological/historical material as well as graves, work should cease and the contractor to report to the Environmental Compliance Officer (ECO). 	Low	Low
Road upgrades	Direct	Upgrades of the surrounding road infrastructure	Yes	Positive	High	High	<ul style="list-style-type: none"> Road upgrades for the development to be planned according to the TIA. 	N/A	N/A
	Direct and Indirect	Impacts on provincial and local roads and on adjacent properties	Yes	Negative	Medium	Medium	<ul style="list-style-type: none"> Arrange in advance for the necessary approvals from the various authorities to work within servitudes, road reserves, to disrupt traffic, to disrupt services such as water provisions, electricity supply, sewer reticulation etc. Identify surrounding properties that could potentially be affected by the upgrades and prepare notices to distribute to such affected parties before the disruption occurs. Plan appropriate signage and diversion to minimise traffic congestion that could occur due to the upgrades (along Beyers Naude Drive, Juice Street and Boundary Road). 	High	Medium
Services upgrades	Direct and Indirect	Impacts on provincial and local roads and on adjacent properties	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Construction phase planning should consider the potential impacts of the upgrading of services and roads on the surrounding properties. Identify surrounding properties that could potentially be affected by the upgrades and prepare notices to 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
						distribute to such affected parties before the disruption occurs.			
	Direct	Increased provision of services	Yes	Positive	High	Medium	<ul style="list-style-type: none"> Due to the requirements for development in the Zandspruit area, road upgrades are required (tarring of gravel roads). Connections of new infrastructure to be planned to cause minimal disruption / disturbance to surrounding residents. 	High	Low
Qualitative Environment	Direct and indirect	Dust pollution	Yes	Negative	High	High	<ul style="list-style-type: none"> Plan water supply for the regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding residents.. Ensure covers are available for stockpiles containing loose materials that can blow away. 	High	Low
	Direct	Noise pollution	Yes	Negative	High	Medium	<ul style="list-style-type: none"> Require that construction equipment be furnished with noise muffing devices. Supply working hours and rules regarding persons allowed to stay on site and noise during the construction phase. Design road upgrade surfaces to reduce tyre noise from traffic. 	Medium	Low
	Direct	Visual Pollution	No	Negative	High	Medium	<ul style="list-style-type: none"> Plan building styles to compliment the surrounding developments and sense of place. Prior to construction commencing on the site, an area on site must be demarcated for a site camp. A specific location for building rubble must be allocated on site in order to concentrate and collect the building rubble and cart it to a registered landfill site. The allocated area must be out of 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)
TYPE	DESCRIPTION	CUMULATIVE	NATURE					
						sight of neighbouring properties but easily accessible for waste removal vehicles. <ul style="list-style-type: none"> All contractors and sub-contractors must comply with Part F: Site Operations of the National Building Regulations- attached hereto to the EMP in Appendix H). Plan signage to be visible during the day and night in such a way that it complies with the standards of the local authority, the relevant roads authorities, the SAMOAC standards and the requirements of the relevant petroleum company. Signage must be designed to cause minimum distraction of vehicles passing by and should not reflect into the windows of residential buildings. Confirm signage application requirements with the relevant local authority, district municipality and provincial road authority. 		
Direct and Indirect	Soil pollution	Yes	Negative	Medium	Medium	<ul style="list-style-type: none"> Make provision for drip trays under all vehicles and mixing trays for cement. Plan emergency measures for spillages. 	High	Low
Indirect	Construction after hours and during weekends and public holidays	No	Negative	Medium	Low	<ul style="list-style-type: none"> All construction activities must be restricted to normal working hours according to building regulations, health and safety laws. No construction may take place on Sundays and public holidays. 	High	Low
Direct and indirect	Waste management	Yes	Negative	High	Low	<ul style="list-style-type: none"> Confirm with the local authority that builder's waste can be dumped at the local landfill and that operational waste can be removed by the local authority. 	High	Low
Health and Safety	Impacts on the health and safety of the surrounding environment during	Possible	Negative	High	High	<ul style="list-style-type: none"> Make provision for the appointment of a suitably qualified health and safety officer to assist with compliance with the relevant health and safety 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
		the construction and operational phase, as well as for construction workers				legislation during all the development phases. <ul style="list-style-type: none"> The COVID-19 special health and safety precautionary measures for development must be taken into consideration and the consultants, specialists, project managers, developer and the involved contractors must allow for the implementation of precautionary measures during all the planning and construction phases in their project tenders and budgeting processes. 			
<u>Institutional</u>									
Compliance with the relevant local authority by-laws and policies	Direct	Compliance with the relevant local authority by-laws and policies	Yes	Negative	High	Medium	<ul style="list-style-type: none"> Local authorities have specific requirements for storm water management, emergency procedures, construction works that affect roads and access, road safety conditions, temporary disruption of services, air emissions, waste management, outdoor advertising, water services, health and safety, etc. Confirm that the proposed development will comply with the relevant local authority and district municipality by-laws and policies. 	High	Low
Urban development	Direct and indirect	Prevention of urban sprawl	Yes	Positive	High	Medium	<ul style="list-style-type: none"> The development is considered as infill development as it is surrounded by urban areas. 	N/A	N/A
Rates and taxes	Direct	Increased income for the district municipality	Yes	Positive	High	High	<ul style="list-style-type: none"> Increased payment of rates and taxes for the district municipality. 	N/A	N/A
CONSTRUCTION PHASE									
<u>Bio-Physical</u>									

