Nali
Sustainability Solutions (Pty) Ltd
Environmental and Development Consultants

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

EYE OF AFRICA RESIDENTIAL DEVELOPMENT

PORTIONS 37 AND 38 OF THE FARM ALEWYYNSPOORT 145-IR

MIDVAAL LOCAL MUNICIPALITY

REFERENCE: GAUT002/19-20/E0228

Prepared for:

Eye of Africa Developments (Pty) Ltd.

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GLOSSARY

Activity - An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms 'activity' and 'development' are freely interchanged.

Alternatives - Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity.

Applicant - The project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.

Biodiversity - The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.

Construction - The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Cumulative impact - The impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Decommissioning - The demolition of a building, facility, structure or infrastructure.

Direct Impact - Impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.

Ecosystem - A dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous.

Environment - In terms of the National Environmental Management Act (NEMA) (No 107 of 1998) (as amended), "Environment" means the surroundings within which humans exist and that are made up of:

a) the land, water and atmosphere of the earth.
b) micro-organisms, plants and animal life.
c) any part or combination of (i) of (ii) and the interrelationships among and between them; and
d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Assessment - The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.

Environmental Authorisation - An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.

Environmental Assessment Practitioner (EAP) - The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

Environmental Impact - Change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.

Environmental Impact Assessment (EIA) - In relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application as defined in NEMA.

Environmental Issue - A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.

Environmental Management - Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental Management Programme (EMPr) - A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

Fatal Flaw - Issue or conflict (real or perceived) that could result in developments being rejected or stopped. In the context of an environmental impact assessment a fatal flaw can be termed as an environmental issue that cannot be mitigated by any means

General Waste -Household water, construction rubble, garden waste and certain dry industrial and commercial waste which does not pose an immediate threat to man or the environment.

Groundwater - Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.

Hazardous Waste - Waste that may cause ill health or increase mortality in humans, flora and fauna.

Hydrology - The science encompassing the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground.

Indirect Impacts - Indirect or induced changes that may occur as a result of the activity. These types if impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place as a result of the activity.

Interested and Affected Party (I&AP) - Any person, group of persons or organisation interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - The implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.

No-Go Option - In this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.

Overburden - Layers of soil and rock covering a coal seam. In surface mining operations, overburden is removed prior to mining using large equipment. When mining has been completed, it is either used to backfill the mined areas or is hauled to an external dumping and/or storage site.

Public Participation Process - A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.

Rehabilitation - A measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.

Scoping - The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addresses in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Sensitive Environments - Any environment identified as being sensitive to the impacts of the development.

Significance - Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

Stakeholder Engagement - The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.

Sustainable Development - Development which meets the needs of current generations without hindering future generations from meeting their own needs.

Watercourse - In terms of the National Water Act (Act 36 of 1998) a watercourse is defined as:

a) a river or spring.
b) a natural channel or depression in which water flows regularly or intermittently.
c) a wetland, lake or dam into which, or from which, water flows; and
d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of1998) and a reference to a watercourse includes, where relevant, its bed and banks.

Wetland - In terms of the National Water Act (Act 36 of 1998) a wetland is defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ACRONYMS

DEFF	Department of Environment, Forestry and Fisheris
DW&S	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
ESS	Environmental Scoping Study
ESR	Environmental Scoping Report
GDARD	Department of Agriculture and Rural Development
I&AP	Interested and Affected Party
NEMA	National Environmental Management Act
NGL	Natural Ground Level

1.0 INTRODUCTION

The Environmental Impact Assessment Report (EIR) serves to fulfil the requirements provided in Regulation 23 of the EIA Regulation, 2014, (Regulations) and contains all information set out in Appendix 3 to the said Regulations.

This section briefly describes the project and provides information on the applicant, the proposed activity, details of the environmental assessment practitioner as well as the process followed in order to meet the requirements of the Regulations.

1.1 Background information

The applicant, Eye of Africa Developments (Pty) Ltd, proposes to establish an up market residential township that includes, among others, private open spaces and residential uses as well as associated infrastructure (including a package plant with throughput capacity of 1000m^3/day). The development constitutes the extension of the existing Eye of Africa Golf Estate situated immediately to the north of the proposed site.

The site is located at the edge of a built-up area within geographic areas identified in Listing Notice 3 of the EIA Regulations, 2014 as amended. In terms of the Provincial C-Plan, the site is within a Critical Biodiversity Area and Ecological Support Areas which are potential habitat for red and orange listed plant species and has primary vegetation. Preliminary studies show that large portions of the study area have been disturbed and transformed mainly due to previous establishment of residential unit(s), military activities, quarrying, topsoil removal and agricultural activities, among others.

To manage the Environmental Impact Assessment (EIA) application process, the applicant has appointed Nali Sustainability Solutions (Pty) Ltd (NSS) an independent Environmental Assessment Practitioner as required in by the EIA Regulations, 2014 as amended.

1.2 Details of the applicant

Table 1: Details of the Applicant

Aspect	Details
Applicant	Eye of Africa Developments (Pty) Ltd
Representative	Mark McGovern
Designation	Director
Physical address	
Postal address	P O Box 545, Eikenhof, 1872
Telephone	010 500 0400
Email address	Mcgovern.mark@icloud.com

1.3 Details of the EAP

To ensure full compliance with the EIA Regulations, 2014, promulgated under section 24 (5) of the National Environmental Management Act, 1998 NEMA (Act No. 107 of 1998) (NEMA) and environmental best practice, Eye of Africa Developments appointed Nali Sustainability Solutions (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to manage the application process. Details of the EAP are provided below.

Table 2: Details of the EAP

Aspect	Details	
Name	Nali Sustainability Solutions (Pty) Ltd	
Lead EAP	**Mr Pirate Ncube (Lead)**	**Mr Comfort Mthombothi**
Physical Address	65 Country Club Drive, Irene Farm Villages, Centurion	
Postal Address	P Bag X1, Stand 1829, Irene Farm Villages, Centurion, 0045	
Other contact details	Tel: 0824517120; Fax: 086 694 1178 Email: ncube.nali@gmail.com	0711661173; comfort.mthombothi@mail.com
Expertise/ experience	More than 25 years' experience in spatial planning, environmental management including Environmental Impact Assessments and reviews, Environmental Management Plans, Environmental Compliance Monitoring and Reporting. Served/s in various bodies including the DFA Tribunal, Environmental Advisory Committee, MEC Appeals Advisory Panel. Qualified Town Planner with master's in real estate and MBA.	More than 11 years experience and skilled in Environmental Planning, Environmental Management Programmes, Integrated Waste Management Plans, EIAs, Project Management, Waste Licenses, Water Use Licenses, Mining Rights, Mining Permits, Prospecting Permits and Environmental Auditing.Holds a BA (Geography and Environmental Studies) and an Environmental Law Certificate.

1.4 Specialists and other inputs

To ensure an appropriate level of assessment and provision of relevant information for decision making, a team of specialist well known in their respective fields was appointed to carry out studies and design of aspects of the project. These include:

- **Nathoo Mbenyane Engineers (Pty) Ltd -**for engineering services
- **Cornerstone Consultants-** Ecological Assessment and Wetland Delineation.
- **Cornerstone Consultants-** HIA.
- **Weber Zenon & Associates Inc**- Geotech Investigations

The findings of specialists relative to the abovementioned issues have informed the proposed development and have been incorporated into the body of this report while the actual studies are appended to this report.

1.5 Purpose of the EIR Phase

The EIR phase follows the acceptance and approval of the Scoping Report (SR) and Plan of Study for EIA). The SR was approved on 14 July 2020 subject to conditions which have been addressed (refer to Appendix 6).

1.5.1 Objectives of the EIA phase

As per the Regulations, the objective of the environmental impact assessment process is to, through a consultative process-

- determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responses to the policy and legislative context.
- describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
- identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- determine the--

- nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
- degree to which these impacts can be reversed, may cause irreplaceable loss of resources, and can be avoided, managed or mitigated.

- identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment.
- identify, assess, and rank the impacts the activity will impose on the preferred location.
- identify suitable measures to avoid, manage or mitigate identified impacts; and identify residual risks that need to be managed and monitored.

1.5.2 Contents on the EIR

As per the requirements of Appendix 3 of GN R.982 (EIA Regulations, 2014), the EIR contains the following:

a) Details and the expertise of the EAP, including some curriculum vitae.
b) Location of the activity.
c) A plan showing the proposed activities and infrastructure at an appropriate scale.
d) A description of the scope of the proposed activity.
e) A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context.
f) A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.
g) A motivation for the preferred development footprint within the approved site.
h) A full description of the process followed to reach the development footprint within the site, including:
   - Details of the development footprint considered.
   - Details of the public participation process undertaken in terms of regulation 41.
   - A summary of issues raised by interested and affected parties and how they were addressed.
   - The environmental attributes associated with the development footprint alternatives focusing on the geographical, physical and biological, social, economic, heritage and cultural aspects.
   - The impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
   - The methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of environmental impacts and risks.
   - Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected.
   - The possible mitigation measures that could be applied and level of residual risk.
   - A concluding statement indicating the preferred alternative development location within the approved site.
i) A full description of the process undertaken to identify, assess and rank the impacts of the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity.
j) An assessment of each identified and potentially significant impact and risk
k) A summary of the findings and recommendations of specialist reports and indications as to how the findings and recommendations have been included in the final assessment report.
l) An environmental impact statement.
m) All information required by the competent authority.