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
Geology and Soils	Direct	Loss of topsoil	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Topsoil removed from the site should be stored separately from all other stockpiled materials and subsoil, and no higher than 1.5m to avoid loss by wind. The stockpiled topsoil should be used for rehabilitation and landscaping purposes after construction has been completed. 	Medium	Low
	Direct	Soil collapse	Yes	Negative	Medium - High	High	<ul style="list-style-type: none"> The collapse potential of soils could pose dangerous conditions on the site, especially when deep excavations are made. Mark all excavations clearly and make workers aware of possible soil collapse in and around excavations. Trucks and equipment should be kept away from the unstable areas. Geotechnical engineer to inspect all excavation works throughout the construction phase and provide the appropriate mitigation measures to be applied for each area. Over excavation for foundations is needed to prevent collapse of soils and foundation settling. Select and granular fill materials to be carefully selected on site. 	Medium	Low
	Direct	Soil pollution	Yes	Negative	Low	Moderate	<ul style="list-style-type: none"> Temporary measures (i.e. drip trays/ temporary bunded areas) to be implemented to ensure that no pollutants (hydrocarbons/paints etc) are spilt, and if so, that they are contained and a clean-up protocol followed. 	High	Low
	Direct	Perched water conditions (mainly during the rainy periods) could make excavations	Yes	Negative	High	Medium	<ul style="list-style-type: none"> Though the ground water level of the study area is expected to be deeper than 2m, it is important to take note of possible perched water conditions during the construction phase. 	High	Medium to low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
		difficult and damage buildings				<ul style="list-style-type: none"> The use of raft foundations and damp proofing for perched water conditions is recommended. 			
	Direct	Soil erosion	Yes	Negative	High	High	<ul style="list-style-type: none"> Erosion control measures to be applied (sand bags, silt fencing, hay bales). Area of bare soil to be limited. 	High	Low
	Direct	Expansive soils (swell / shrink)	Yes	Negative	Low	Low	<ul style="list-style-type: none"> Geotechnical engineer to conduct more detailed geotechnical investigation of site in order to determine expansiveness of soils. Expansive soils were not found during initial geotechnical investigations. In case of expansiveness above 40%, raft foundations could be regarded as necessary. Engineers to confirm that excavated areas are well prepared to accommodate shrinkage and swelling conditions (if found to be present during construction) before constructing of buildings. 	High	Low
Topography	Indirect	Alteration of topography from cut and fill exercises. Soils are loose and erodible.	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Temporary construction phase storm water management measures to be implemented (i.e. sand bags and hay bales) in order to prevent erosion. 	High	Low
Hydrology	Direct and indirect	Perched water tables during the rainy season	No	Negative	Low	Medium	<ul style="list-style-type: none"> A non-perennial watercourse is situated to the south and south-west of the development and has buffers applicable. Some perched water conditions could arise on the study area and during wet conditions it could become necessary to de-water areas for construction purposes. Discuss the temporary and permanent dewatering alternatives with the architect, civil engineer, geotechnical engineer and ECO in order to 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
						determine the most suitable method that is also sustainable.			
Effects on biodiversity	Direct and indirect	Removal of indigenous vegetation	Yes	Negative	Low	Low	<ul style="list-style-type: none"> Where possible, natural vegetation to be retained for open spaces and as part of landscaping. If any species of conservation concern are discovered the area is to be cordoned off and an ecologist contacted to confirm and provide mitigation measures. Only remove vegetation in designated construction areas. No dumping of building rubble or refuse in the surrounding habitats. 	High	Low
	Direct	Protection of sensitive species	No	Positive	High	High	<ul style="list-style-type: none"> The Orange Listed <i>Hypoxis hemerocallidea</i> to be relocated / transplanted before construction occurs. Some plants can be incorporated into landscaping. 	High	N/A
Socio-Economic									
Cultural and historical	Direct	Heritage discovery potential	No	Negative	Low	Low	<ul style="list-style-type: none"> If any graves or archaeological sites are exposed during construction work it should immediately be reported to a museum or SAHRA. 	High	None
Installation of services and upgrading of roads	Direct and Indirect	Impacts on provincial and local roads and on adjacent properties	Yes	Negative	Medium	High	<ul style="list-style-type: none"> It is important that the construction phase consider the potential impacts of the upgrading of services and roads on the surrounding properties and roads. Identify surrounding properties that could potentially be affected by road upgrades (i.e. accesses temporarily affected) and services upgrades and prepare notices to distribute to such affected parties. Inform surrounding properties and authorities at least one week ahead of 	Medium - High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
						potential disruptions to services, accesses, normal vehicular movement. <ul style="list-style-type: none"> • Arrange for temporary traffic signage or traffic assistants (the people used and signage used must be approved by the traffic department of the local authority. • Provide sufficient alternative routes where roads are to be upgraded. 			
Air quality pollution	Direct	Dust emissions from construction activities	No	Negative	Medium	Medium	<ul style="list-style-type: none"> • Dust suppression measures must be implemented during the construction phase. • Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding residents. • When necessary, these working areas should be damped down at least twice a day. 	High	Low
Noise pollution	Direct	Noise pollution from construction activities	No	Negative	Medium	Medium	<ul style="list-style-type: none"> • Noise mufflers should be utilized by construction vehicles. • Keep record of any concerns raised by stakeholders i.e. Complaints Register to be kept on site. • Maintain construction vehicle speed limits. • Construct noise barriers around construction areas where reasonable to do so. • All construction activities must be restricted to normal working hours as depicted in the NBR document for site operations. • No construction may take place on Sundays and public holidays. • If any construction activities are required to take place on the aforementioned days, the surrounding 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
						neighbours must be informed at least 48 hours prior.			
Waste Generation	Direct	Domestic waste	No	Negative	Medium	Low	<ul style="list-style-type: none"> • A waste management system will be formulated and implemented on site. - All employees will be subjected to induction to understand the environmental management requirements on site. • The site camp and the rest of the study area should appear neat at all times. • A temporary waste storage point (including for building rubble) shall be determined and established on site by means of demarcation. This storage points shall be accessible by waste removal vehicles. • Waste materials should be removed from the site on a regular basis (at least weekly), to a registered landfill site. • Waste storage should occur in areas that have already been disturbed. • Small general waste containers should be provided throughout the site to prevent windblown waste. These waste receptacles must be emptied at the temporary waste storage area for removal. • The storage of solid waste on site, must be in the manner acceptable to the local authority. • Records of waste reused, recycled, and disposed of must be kept for future reference or inspection by authorities. 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
	Direct	Construction waste	No	Negative	Medium	Medium	<ul style="list-style-type: none"> All construction waste must be placed in a demarcated area and disposed of accordingly. This area will be bermed / covered so as to prevent the dispersal of said waste by wind and rain. Waste disposal certificates must be kept on record. 	High	Low
	Direct	Hazardous waste	No	Negative	Medium	Low	<ul style="list-style-type: none"> All hazardous waste will be stored in a bunded and lockable area. Hazardous waste will be removed from the site by a certified waste contractor. 	High	Low
Resource Consumption	Indirect	Electricity consumption	No	Negative	Medium	Low	<ul style="list-style-type: none"> Minimisation of over usage. A generator to be put in place during incidental power outages. Solar panels are also recommended for use as a backup source for power. 	High	Low
	Indirect	Water consumption	No	Negative	Medium	L	<ul style="list-style-type: none"> Fair usage and care not to over use the water resources. Promote the re-use and recycling of process water if possible. Waste water can be used for dust control. 	High	Low
	Indirect	Fuel consumption	No	Negative	Low	High	<ul style="list-style-type: none"> All construction vehicles will be maintained such as to operate efficiently. Idling times of machinery to be minimised. 	Medium	Low
	Indirect	Raw materials consumption	No	Negative	High	High	<ul style="list-style-type: none"> Raw materials will be used efficiently and the use of recycled materials to be encouraged. Recycling to be implemented wherever possible. Reconstituted building materials can be used to save costs and aid in recycling (crushed concrete, scrap metal, etc.) 	Medium	Medium