2.0 PROJECT DETAILS

This section details the proposed development, its location and associated infrastructure services as well as the activities triggered by the development.

2.1 Project location

At a regional scale, the subject properties are situated approximately 15 kilometres south of the Johannesburg CBD and approximately 50 kilometres north of Vereeniging.

Figure 1: Locality Map

At a local scale, the site is situated to the south adjoining the south-eastern boundary of the Eye of Africa residential estate. The closest roads around the site include the following:

- Kliprivier Road to the north and east.
- R82 to the west; and
- R550 to the south.

The locality of the development site is shown as Figure1, while Table 1 provides the SG 21 Digit Code of the affected properties.

Table 3: SG 21 Digit Code

T	O	I	R	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	3	7
T	O	I	R	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	3	8

2.2 Project components

The activity entails the establishment of a residential township with associated infrastructure as well as Private Open Space system.

Access to and egress from the site will be gained via the exiting Eye of Africa Golf and Residential Estate as this development will be a new phase extension. One main access point will be situated to the north of the property gaining access from an existing private road on the southern boundary of the existing estate. All new access points and roads will be designed by traffic engineers and constructed in accordance with the satisfaction of the Local Authority. The

internal access will be via internal roads developed in accordance with Council requirements and specifications. All roads will be private roads with access control. The said roads are private and will be transferred to the Eye of Africa Home Owners' Association.

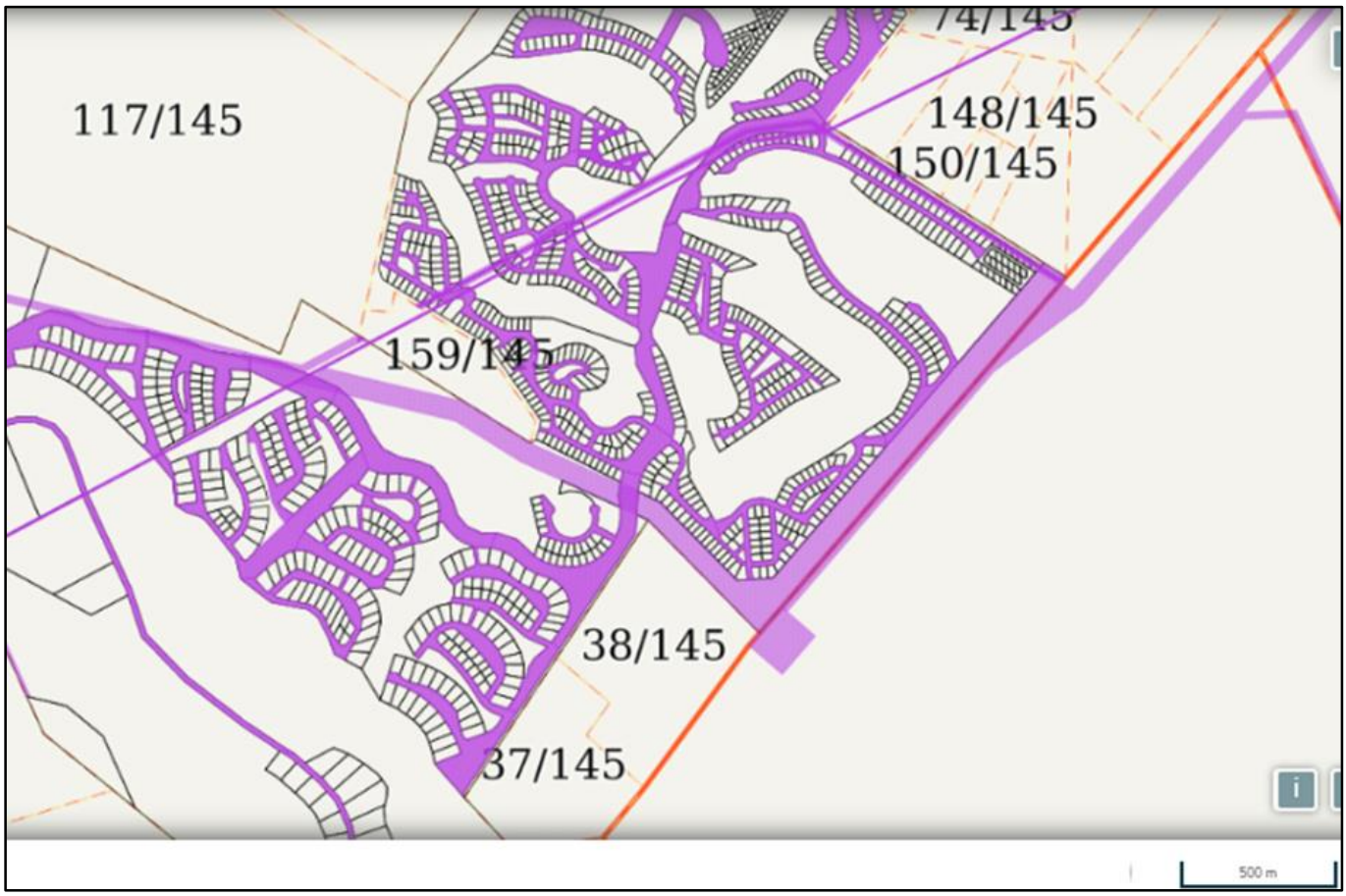

Figure 2: Site in context

Engineering and related services will be provided or augmented where capacity is not available. Details of these are briefly discussed in section 2.4 below while the relevant reports are appended to this EIR.

The layout plan has been guided by the development constraints and opportunities presented by the site. Included among these were the shape of the land, nature of adjacent land uses and the need for efficiency in land allocation in relation to, among others, infrastructure services, specialists' recommendations and the wetland areas.

2.2.1 Land use details

The project details including the development parameters are provided below.

Table 4: Proposed land uses

ZONING	Erf No.	Erf size ranges	Total no. of Erven
Residential 1	1 –269	651 to 956m²	269
Private Road	270-279	N/A	10
Private Open Space	280-285	N/A	5

2.2.2 Zoning and development controls

The development controls in terms of the Midvaal Local Municipality land use management by-law, 2016 (Previous Peri Urban Town Planning Scheme, 1975) are as follows:

- **Proposed erven 1 to 269**

Use Zone	:	"Residential 1"
Height	:	2-3 storeys
Coverage	:	50%
FAR	:	1.0
Density	:	1 dwelling per erf
Building line	:	3m along all streets and 2m along all other boundaries.

- **Proposed erven 270-279**

"Private Roads" for access purposes and the provision of services and such other uses as the Local Municipality may approve by means of special consent applications.

- **Proposed erven 280-285**

"Private open space" for access purposes and the provision of services and such other uses as the Local Municipality may approve by means of special consent applications.

2.2.3 Proposed Framework Plan

The design of the layout has been informed by a number of economical and engineering, as well as environmental considerations. The primary determinants of the design of the layout included:

- The layout plan has been guided by the development constraints and opportunities presented by the site. This include the shape of the land, nature of adjacent land uses, the need for efficiency in land allocation in relation to, among others, infrastructure services, specialists' recommendations, and wetland areas.
- The **topography of the land** and the impact that this has on development costs and aesthetic view of the area. The proposed activity entails the establishment of low-density residential development which requires less of cutting and filling.
- The **limitations of access points to the existing access gate**. The site does not enjoy the luxury of obtaining access from various points. Establishing new access point would a costly exercise that cannot be justified.
- The **Eskom high-voltage overhead power lines that traverse the site**. These sterilise parts of the site for development.
- The **recommendations of the Ecological** specialist report relating to development, and rehabilitation around the ecological sensitive areas.
- Need for **integration with existing and future urban development** along the boundaries of the application site.

Figure 3: Framework Plan Layout

2.3 Activities Triggered by the Development

In terms of the EIA Regulations of 2014, the table below presents the list of activities that have been investigated and have to be authorised.

Table 5: List of activities triggered by the development

Government Notice:	Activity No (s)	Describe each listed activity as per the wording in the listing notices:
7 April 2017	LN 1 Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more. excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
7 April 2017	LN 1 Activity 10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more. excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
7 April 2017	LN 1 Activity 11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more. excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) …
7 April 2017	LN 1 Activity 12	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more, where such development occurs— (a) within a watercourse, measured from the edge of a watercourse. (b) … (c) If more development setback exists, within 32m of a watercourse, measured from the edge of a watercourse excluding — (aa)….

		(bb)…
7 April 2017	LN 1 Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving soil, sand, shells, shell grit, pebbles, or rocks of more than 10 cubic metres from a watercourse. but excluding… (a) …; (b) Is for maintenance purposes undertaken in accordance with a maintenance management plan. (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies. (d) … (e) …
7 April 2017	LN 1 Activity 24	The development of a road— (i) …; or (ii) with a reserve wider than 13,5metres, or where no reserves exist, where the road is wider than 8 metres. but excluding a road- (a)….; (b) … (c) …
7 April 2017	LN1, Activity 27	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— i. the undertaking of a linear activity; or ii. maintenance purposes undertaken in accordance with a maintenance management plan.
7 April 2017	LN 2, Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- i. the undertaking of a linear activity; or ii. maintenance purposes undertaken in accordance with a maintenance management plan.
7 April 2017	LN 3, Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. **c. Gauteng** i….; ii….; iii….; 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….; viii….; ix….; x….; xi….; or xii….
7 April 2017	LN3, Activity12	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. **c. Gauteng** i. Within any 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. …
7 April 2017	LN3, Activity 14	The development of— (i)…; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more. where such development occurs— (a) within a watercourse. (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. **c. Gauteng** i. …; ii. …; iii. …; 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. …; viii….; ix….; or x…

2.4 Existing and proposed infrastructure services

2.4.1 Roads and traffic

Access to the proposed township developments will be provided via the existing Eye of Africa golf estate. Regional accessibility to the development precinct will be from the R82, R59, R554 and R550.

Bulk contributions in respect of roads are to be offset against any required upgrade of other existing roads as may be required by Council and/or required in terms of the Traffic Impact Study.

2.4.1.1 Provision for access to the township

The proposed activity is the extension of the up market low density residential development. The existing access has been built with the proposal in mind, so the access is already in existence.

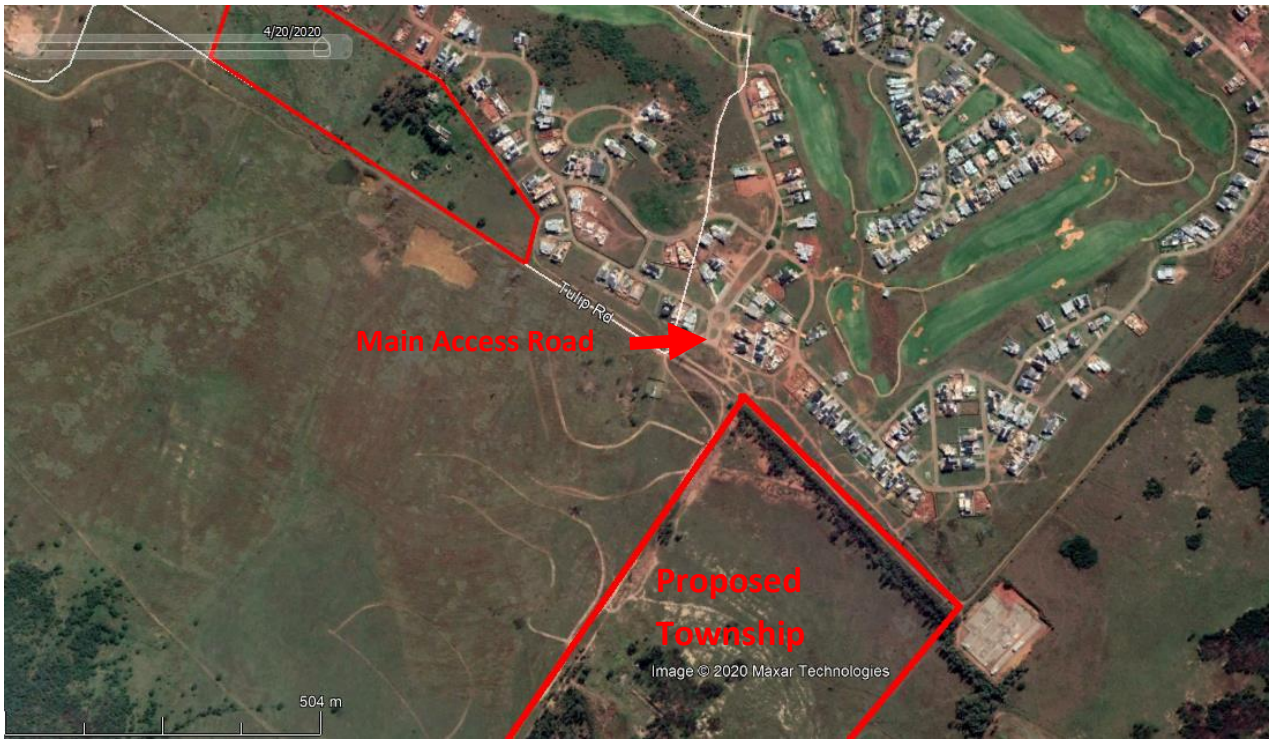

Figure 4: Access to the new township

2.4.2 Stormwater system

The stormwater system shall be designed in accordance with municipal standards. The final layout and treatment system will be submitted to Midvaal Local Municipality for approval.

2.4.3 Water services

According to Nathoo Mbenyane Engineers (Pty) Ltd., water supply to the existing Eye of Africa Golf and Residential Estate is currently being supplied by Rand Water from a bulk line. This water is pumped to a 4ML reservoir which then feeds into the water reticulation system. This new development will increase the demand for water and a new reservoir will be required in order to allow for a 48-hour demand. This new demand will have to be included in Midvaal's future service planning.

According to the engineers, water demand calculations for the township was determined to be in the very high development level category and therefore the water demand of 1 350l/erf/day was determined using the average stand area of 800m^2.

The following design criteria have been used:

- Average Annual Daily Demand (AADD) Res 1 :1200-1500 l/day/unit
- Demand for this Development : 1350 l/day/unit
- Water Losses : 10%
- Daily Peak Factor : 3.0
- Fire Risk Category : Moderate

The water demand for the proposed development is:

- No of Unit : 280 @ 1350l/day
- Daily Demand (l/d/unit) : 391 500 l/day
- Peak Daily Demand : 1 134 000 l/day
- Water Losses : 113 400 l/day
- Total Peak Demand : 1 247 400l/day
- Peak Demand (l/s) : 14.43 l/s or 867 l/minute
- Design Peak Demand (l/s) : 16.59 l/s or 996 l/minute

The peak demand flows require a minimum 171.16mmØ pipe for the internal reticulation. It is proposed that a 200mmØ pipe be used for the development. The 200mmØ pipe at 100% or 67% will provide a capacity of 25.12l/s or 24.36l/s which is higher than the required capacity of 16.59 l/s.

Using the average water demand of 1 350l/erf/day and the peak factor of 3, the calculations above indicates that a peak water demand value of 1 247 400l/day or 1.25Ml/day is required for the new development phase.

2.4.4 Sewerage services

According to Nathoo Mbenyane Engineers (Pty) Ltd, the current wastewater from the development is being processed by a 1.5Ml Package Plant. The grey water is pumped into mini dams within the development and this grey water is used to irrigate all landscaped areas.

Alternatives to the provision of sewer services were considered. These included:

- Construction of reticulates system to connect to the available nearest services. This was considered not feasible due to the capacity, topography/distance and costs.
- Pumping of the sewer from the new development into the existing wastewater from the new phase to the existing package plant. This alternative was evaluated, see section 5 below and deemed to less than optimal.

- Construction of a new package plant (preferred)as described below.

The plant will be constructed approximately south east of the existing development at AMSL 1612m. The capacity of the plant will be designed to accommodate the proposed new development requirements and any other future phases.

The following design criteria have been used:

- No. of Units : 280
- Average Erven Size : 800m²
- Design Flow (Residential 1) : 1200 l/d/unit (336 000 l/d)
- Peak factor (Jhb Water Guidelines) : 2.5
- Infiltration : 15% - (2.25 l/s)
- Peak Design Flow : 996 000l/s (11.18l/s)
- Minimum velocity : 0.91m/s
- Maximum Velocity : 2.5m/s
- Design flow : 67%
- Peak Design flow Rate : 11.18 l/s
- Manning 'n' : 0.012
- Calculated Pipe Size : 155mmØ
- Design Pipe Size : 200mmØ

A value of 1000l/du/day was used and increased to 1200l/du/day as it was considered to be very conservative for sanitation flow for this type of development. A peak factor of 2.5 and an extraneous flow of 15% was applied to determine the required sanitation capacity requirement.

The calculations above indicate a peak design flow of 966 000l/day or 0.96Ml/day. Therefore, a 1Ml/day plant would adequately accommodate the expected peak flows for the new development. At the lowest section connecting into the package plant, a 200mmØ pipe will adequately handle peak flows. The 200mmØ pipe, at a capacity of 67% volume will be able to handle 24.37l/s versus the peak design flow rate of 11.18l/s.

2.4.5 Electricity supply

According to the town planning memo, electricity supply to the proposed development is available. All necessary upgrades and internal reticulation will be installed by the developer.

3.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section describes the biophysical and socio-economic environment that may affect or be affected by the proposed activity. This description is informed by specialist studies undertaken and includes information obtained from various literature sources and is described at a level deemed appropriate for the EIA phase. A summary of the affected environment is provided, and more detailed studies focused on significant environmental aspects of the development have also been provided. The three components to the environment are recognised as:

- Physical Environment.
- Biological Environment.
- Socio-Economic Environment.

Only those elements of the environment that have a direct bearing on the project are discussed. The severity of the potential impacts is largely determined by the state of the receiving environment.

3.1 Physical Environment

3.1.1 Climate

According to Henning (2016), the Eikenhof area has a moderately dry subtropical climate. It has specifically a humid subtropical climate, with long hot and rainy summers and short cool and dry winters. Effectively three seasons occur annually, namely a cool, dry season from May to August, a hot, dry season from mid-August to October, and a hot, wet season from November to April.

Summer rainfall patterns predominate with the traditional heavy deluges in the afternoon (cumulonimbus induced thundershowers being the norm). December and January are the peak rainfall months with hail being prevalent. Frontal climatic systems bring soft soaking rains on occasion. Mean annual precipitation (MAP) varies between 600 and 800mm. During certain years large-scale flooding occurs in this catchment which wreaks tremendous damage on irrigation farming operations. The average annual temperature is 18.7°C, while the mean monthly maximum and minimum temperatures for the area are 35.3˚C and -3.1˚C for November and June, respectively.