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
Incidents, Accidents and Emergency Situations	Direct	Health and safety	No	Negative	Low-Medium	Medium	<ul style="list-style-type: none"> Emergency response and preparedness plan to be kept on site at all times and all workers must be made aware of such plan. Emergency numbers to be placed on the wall at the site office. Health and safety standards will be implemented during construction. The Health and Safety officer to be appointed for the duration of the construction phase by the developer/applicant, will be responsible for the monitoring of compliance with the health and Safety measures as set out in the relevant Health and Safety Act. Mark all excavations clearly and warn workers working in and around excavations. 	High	Low
	Direct and indirect	Storage of hydrocarbons, paints and other hazardous materials	No	Negative	Medium	Medium	<ul style="list-style-type: none"> All hazardous materials will be stored in a bunded and lockable area. Material Safety Data Sheet (MSDS) sheets will be available for all hazardous products. 	High	Low
	Direct and indirect	Fire	No	Negative	Low	Low	<ul style="list-style-type: none"> Fire and emergency plans to be implemented during construction. Adequate firefighting equipment to be provided at regular, easily accessible points. 	High	Low
	Indirect	Safety and security	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Health and safety officer to be appointed prior to commencement with construction and the safety plan as well as the required safety gear for workers to be available on the study area. Allow for 24 hour security on the study area. Fence the construction site. This will keep children and other members of the public out of the potentially dangerous construction area. 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)
TYPE	DESCRIPTION	CUMULATIVE	NATURE					
						<ul style="list-style-type: none"> • Site security will ensure that the site is secured and only authorised access allowed. • If required for some of the workers to sleep on the site, such workers must be accommodated in an fenced off, allocated area on the construction site. • Plan for the implementation of a security system that will reflect a database of all workers and personnel on site during the construction phase. • Remove the names of workers no longer involved in construction works on the study area immediately after such workers stopped with their duties/ were removed from their duties. • The 24 hour security must be notified of new construction workers/ workers to be accommodated on the study area and must also be informed of workers no longer involved in construction activities on the study area. • Workers that sleep on the study area must sign out and back in when they leave the premises after hours. On site accommodation could prevent illegal occupation of open spaces in close proximity of the study area by workers that cannot afford daily travelling costs. • Where possible local laborers must be used in order to avoid an influx of people into the area. • Details of all persons to work on the site that must be supplied to the security and project manager must include the following: • Name and Surname, ID Number or Passport Number, Driver's License, Copy of relevant ID document/ passport/ driver's license/ service delivered by worker/ employee of the 		