3.1.2 Air quality

The site is not located in an area where air pollution has been identified as a problem for human health. Further, the proposed development will not include activities that will result in atmospheric emissions. As a result, no air quality study has been commissioned for this project as the ambient air for the area is expected to remain within the minimum standards. However, provision will be made in the EMPr to manage the potential impacts of dust associated with the construction phase, Sulphur, and carbon monoxide emissions from combustion of petroleum products from both construction equipment and machinery. Good housekeeping and Best Practicable Environmental Measures will be implemented to avert detrimental impacts on the air quality.

3.1.3 Noise

Sensitive receptors are primarily residential areas close to the site. However, the receptors are buffered from the site by main roads and open spaces.

3.1.4 Topography, Hydrology and Dolomite

The SANBI BGIS has classified the study area as falling within the Savanna biome characterized by varying slopes. The project area is characterised by undulating plains with a wetland area bisecting the site in the north.

According to the Midvaal Spatial Development Framework, the far northern parts of the municipality fall within a massive dolomite belt that passes through the southern extents of the City of Johannesburg. The major areas in Midvaal that are impacted upon by the presence of dolomite are reflected on Figure 5. An excerpt from the SDF. This is a major physical structuring element which affects potential development in the area. However, the proposed site falls outside the dolomite belt.

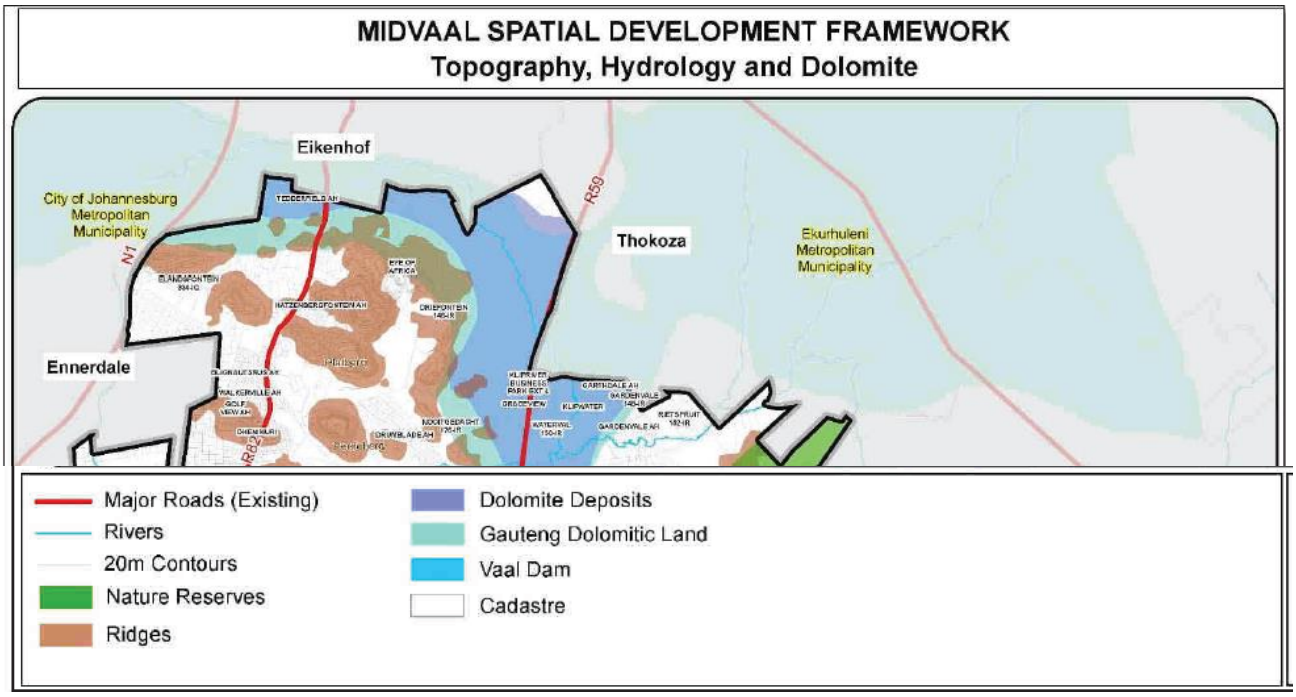

Figure 5: Topography, Hydrology and Dolomite

Thee Sedibeng Spatial Development Framework 2030, indicates that the application site falls within an area with soils with minimal development, usually shallow on hard or weathering rock, with or without intermittent diverse soils.

3.1.5 Geology

According to the Geotech investigation undertaken for the Eye of Africa Development, the site appears to be within a zone represented by transported gully wash overlying residual shale. Surface deposits comprise grey, brown or reddish and yellowish brown generally medium dense to dense silty fine sand which occurs to depths of up to 0.6m below ground level. This upper layer is underlain by angular quartzite or shale, gravel, cobbles and boulders in a matrix of orange or yellowish brown medium dense to dense clayey silty sands to depths ranging from 1.0-3.0metres below ground level.

Residual soils derived from the insitu decomposition of the parent shales comprise initially of yellow, pale red blotched orange stiff to very stiff jointed and bedded silt containing angular shale gravel followed by reddish brown stiff to very stiff jointed and bedded silt with refusal of the TLB occurring in this material at depths ranging from 1.5- 2.1metres below ground level.

Foundations

The principal geotechnical problem associated with this zone relates to the transported gully wash, which owing to its relatively low density (1327 kg/m^3) could be compressible particularly when wet. However, the Consolidometer test carried out in this material recovered from Testpit 8 does not appear to reflect this situation as settlement predictions based on the results of the test indicate that settlements less than 5mm are likely to occur for applied bearing pressures up to 125 kPa. It is nevertheless regarded as prudent to regard the gully wash horizon as suspect in respect of compressibility. The residual shale, however, represents a competent founding medium from depths of 1.0-1.3m below present ground level.

Conventional foundations may be installed on either the stiff residual shale or medium dense to dense cobbly and bouldery gully wash proportioning footing sizes so as not to exceed 150 kPa. Strip footings will need to be longitudinally reinforced when installed in moderately potentially expansive gully wash.

Roadway Construction Materials

The surface gully wash materials in Zone 3 vary considerably in quality from good quality as sampled in Testpit 24 to fair as in Testpits 8, 80, 81 & 54, and poor as encountered in Testpit 30. These materials are generally of low to medium plasticity or potential expansiveness. All of them, apart from the material as encountered in Testpit 24, will be subject to subgrade pumping i.e. the progressive loss of the fines constituent when trafficked under wet conditions. The gravely silty sand blend recovered from Testpit 24 classifies as a G6 material according to SASS 1200 criteria and may be used as a subbase for pavement construction. Most of the remaining materials (fair) may be used as selected subgrade or as subbase for low traffic internal roads provided they are stabilized or treated with lime.

3.1.6 Ground and Surface water

The project area is situated within the quaternary catchments, C22D. There is a watercourse to the western side of Portion 36, although this section of the river is non- perennial. The study area is drained mainly by surface run-off (i.e. sheet wash) with surface water flowing into non-perennial streams of the study area. It must be noted that stream flow along the non-perennial drainage channels occurs only during and directly after heavy precipitation events and may continue for a short period directly after a particularly good rainy season.

According to the geological study, no groundwater was encountered in any of the testpits located in this zone, but it should be noted that as there are natural drainage paths within this zone, perched groundwater conditions are likely to develop during rainfall periods.

3.2 Biological Environment

3.2.1 Terrestrial ecology

The ecological assessment undertaken by Cornerstone Consultants in April 2019 (which informs the details in this section), has found out that although the subject properties are transformed and degraded, there are

still some species of conservation concern on site. The class 2 ridge has been noted and classified as undevelopable.

An important aspect relating to the proposed development should be to protect and manage sensitive biodiversity aspects including, where appropriate, the vegetation types on the proposed development site. Vegetation removal should be kept to the footprint areas of the proposed development. Considering the mostly degraded state of the ecosystem of the sites in general, the impact on the vegetation of the larger area would be medium. Mitigation measures and monitoring should however reduce the impact from medium to low.

Biome

The project area lies within the Savanna Biomes as indicated in Figure 4. The Savanna Biome is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The environmental factors delimiting the biome are complex and include altitude, rainfall, geology, and soil types, with rainfall being the major delimiting factor. Fire and grazing also keep the grassy layer dominant.

As the project area lies within the Savanna Biome, it forms an important ecotone between the two biomes. Ecotones are transitional areas between adjacent but different habitats, ecosystems, landscapes, biomes, or ecoclimatic regions. Ecotones that are unique entities in the context of climate change are transition zones between ecoclimatic regions. Ecotones have narrow, spatial extent, a steep ecological gradient, and hence high species richness a unique species combination, genetically unique populations, and high intra-species genetic diversity.

Vegetation Type

The site is classified as Gauteng Shale Mountain Bushveld consisting of slightly undulating plains. Species-rich grasslands form a complex mosaic pattern dominated by many species. Prominent grasses are *Loudetia simplex, Hyparrheniahirta, Brachiaria serrata* and *Heteropogoncontortus*, as well as scattered shrubs including *Eucleaundulata, Searsiamagalismontanum, Zanthoxylumcapense*and *Diospyros lycoides*. The conservation status is “Vulnerable”, with a small extent conserved. A big portion of savanna is already transformed for cultivation, by urban sprawl or by mining activity as well as the building of dams.

An important aspect relating to the subject properties is to protect and manage the biodiversity (structure and species composition) of the vegetation types represented on site. Future development activities should aim to remove minimal vegetation and only vegetation on the footprint areas should be removed during development constructions. The unnecessary removal of tall indigenous tree species (>3m) and indigenous vegetation during construction should be avoided as far as possible.

3.2.1.1 Floral assessment

The study area is characterised by two major landscapes namely slightly undulating plains: and low-lying bottomlands. Vegetation units were identified during the ecological surveys according to plant species composition, previous land-use, soil types and topography. The state of the vegetation of the proposed development site varies from completely modified to highly degraded on the rocky outcrops and woodland sections.

The vegetation communities identified on the proposed development site during the ecological surveys are classified as physiographic-physiognomic units, where physiognomic refers to the outer appearance of the vegetation, and physiographic refers to the position of the plant communities in the landscape. The physiographic-physiognomic units will be referred to as vegetation units in the following sections. These vegetation units are classified according to the land-use and soil differences that had the most definitive influence on the vegetation units.

During the assessment conducted in January and March 2019, historic disturbances were evident during the field assessment. Although much of the site was covered by endemic grassland vegetation, much of such vegetation seem to be of secondary succession, and the site has a high abundance of alien vegetation recorded throughout the study area. This alien vegetation proliferation is likely as a result of historical soil disturbances due to agricultural activities, dwellings, and military activities as well as quarrying.

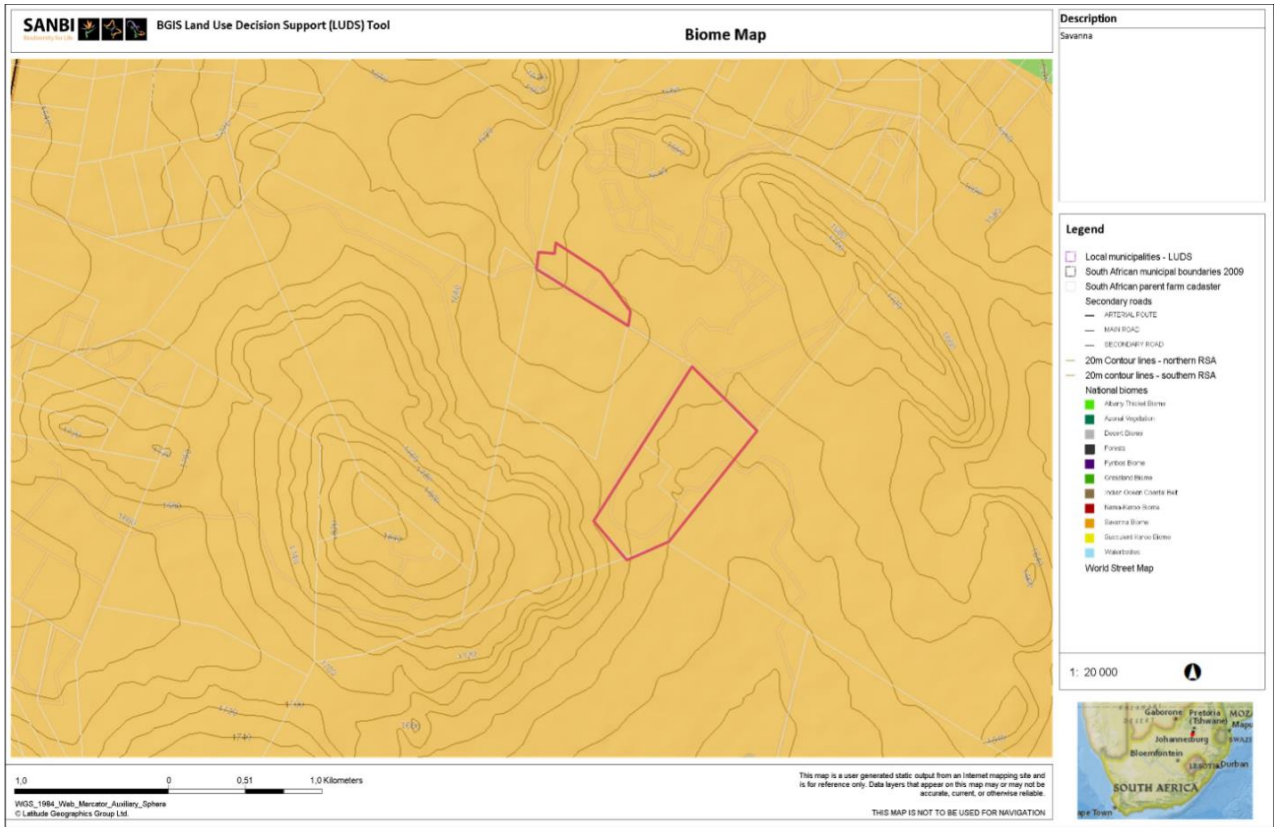

Figure 6: Vegetation types

3.2.1.2 Faunal assessments

Mammals are sensitive to disturbances and habitat destruction and degradation and as such the anticipated species diversity of the study area would be low. Settlement areas have negated the possibility of encountering any medium to large mammals. The presence of dogs as well as poaching activities, poses a threat to the presence of mammals on sites. The mammals are mostly represented by generalised species such as rodents, scrub hares and smaller antelope (steenbok, common duiker) that will move through the area while foraging.

No signs of the red data listed *Lutramaculicollis* (Spotted-necked Otter) was documented in the project area, especially considering the highly degraded state of the watercourse.

Three major bird habitat systems were identified within the borders of the study site, namely grassland, woodland (exotic and indigenous) and watercourse. The majority of the natural grasslands and woodland in the area have been transformed.

Most bird species identified within the study area are common species known to nest within or utilise the grassland, riparian woodland and microphyllus woodland habitat in the region and may be either permanently or occasionally present within the study area. In general terms these open grassland patches could attract the Secretary bird, White-bellied Korhaans, and White Stork and Abdim's Stork.

There is a potential presence of some toads and sand frogs in the watercourse areas on site, as they only need temporary pools for reproduction and the watercourse may provide suitable habitat. The dams that occur on the project area definitely improve conditions for dry-land amphibians. Amphibian species potentially occurring in the area include Common River Frog, Natal Sand Frog, Guttural Toad, Raucous Toad and Bubbling Kassina. These species are non-threatened and widespread species, and as such the development will not have any impact on amphibian conservation within the region.

Red List mammals

- All suitable habitat for terrestrial Red List mammal species observed or potentially occurring on the site must be mapped and designated as sensitive.
- All suitable habitat for Red List mammal species associated with wet habitats observed or potentially occurring on the site must be mapped and designated as sensitive, including the appropriate buffers for wetlands and rivers.
- All caves, including a 500m buffer zone must be designated as sensitive.

Red List birds

- The sensitivity map must demarcate as sensitive areas of suitable habitat on the proposed development site and neighbouring properties for each priority Red List bird species, together with appropriate buffers and corridors. All sensitive habitats (e.g. wetlands) must be clearly demarcated using the appropriate techniques even where the probability of priority Red List species utilizing them is considered small.
- The species-specific spatial rules must be applied, and relevant areas designated as sensitive.

3.2.1.3 Aquatic ecology

The watercourse on site can be classified as non-perennial valley bottom and artificial depressions (man-made dams). The identification of the watercourses was done according to the aerial photograph and a field survey where the topography of the landscape and vegetation were used to delineate the watercourse or riparian zone.

In terms of plant species composition, the watercourse represents moist grassland dominated by grasses such as *Setariasphacelata, Sorghum bicolor and Sporobolus africanus.*

The valley bottom was found to provide a distribution route for weeds and invading species. Many of the usual weeds were recorded. Weeds and invaders should be removed, as well as destruction of such plants in a safe place and manner.

3.3 Human Environment

3.3.1 Socio-economic issues

The site is located within the Midvaal Local Municipality area. The Region borders on the area of jurisdiction of the City of Johannesburg Metropolitan Municipality, Ekurhuleni Metropolitan Municipality, Emfuleni Local Municipality, and Lesedi Local Municipality in the greater Gauteng region. According to the Midvaal Spatial Development Framework (SDF), the following are key features of the municipality:

- The municipality has strong regional linkages to major economic cores like Johannesburg, Ekurhuleni and the Vereeniging-Vanderbijlpark complex. These include routes R59 and R82, and the Vereeniging-Germiston railway line.
- The municipal area is predominantly rural, with urban development predominantly consolidated along routes R59 and R82 in the north-western parts of the municipal area.
- Meyerton is the highest order town in the area with a relatively large business and residential component. Smaller settlements and agricultural holdings in the surrounds act as service centres to the surrounding local communities.
- The local population is relatively well educated, and unemployment levels are low compared with provincial and national averages.
- The strongest economic drivers in Midvaal are: Manufacturing (29.5%), Financial and Business Services (18.5%), Trade (14.5%), and General Government Services (9.4%). There are indications that the Manufacturing sector is declining; there is thus a need to diversify the Midvaal economy.
- The urban areas and agricultural holdings exhibit the highest population growth rates.
- The official backlog with regards to informal settlements and backyard units (according to Census 2011) was determined to be 5546.
- The population is projected to grow between 3288 and 4681 people per annum for the next six (6) years. The related projected household growth is between 1034 and 1472 housing units per annum.
- The total housing supply of existing housing projects is calculated at 23 825 units comprising 8858 middle and high-income units and 14 994 subsidised units which is sufficient to meet current and projected demand beyond the year 2020.
- The municipal area is surrounded by large concentrations of low-income communities (especially in the City of Joburg area of jurisdiction), with very limited economic activity and job opportunities to serve them.
- Unlike urban areas in the MLM, rural communities have limited access to engineering infrastructure and social services.