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
						worker/Contact Details of the worker and contact details of a family member or employee.			
Qualitative Environment	Direct	Visual impact	No	Negative	Low	Low	<ul style="list-style-type: none"> Protective barriers as well as safety tape may be utilised around the site. A specific location for building rubble must be allocated on site in order to concentrate and collect the building rubble and cart it to a registered landfill site. The allocated area must be out of sight of neighbouring properties The selected site should not impair views (line of sight) of drivers utilising surrounding roads, nor should it be a distraction. Stockpiles may not be stockpiled higher than 1.5m in order to prevent impairing views (line of sight) of drivers utilising Valentines Avenue and Constantia Street. 	High	Low
	Indirect	Damage to roads	No	Negative	Medium	Low	<ul style="list-style-type: none"> Construction vehicles must avoid using sub-standard roads (i.e. roads in agricultural holdings/ rural areas that are not constructed to provincial/ local authority standards). Record the condition of the surrounding roads prior to construction and require that contractors repair all damages caused during the construction phase. Construction vehicles should only be permitted to use a designated construction entrance and avoid peak hour traffic 	High	Low
	Indirect	Traffic congestion and disruption	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Traffic warning and calming measures will be put in place when construction activities may impact on traffic flow. 	Medium	Low-Medium
OPERATIONAL PHASE									
Bio-Physical									

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development

POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
Geology and Soils	Direct and Indirect	Soil erosion from storm water	Yes	Negative	Medium	Low	<ul style="list-style-type: none"> Maintain permeable paved surfaces and repair areas where paving is damaged or erosion is present. Maintain landscaping to prevent erosion due to storm water. Ensure all cleared areas from construction are vegetated as soon as possible. 	High	Low-none
Hydrology	Direct and Indirect	Perched water conditions	Yes	Negative	Medium	Medium	<ul style="list-style-type: none"> If control of perched water conditions has been implemented during the construction phase, this impact will be low. Monitor buildings for damp rising or storm water damage and repair immediately. 	High	Low-none
<u>Socio-Economic</u>									
Waste Generation	Direct	Domestic waste	No	Negative	High	High	<ul style="list-style-type: none"> Waste to be collected on a weekly basis by a waste contractor. Dustbins to be secured in place with closable lids. Recycling to be encouraged and recycling bins provided. 	High	Low
	Indirect	Lighting	No	Negative	Medium	Medium	<ul style="list-style-type: none"> Security lighting must not spill into the eyes of oncoming traffic or shine into adjacent properties. Interior lighting must use energy-saving light bulbs. Exterior lighting must be designed to shine downwards and the bulbs to be used should be "dim", not bright. Prevent the implementation of exterior advertising signs and name boards that will flicker into the eyes of surrounding neighbours and oncoming traffic. Obtain the necessary approvals for the erection of advertising and other signs (also take the SAMOAC document into consideration) at the relevant authorities. 	High	Low

Proposed Zandspruit X93, X94, X95 and X96 – Residential Development									
POTENTIAL IMPACTS				SIGNIFICANCE (Prior to mitigation)	PROBABILITY	MANAGEMENT & MITIGATION MEASURES	MITIGATION EFFICIENCY	SIGNIFICANCE (with mitigation)	
TYPE	DESCRIPTION	CUMULATIVE	NATURE						
Job creation	Direct	Employment	No	Positive	High	High	<ul style="list-style-type: none"> Permanent employment opportunities will be created during the operational phase of the development for domestic workers, maintenance teams, security personnel, gardening services etc. 	N/A	N/A

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

Ecological Studies – Appendix G1
 Heritage Impacts Assessment – Appendix G2
 Geotechnical Study – Appendix G3
 Wetland Study – Appendix G4
 Town Planning Memorandum – Appendix G5
 Services Reports – Appendix G6-G8
 Traffic Impact Study – Appendix G9

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

IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

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

Proposal

This not a mining Application and therefore the decommissioning and closure phase is not applicable.

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

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

- **CUMULATIVE IMPACTS**

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

Should the proposed Zandspruit X93-96 residential development be approved, the cumulative impacts as referred to could be related to the construction as well as the operational phases of the development.

Cumulative impacts that could be associated with the construction phase include:

- Negative visual impact on surrounding views due to the campsite, movement of construction vehicles, building rubble storage, dust and construction works etc.

This impact may be minimized by locating the site camp and rubble storage area in an area with low visibility from surrounding residents. Watering of construction areas during dry and windy periods is required.

- During the construction phase, some safety and security problems (especially for the surrounding residents and road users) are likely to occur due to construction activities.

Any site workers that are allowed to sleep on the construction site must sign out and in again when leaving the site after hours. A register is to be kept of all construction workers working on the project with their personal and contact details. 24hour security must be provided.

Compliance with the OHS Act (Occupational Health and Safety Act) as well as the Road Traffic Act is required to ensure safety of road users and public during construction phase.

- Impacts on traffic along Beyers Nadue Drive, Juice Street, Boundary Road and Constantia Street during the construction phase. However, due to the upgrading of the gravel roads to asphalt, the impact will become positive during the operational phase as better access and road conditions are provided for the area.

Where possible, construction vehicles should limit movement into and out of the development to times outside of peak traffic hours. Alternative access arrangements (with visible signage) to be made for local residents using these roads during the construction phase.

- Clearing of vegetation can lead to increased dust pollution, erosion of soils, growth of invasive species and loss of habitat.

Dust control can be applied by means of water trucks, particularly in the dry and windy months. Clearing of vegetation to only be applied when and where necessary and rehabilitation measures following completion of construction to be implemented.

- Soil stability issues are expected according to the geotechnical studies, which can cause problems in buildings such as settling cracks and damp rising.

Geotechnical engineers to be involved in the construction phase in order to ensure that construction measures are implemented according to the site specific geotechnical conditions.

- Disruption of services and impacts on access roads can become a problem if not well planned with regards to timing, signage and sending notifications to affected stakeholders.

As existing services are present in the area, the connection points are the main concern where impacts on users is expected.

Cumulative impacts associated with the operational phase include:

- Increased ambient noise levels from the development (traffic into and out of the site, residents' noise);
- Visual impacts on surrounding residents views. This impact may be minimized by designing the buildings to blend in with the surrounding areas' sense of place.

The overall visual impact is positive as currently the site is mostly smallholdings with invasive species growth and informal settlements. The development will improve the condition and views of the area.

- Increased job creation and decreased travel expense for local employees.

The development will provide housing to people already working in the surrounding areas (Laser Park Industrial Node etc.). Furthermore, permanent employment opportunities will be available in terms of security, maintenance and gardening.

- Decrease in urban sprawl and increased taxes to the municipality.

The above-mentioned cumulative impacts can be mitigated if activities are correctly planned and measures (such as included in the EMPr) are implemented to manage activities which could cause any negative cumulative impacts.

- **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

This application for Environmental Authorisation is for the proposed residential development to be known as **Zandspruit X93-96**.