3.3.1.1 Population

According to the SDF:

- The projected population of Midvaal in the period is 135 156 people (current = 107 072) based on the Historical Growth Trends Scenario of the Midvaal Migration Plan. This represents an increase of 28 084 people at a rate of 4681 people per annum.
- The households increase by 8830 at a rate of 1472 per annum to bring the total number of households by 2020 to 42 495 units.
- The population will be able to sustain approximately 229 765m² of retail floor space and 22 977m² of office floor space which should be mainly located in the nodal points identified.
- The incremental population will justify the construction of one new primary school and seven Educational Care Centres in the municipal area while secondary schools are sufficiently provided for. However, the spatial distribution of these and other facilities should also be considered to ensure that all communities are served within appropriate distance.

- As far as other community facilities are concerned, the Midvaal Municipality would require one more Primary Health Clinic and Local Library, as well as four additional Post Office/ICT Access Points.

In general, however, the Midvaal Municipality is currently well-provided with a wide range of community facilities and services, and only a limited number of new facilities need to be provided up to 2020 (based on population growth forecasts).

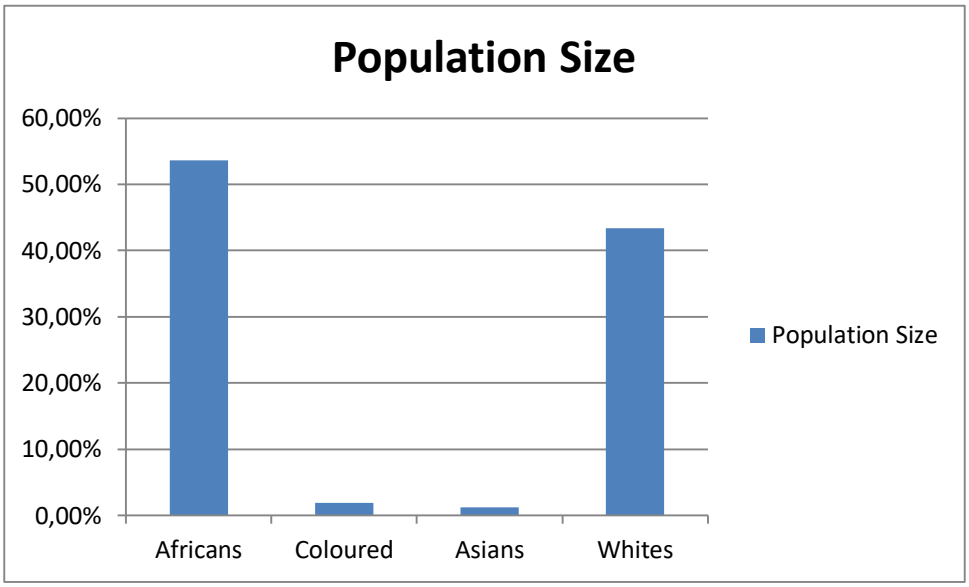

Figure 7: Population size – Community Survey 2016

3.3.1.2 Education

The graph below indicates the education levels for the population of the Midvaal area. According to the Community Survey 2016, approximately 45% of the population obtained grade 12. However, an insignificant number of them get to tertiary education.

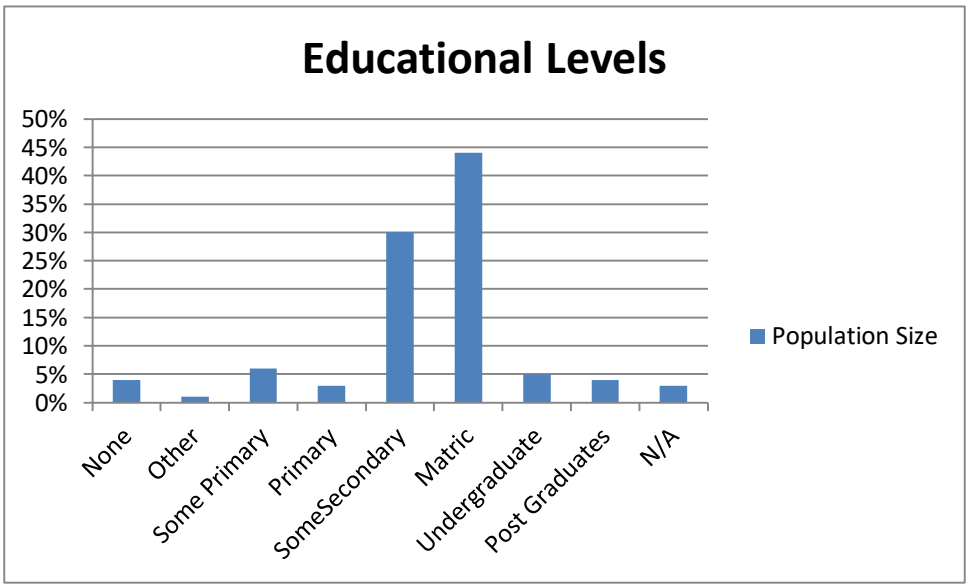

Figure 8: Highest level of Education – Community Survey 2016

3.3.1.3 Employment

According to Census 2011, approximately 60% of the population is employed, this is mainly in the formal sector. However, there is a large number of the population that is economically inactive and unemployed.

3.3.2 Archaeology and cultural heritage/sites of importance

Site investigations were carried out by Cornerstone Consultants in May 2019 for the development found that the sitewas disturbed. General site modifications as a result of quarry, military activities, dwelling, and agriculture were prevalent throughout.

In terms of heritage resources, the landscape around the project area has been altered extensively by recent and historical activities. The following recommendations were made based on general observations:

- Should fossil remains be exposed during construction, these objects should be safeguarded and the relevant heritage resources authority (SAHRA) notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- A monitoring process by an ECO is recommended during the construction process. Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction, all activities should be suspended, and the archaeological specialist notified immediately. It should be noted that mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment.

3.3.3 Visual aspects

The site is currently undeveloped and slopes to the west, south and east at approximately 10°. The central part of the site has been used as quarry; the proposed development will feature buildings of up to2(three) storeys (general provisions of a Residential 1). It is not anticipated that the neighbouring developments will suffer any inconvenience associated with overlooking or impact on privacy and amenity given the proposed development nature and magnitude as well as the orientation of building, therefore a visual impact assessment will not be undertaken for the proposed development.

4.0 LEGAL AND POLICY CONTEXT

This section serves to highlight key legislation and policy framework that has implications on the proposed activity. It must be noted that this list is not an exhaustive list or discussion but notes, at high level, the critical laws and policies that have been considered.

4.1 The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)

All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment by virtue of the fact that environmental rights have been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management. An objective of local government is to provide a safe and healthy environment (Section 152) and public administration must be accountable, transparent and encourage participation (Section 195(1)(e) to (g)).

Implications for the proposed development:

- Obligation to ensure that proposed activity will not result in pollution and/or ecological degradation;
- Obligation to ensure that where possible conservation is promoted; and
- Obligation to ensure that the proposed activity is ecologically sustainable, while demonstrating economic and social development.

4.2 The National Environmental Management Act, 1998 (Act 107 of 1998)

The National Environmental Management Act (Act No. 107 of 1998) commonly known as "NEMA" is South Africa's overarching framework for environmental legislation. The object of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state.

It sets out a number of principles that aim to give effect to the environmental policy of South Africa. These principles are designed to, amongst others, serve as a general framework for environmental planning, as guidelines by reference to which organs of state must exercise their functions and guide other laws concerned with the protection or management of the environment.

Chapter 5 of NEMA serves to promote integrated environmental management which must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. Development must be socially, environmentally and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors.

In terms of the NEMA and the EIA Regulations, 2014, an application for environmental authorisation for certain listed activities must be submitted to either the provincial environmental authority, or the national authority, depending on the types of activities being applied for. The current EIA regulations, GN R.982, GN R.983, GN R.984 and GN R.985, promulgated in terms of Sections 24(5), 24M and 44 of the NEMA commenced on 08 December 2014. GN R.983 lists those activities for which a Basic Assessment is required, GN R.984 lists the activities requiring a full EIA (Scoping and Impact Assessment phases) and GN R.985 lists certain activities and competent authorities in specific identified geographical areas. GN R.982 defines the

EIA processes that must be undertaken to apply for Environmental Authorisation. The listed activities that are applicable to this project are identified in Section 2 above.

Implications for the proposed development

- The principles espoused in NEMA serve as guidelines for relevant decision makers in ensuring the protection of the environment. Therefore, the proposed development must be consistent with these principles.
- Where this is not possible, deviation from these principles would have to be very strongly motivated.
- The activity may not take place without the required authorisation; and
- Both the Scoping and EIA processes have been facilitated with the submission of both a Scoping Report and an Environmental Impact Report.

4.3 National Environmental Management: Waste Act, 2008 (Act 59 of 2008)

One of the main objectives of the NEMWA is to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development and to provide for:

- National norms and standards for regulating the management of waste by all spheres of government.
- Specific waste management measures.
- The licensing and control of waste management activities.
- The remediation of contaminated land; to provide for the national waste information system; and
- Compliance and enforcement.