Most of the detrimental impacts associated with the development are short term in nature and can be mitigated to acceptable levels of significance. None of the construction phase impacts are regarded as “fatal flaws” that can prevent the development from happening.

Ecological

No species of conservation concern were found on the study site during all the ecological surveys. The removal and relocation of the Orange-Listed *Hypoxis hemerocallidea* is required.

Geotechnical

From a geotechnical point of view, the site is suitable for the proposed land uses, provided that the geotechnical engineer is involved throughout the construction phase to inspect the site specific conditions and provide appropriate mitigation. Site conditions that must be taken into consideration include unstable soil conditions (such as collapse, erosion and corrosiveness) and possible perched water conditions.

Socio-economic

The property is in close proximity to nodal areas with bus routes, high urbanisation and employment opportunities. Public transport is within walking distance for residents and surrounding areas will provide employment opportunities close to their place of residence.

The major long-term impacts associated with the operational phase of the development are positive and will contribute to the economy of the area.

It was furthermore established that the proposed development would be in line with the planning and development frameworks, policies, plans etc. for the area on a national, provincial and local level.

Based on the above, we are of the opinion that the proposed residential development will be sustainable and it is therefore recommended that the proposed Zandspruit X93-96 residential development application be approved and that the GDARD makes the authorisation valid for a period of at least **10 years**.

Alternative 1

No-go (compulsory)

The no-go alternative will result in no development and the area remaining in its current state.

No positive impacts are foreseen for the no-go alternative. Both the specialists and the EAP confirmed that the study area is not regarded as ecologically sensitive due to the site being heavily disturbed and high exotic / invasive vegetation growth being present.

The site does not possess high agricultural potential and other than the existing family homes on each portion, the open areas are not used for any agricultural purpose.

The site will be used to dump rubble, solid waste or refuse and may also permit the expansion of squatter camps already present in the area. Crime is already an issue in the area due to the vacant areas and easy access to the smallholdings properties.

Infill development will prevent the expansion of the squatter camps and improve security for the residents.

The development option is regarded as the preferred option from an economic, social and institutional point of view.

IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal and alternative 1:

The anticipated impacts were already discussed in detail in the impact statement above. To follow now is a short summary of the major impacts identified for the construction and operational phases of the development.

General:

The proposed Zandspruit X93-96 will contribute to the economy of the surrounding areas.

Most Significant Impacts During the Construction phase:

Positive Impacts:

- Job creation (temporary jobs);
- Eradication of weeds and alien vegetation; and
- Improvement of local gravel road conditions.

Negative Impacts:

- Soil erosion, collapse and degradation;

- Loss of vegetation;
- Dust pollution;
- Visual pollution;
- Safety and security issues for residents;
- Temporary disruption of services and accesses to properties; and
- Impact on traffic flow in the area, especially during peak hours.

Most Significant Impacts During the Operational Phase:

Positive Impacts:

- Provision of permanent jobs for housekeeping, maintenance etc.;
- Provision of housing for workers in the nearby industrial and commercial areas (within walking distance of main bus and taxis routes);
- Rates and taxes payable to the local authority;
- Infill development in line with the development frameworks for the area;
- Road upgrades of gravel roads to asphalt;
- Prevention of the expansion of existing informal settlements and illegal dumping; and
- Prevention of “green field” developments outside the urban development zone

Negative Impacts:

- No significant negative impacts that could not be eliminated or mitigated to acceptable levels were identified during the impact assessment exercise.
- The unstable geotechnical condition of the site can be regarded as a negative impact and can lead to major impacts during the operational phase if mitigation measures are not implemented during planning and construction.

As a result of the above-mentioned information, we are of the opinion that the proposed Zandspruit X93-96 residential development (only if planned, implemented, and managed correctly) will promote sustainable development and it will have a significant positive impact on the local area.

It is therefore requested that the development be allowed to proceed, and that the implementation of the Environmental Management Programme (EMPr) (**Appendix H**) be a condition of the approval.

For alternative:

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.

This application for Environmental Authorisation is for the proposed residential development to be known as **Zandspruit X93-96**.

No sensitivities in terms of fauna and flora were found on the study site based on all specialist studies performed as the site has been impacted by invasive and alien species.

Geotechnical studies of the site have also concluded that the area is suitable of the intended land use (provided that the mitigation measures as described in the geotechnical report are followed).

A non-perennial watercourse and small duck pond is situated between Portions 92/93 of the farm Zandspruit 191 IQ. This area and buffer will be retained for public open space.

The proposed Zandspruit X93-96 will provide much needed housing for workers / current residents in the surrounding areas.

Based on the above, we are of the opinion that the proposed development will be a sustainable development and it is therefore recommended that the proposed Zandspruit X93-96 application be approved and that the GDARD makes the authorisation valid for a period of at least **10 years**.

- **SPATIAL DEVELOPMENT TOOLS**

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

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- **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 X	NO
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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:

Bokamoso is of the opinion that both beneficial and adverse impacts were thoroughly assessed, and the needs and benefits for this project have been assessed so as to give the proposed Zandspruit X93-X96 residential development go-ahead.

Considering all the above-mentioned information, it is requested that this Basic Assessment Report (BAR) be approved subject to the implementation of the mitigation measures contained in the **Environmental Management Programme (Appendix H)**. Should all the recommendations be adhered to, it is foreseen that there would be no reason for this application not to be approved.

It is recommended that, based on the findings of the BAR and supplemental specialist information that the project be approved provided that the following are adhered to:

- A site specific Environmental Management Programme (EMPr) must be compiled for the proposed development and include all mitigation measures as described by the specialist studies conducted.
- All Orange listed *Hypoxis hemerocallidea* plants to be relocated before construction commences.
- Geotechnical conditions on the site are unstable in some areas and an engineer will need to inspect all the excavation works to provide recommendations before the building foundations are erected.
- A site specific Stormwater Management Plan must ensure that stormwater does not damage building foundations or the environment. Erosion potential of the soils must be considered in the design and planning phase.
- No construction activities other than the installation of essential infrastructure to occur within the buffer area or watercourse.

- **THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT** (as per notice 792 of 2012, or the updated version of this guideline)

The Johannesburg Spatial Development Framework (SDF), 2040 identifies the Zandspruit area as a Category 2 Deprivation Area, which offers opportunities for growth due to connectivity to local nodes. Significant job opportunities are in the Kya Sand and Laser Park industrial nodes and therefore these areas are the focus for economic development in terms of the Johannesburg economic strategy and provide the best opportunity for integrated and compact development around them.

The redevelopment of the Zandspruit informal settlement is proposed, as the site is near to central connection points for public transport to the greater urban areas. Zandspruit is situated within Region C of the SDF.

Regional SDF - Region C

The main vision of the RSDF for the region is to compact the urban development footprint. Spatial fragmentation is defined as the physical separation of urban land parcels from socio-economic opportunity areas by roads and open spaces.

According to the RSDF, the following are approaches to be applied for densification of the region and to integrate land uses:

- densification close to existing (rail) and future (BRT and rail) public transport routes (within walking distance of residences);
- relate densification to social facilities;
- relate densification to business and industrial nodes;
- minimum 60 u/ha within a 500m radius of the public transport facility that comprises the core of a transit oriented development and/or from nodes.

By decreasing fragmentation and planning urban development according to the above principles, the following benefits can be experienced:

- creating a local sense of place;
- creating areas that are active throughout the day;
- increasing housing options for diverse household types;
- reducing private vehicle dependence; and
- increasing travel options.

The proposed Zandspruit X93-X96 residential development site is situated close to the Laser Park, Kya Sands and Northgate nodes, as well as BRT stations and routes.

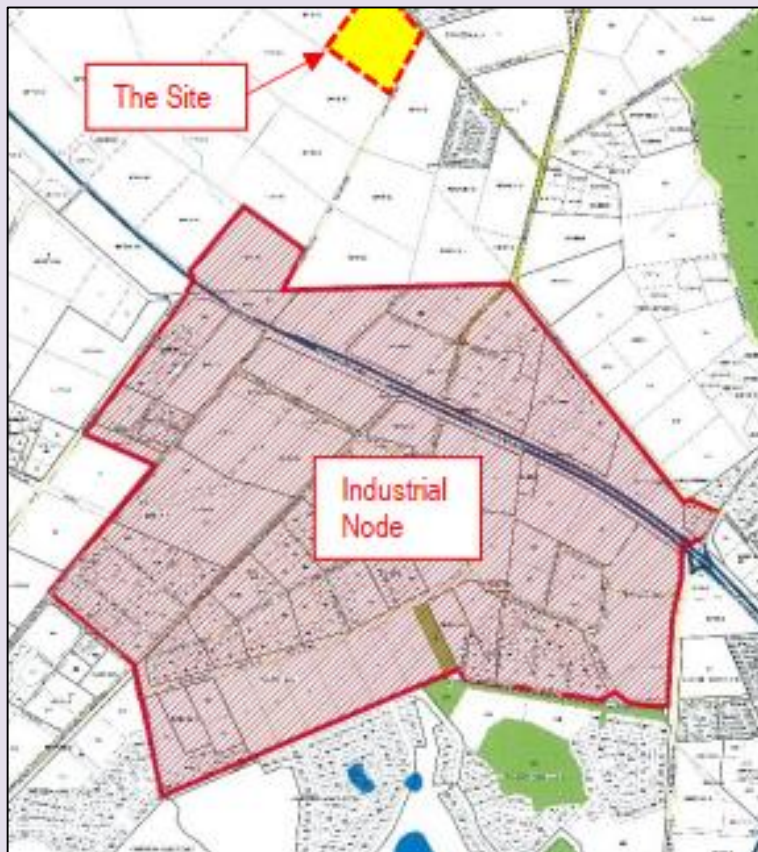


Figure 27: Site in relation to Laser Park Industrial Node

Need

- Need for suitable land for settlement.
- Need for increased residential densities in areas with supportive land uses (close to Laser Park Industrial Node, Honeydew Police Station, Zandspruit and Cosmo City Clinics, shopping centres and various schools).
- Need to develop in areas with existing civil infrastructure and services.
- Need for better land utilization taking the environmental and socio-economic conditions into consideration.

Desirability

- Compatible with surrounding land uses of golf and residential estates, industrial areas, townships and informal settlements.
- Will make the area more secure and desirable for residential uses. Similar affordable housing is already present in the surrounding areas.
- Close to main bus and taxi routes along Beyers Naude Drive.
- Providing housing in close proximity to employment opportunities and public transport services in the surrounding nodes is encouraged.
- It is in line with the guiding principles set out in the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013).
- The development is desirable in terms of the provisions of the City of Johannesburg SDF, 2040.

The National Development Plan (NDP) offers a long-term perspective for the development of South Africa aimed at eliminating poverty and reducing inequality by 2030. The importance of creating sustainable human settlements is emphasized by the NDP. The key target for human settlements as described by the plan includes:

- More people living closer to their places of work;
- Better quality public transport;
- More jobs in or close to dense urban townships; and
- Clear strategy for densification of cities through land use planning and focused strategy on the housing gap.

The Johannesburg SDF, 2040 states that: *"The concept of development corridors connecting strategic nodes through an affordable and accessible mass public transport system is an integral component of the Compact Polycentric model for future development. Part of the approach is compaction of well-established nodes as well as the creation of new nodes in strategic opportunity areas that have a strong relation to the metropolitan core. This strategy will focus economic investment in well-connected centres and provide adequate space for economic growth."*

The site falls within the consolidation zone and is located close to the Laser Park Industrial Node, which is an important node in the City. Around this node, higher density residential development can be supported at a density of between 50 and 100 du/ha (within 100m walking distance to the node). The site's location makes it ideal for residential development as it is located in an area which is earmarked for infill development around Cosmo City and Zandspruit informal settlements. In terms of the City of Johannesburg Housing Programme, the formalization of the Zandspruit informal settlement is a priority.

Development objectives for Sub-area 1 of Region C (the site) according to the SDF, 2040:

- 1) To facilitate formalisation of Zandspruit informal settlement as an area of high priority to land release and acquisition to ensure the development of sustainable community with a sense of certainty.

- Contain the expansion of the Zandspruit informal settlement by means of infill development.
- Permit mixed housing developments up to 120 unite/ha and facilitate private developments in the area.
- Encourage economic and social growth within the nodal areas.
- Allow for 30m road reserve to include the local bus and taxi routes (BRT)

2) To ensure the sustainable integration of Cosmo City within Sub Area 1 and the region as a whole.

- Stimulate the development of a viable local economy.
- Provide for informal trading in the area along activity streets, neighbourhood nodes and public transport facilities.
- Support commercial, industrial opportunities for employment.
- Provide for and expedite the provision of bulk infrastructure.
- Protection of environmental sensitive areas by discouraging development on Zandspruit and wetland areas.
- Integrate the public and private open space areas.

The proponent has applied for a residential development density of 30-120 units per hectare in accordance with the land use management development guidelines for Zandspruit, which supports densities of up to 120 units/ha.

Based on the above, it is clear that the proposed Zandspruit X93-X96 residential development is desirable and complies with the guidelines and principles of the City of Johannesburg IDP and SDF, and the five (5) development principles of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) [SPLUMA]. These principles are spatial sustainability, efficiency, spatial resilience and good administration.

- **THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED**
(CONSIDER WHEN THE ACTIVITY IS EXPECTED TO BE CONCLUDED)

10 years

- **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

YES
X

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)/Conceptual Layout

Appendix D: Route position information

Appendix E: Public Participation

Appendix F: Correspondence with government departments

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Details of EAP and expertise

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.