In terms of the NEMWA, certain waste management activities must be licensed and in terms of Section 44 of the Act, the licensing procedure must be integrated with an environmental impact assessment process in accordance with the EIA Regulations promulgated in terms of the NEMA. Government Notice921, which was published in Government Gazette No.37083, on 29 November 2013 and implemented with immediate effect, lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment, and Category B activities, which require a full EIA (Scoping followed by Impact Assessment).

Implications for the current development:

- Any activities listed in GN 718 of the Waste Act require an EIA.

4.4 The National Environmental Management: Biodiversity Act of 2004)

The Act provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. This Act allows for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute. Key elements of the Act are:

- The identification, protection and management of species of high conservation value.
- The identification, protection and management of ecosystems and areas of high biodiversity value.
- Alien invasive species control of which the management responsibility is directed to the landowner; and

- Section 53 of the Act identifies that any process or activity that is regarded as a threatening process in terms of a threatened ecosystem, requires environmental authorization via a full Environmental Impact Assessment (Government Notice No. 387).

Implications for the current development

- Areas of high biodiversity need to be protected.
- GDARD would have to be contacted in order to obtain a permit to remove any protected indigenous plants.

4.5 The National Water Act, 1998 (Act No.36 of 1998)

The National Water Act (The Act) provides for the management of South Africa's water resources. The purpose of the Act is to ensure that the Republic's water resources are protected, used, developed, conserved and controlled. It is concerned with the allocation of equitable access and the conservation of water resources within South Africa. The National Water Act of 1998 repealed many of the powers and functions of the Water Act of 1956. Key provisions include the following:

- Catchment Areas- Any disturbance to a watercourse such as the construction of a dam or weir type facility requires authorization from the Minister of Water Affairs.
- Water Supply - Under the National Water Act, a developer is required to obtain the necessary permits for water usage and the disposal of wastewater from the authority responsible for the administration of the Act, namely the Department of Water Affairs (DWA).
- Any private well or borehole sunk for the abstraction of groundwater has to be reported and registered with the regulatory authority.
- Wastewater - The National Water Act is the principal piece of South African legislation governing wastewater management.

Implications for the proposed development:

- Any proposed water uses must be specified and registered and where necessary licenses applied for.
- Any modifications to drainage lines must be investigated in terms of water use requirements.
- Reasonable measures must be taken to prevent pollution of water resources.
- Where pollution of a water resource occurs measures to be taken to remedy the situation.
- The developers must take all reasonable measures to minimise the impacts of the incident, undertake clean-up procedures, remedy the effects of the incident and take measures as directed by the catchment agency; and
- Waste created during construction needs to be controlled adequately to negate the impacts on ground and surface water.

4.6 The National Heritage Resources Act, 1999 (Act 25 of 1999)

The Act promotes good management of the national estate of South Africa. The national estate can include:

- Places, buildings, structures and equipment of cultural significance.
- Places to which oral traditions are attached or that are associated with living heritage.
- Historical settlements and townscapes.

- Geological sites of scientific or cultural importance.
- Archaeological and palaeontological sites.
- Graves and burial grounds, including:
  - Ancestral graves
  - Royal graves and graves of traditional leaders
  - Graves of victims of conflict
  - Graves of individuals designated by the Minister by notice in the Gazette
  - Historical graves and cemeteries
- Other human remains not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983).
- Sites of significance relating to the history of slavery in South Africa.

In terms of Section 38 of the Act, the South African Heritage Resources Agency (SAHRA) must be notified during the early planning phases of a project for any development that includes the following:

- the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.
- any development or activity which will change the character of a site exceeding 5 000 m²:
  - involving three or more existing erven or subdivisions thereof.
  - involving three or more erven or divisions thereof which have been consolidated within the past five years.
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority.
- the re-zoning of a site exceeding 10 000 m² in extent, or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Implications for the proposed development:

- Any artefacts uncovered during the construction phase must be reported to SAHRA.
- No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or palaeontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority. The age of the stable building on site needs to be determined; and
- SAHRA must be informed of the proposed development and provided an opportunity to comment.

4.7 The Gauteng Provincial Environmental Management Framework, 2015

The objective of the GPEMF is to guide sustainable land use management within the Province. The GPEMF, inter alia, serves 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.

According to the EMF, the site is located in Zone 4: Normal Control Zone. This includes all agricultural land outside the urban edge and not included in Zone 1 (High Control Zone). It includes activities like low density/rural residential, tourism and agri-industries in the agricultural areas.

Implications for the proposed development:

- The proposed land uses are not aligned with the primary uses proposed for this zone. However, cognizance is taken of the location of the site adjacent to the existing Eye of Africa development and surrounded by ridges. The proposal therefore promotes development infill, densification and concentration of urban development to establish a more effective and efficient land use pattern that will minimise urban sprawl.

4.8 Sedibeng District Municipality Spatial Development Framework 2019

The main objective of the project is to develop an SDF for the entire Sedibeng District Municipality area of jurisdiction which includes the Emfuleni, Midvaal and Lesedi local municipalities. This SDF needs to address spatial, environmental and economic issues confronting both the urban and rural areas. The District Municipality is characterised by a dispersed spatial structure, with various towns and informal settlements spread across the entire municipal area, whilst the rural areas consist of a large number of farms, as well as agricultural holdings.

Further, the SDF responds to the policy and legislative parameters established by National and Provincial Government and take cognisance of the municipal space economy in the context of the provincial and national space economies.

Implications for the proposed development:

- The SDF identifies the Eye of Africa Development as one of the Urban Footprint areas in the region. As a result, the proposed development could be seen as encouraging consolidation of urban uses in already established urban areas.

4.9 Midvaal Spatial Development Framework

The Midvaal Spatial Development Framework (2019) constitutes an update of the 2014 framework. It seeks to address spatial, environmental and economic issues confronting the urban and rural areas of the Municipality and incorporate all new information and plans applicable to the Midvaal area. The SDF also serves to facilitate implementation of the IDP and all government intentions to fight poverty and facilitate rural development in the rural parts of the Midvaal Municipality.

The Eye of Africa development has been identified in the SDF as one of the key residential areas in the municipality.

Implications for the proposed development:

- The SDF identifies the Eye of Africa Development as an important low-density development with less detrimental environmental impacts.
- The site falls within the extensive agricultural area (Normal Control Zone) in terms of the Environment Management Zone. This zone is dominated by agricultural uses outside the urban development zone as defined in the Gauteng Spatial Development Framework. No listed activities may be excluded from environmental assessment requirements in this zone. However, the site has low potential for agricultural production.

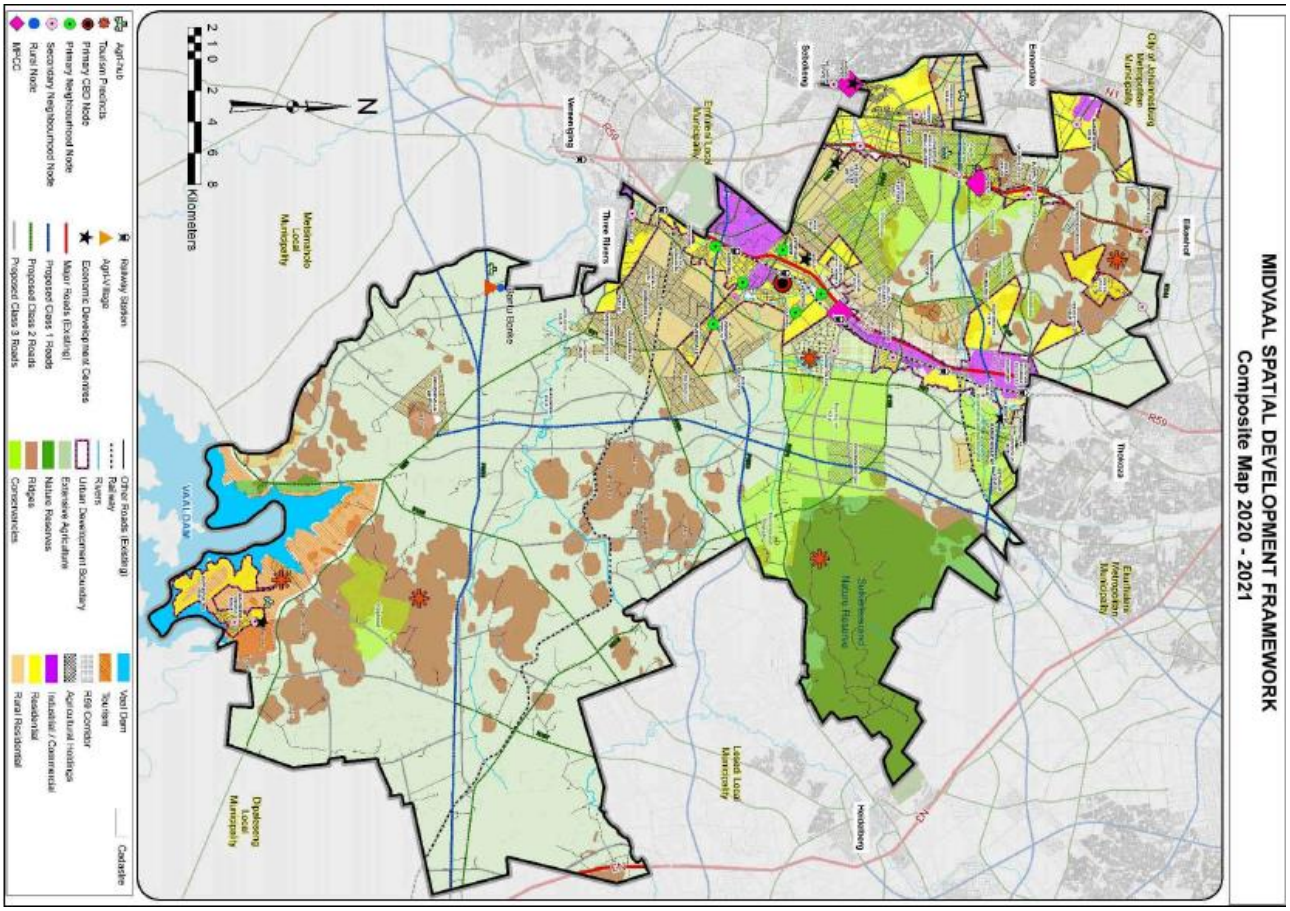

Figure 9: Midvaal Spatial Development Framework

4.10 Other policies, plans and guideline documents

Other policies, municipal plans and guideline documents that are relevant to the project are listed below:

- Guidelines published in terms of the NEMA EIA Regulations.
- Electricity Act (Act 41 of 1987).
- Civil Aviation Act (Act 13 of 2009) and Civil Aviation Regulations (CAR) of 1997.
- Civil Aviation Authority Act (Act 40 of 1998).
- White Paper on Renewable Energy (2003).
- Conservation of Agricultural Resources Act (Act No. 43 of 1983).
- Integrated Resource Plan for South Africa (2010).
- Land Use Planning Ordinance (Ordinance 15 of 1985).
- Spatial Planning and Land Use Management Act (Act No. 16 of 2013)
- National Road Traffic Act (Act No. 93 of 1996).
- Gauteng Employment Growth and Development Strategy.
- Gauteng 2055 (2014).
- City of Tshwane Integrated Environmental Management Policy (2005).
- City of Tshwane Open Space Framework (2007); and
- Gauteng C-Plan Version 3.3.

5.0 PROJECT NEED AND DESIRABILITY

According to the Guidelines on Need and Desirability, when "need and desirability" must be considered as part of an EIA process, the content of the IDPs, SDFs, EMFs and other relevant plans, frameworks and strategies must be taken into account when considering the merits of each application. Whether a proposed activity will be in line with or deviation from the plan, framework or strategy per se is not the issue, but rather the ecological, social and economic impacts that will result because of the alignment or deviation. As such, the EIA must specifically provide information on these impacts in order to be able to consider the merits of the specific application. Below is a discussion on the need and desirability of the proposed development.

5.1 Consideration of the Need

This section contains a motivation for the proposed township in terms of 'need' and 'desirability' as provided for in environmental and planning legislation. This section also considers the 'general development principles' that apply to spatial planning, land development and land use management.

5.1.1 Nature of proposed activity

The area in which the subject properties are situated is fast becoming a popular mixed-use area in which up market residential typologies are on offer. Gauteng is in greater need of various typologies of housing fabric. The proposal of the applicant is to provide medium size stands for the development of up market residential houses which end to have less detrimental effects on the receiving environment.

"Private Roads" for access purposes and the provision of services and such other uses as the Local Municipality may approve by means of special consent applications.

As far as health, safety and good order may be concerned, these are matters already controlled by various environmental laws. It follows that considerations relevant to health, safety and good order will be adhered to throughout the different phases of the proposed township.

5.2 Desirability

As far as desirability is concerned, the applicant has demonstrated that the proposal will be compatible with the prevailing land use trend in the area. Also, the proposal of the applicant aligns positively with the adopted policy of the municipality to the extent that this may be relevant. It follows that the consolidation of residential development will inherently be desirable from a land use and spatial planning context. There are no sensitive land use categories situated close to the subject property which may be incompatible with the proposal of the applicant. The desirability of the proposal is therefore self-evident.

5.3 Compatibility with adjoining land uses and character/function of the area

The development site is largely vacant and bordered to the north by well-established up market residential development. The watercourse in a form of a wetland and drainage channel affects part of the site.

The subject property is zoned "Agriculture"; however, a township establishment has been submitted to the Midvaal Local Authority to permit "Residential 1" use on site in terms of the relevant Land Use Scheme.

Areas to the south, west and east of the subject property are predominantly zoned for agricultural purposes and are mainly vacant.

5.4 Socio economic considerations

The Eye of Africa development is surrounded by farms used for grazing and a few for agricultural production. It is generally an exclusive development nested in an area dominated by hills and the signature golf course. It is for this reason it is identified as a tourism node in the municipal Spatial Development Framework. this theme can also be found on the development's website where it is stated that vision for Eye of Africa Golf & Residential Estate is to create a vibrant recreational, social and community hub that will become the key destination and gathering space for Eye of Africa's residential community. At Eye of Africa, the standard of living is only rivalled by the sense of community and facilities available to all residents.

It is expected that any developments, be it extensions to the existing estate, will aim at enhancing the stated vision. Thus, the proposed township extension offers a different mix of units which are, however, aligned with the general development theme of the estate.

5.5 Alternatives considered

The Integrated Environmental Management procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. The various alternatives will be assessed in terms of both environmental acceptability as well as economic feasibility. The preferred option is to be highlighted and presented to the authorities.

The following alternatives are examples of the different kinds of alternatives that may be considered and investigated for a particular development:

- Input alternatives.
- Activity alternatives.
- Layout alternatives
- Location alternatives.
- Status quo / no-go alternatives.
- Demand alternatives / Supply alternatives.
- Scheduling alternatives; and
- Process alternatives.

5.5.1 Input alternatives

Various types of material can be used for the construction of the proposed Township and its associated structures. These include different brick types (face brick, cement brick, etc.), roof types (pitched or flat), finishes (paint colour, external lighting, landscape features, etc.) and road surfacing (asphalt, brick paving). The proposed development should enhance the status of the area, be aesthetically pleasing and present a high order node in the area.

Energy effective construction and orientation methods need to be considered. The following recommendations regarding building structures and designs are recommended:

- Use of building material that requires excessive amounts of energy to manufacture should be minimised.
- Use of building material originating from sensitive or scarce environmental resources should be minimised, e.g. no tropical hardwood may be used.
- Building material should be legally obtained by the supplier, e.g. wood must have been legally harvested, and sand should be obtained only from legal borrow pits and from commercial sources.
- Building material that can be recycled / reused should be used rather than building material that cannot.
- Use highly durable building material for parts of the building that is unlikely to be changed during the life of the building (unlikely to change due to e.g. renovation, fashion, changes in family life cycle) is highly recommended.
- Make use of recycled concrete (green concrete); and
- Make use of clay blocks for construction of buildings.

5.5.2 Activity alternative

These are sometimes referred to as project alternatives, although the term activity can be used in a broad sense to embrace policies, plans and programmes as well as projects. Consideration of such alternatives requires a change in the nature of the proposed activity.

For this proposed development, consideration was given to a mix of land uses rather than a single activity on site. However, the applicant decided to pursue the expansion of the existing residential township.

In addition, different approaches to the provision of sewer infrastructure were considered.

5.5.3 Site layout alternatives

Site layout alternatives permit consideration of different spatial configurations of an activity on a particular site. This may include particular components of a proposed development or may include the entire activity. For example, siting of a particular structure either prominently to attract attention or screened from view to minimize aesthetic impacts.

5.5.4 Location alternatives

No alternative sites have been considered by the proponent, as this site is owned by the proponent and is contiguous to areas/sites that have been developed by the applicant. Preliminary investigations concluded that the proposed site is the most suitable due to its ideal location in terms of the requirements for business, office and residential development. Moreover, this township forms part of the precinct that has already been authorised for development.

5.5.5 Demand alternatives

The residential sector in Gauteng, South Africa, has performed very well over the last few years. This increased performance results from the abnormally long and severe slump in “construction fixed investments” during the 1980’s and 1990’s. A typical “construction fixed investment” cycle should be in the region of 15-20 years. In the 80’s/90’s period of stagnation in South Africa, this cycle was almost two decades. Subsequently, the country’s economic growth has been on a broad, accelerating path, since the early 1990’s. Hence, the demand for residential infrastructure has been established.

5.5.6 Layout alternatives considered

Land uses choices as reflected in the layout, route alignment for the electrical cables and the no-go alternatives were evaluated for the site. Please refer to section below where the different alternatives are assessed.

5.5.7 Status quo / No-go alternatives

The no-go option was also considered. This entails leaving the site in its present state. The site is currently vacant. Leaving it in its present state would mostly likely result in the site being unattended to, uncontrolled and unmanaged which could subject the site to abuse and degradation (which is already taking place), as no control mechanisms are likely to be implemented.

Vacant land within the Gauteng urban core in general is a valuable commodity and resource and even more so when such land falls within or is adjacent to a development corridor. It is imperative that such a resource is not left vulnerable to the effects of urban decay and its negative economic and social implications.

If development of the site is not approved the site will remain as is. Given that preliminary assessment does not point to any environmental fatal flaws and that the development is likely to contribute substantially to economic development, employment creation and that the wetland and riparian habitats will not be adversely affected it is therefore considered proper that development of the site might be a better option from economic, social and environmental perspectives.

6.0 PUBLIC PARTICIPATION PROCESS

Public participation in respect of the EIR is currently being undertaken. This section provides an overview of the processes required to meet the requirements of the Regulations.

6.1 Objectives of public participation

Public participation is an essential and regulatory requirement for an environmental authorisation process and must be undertaken in terms of the Environmental Impact Assessment (EIA) Regulations GNR. 982 (December 2014). Public participation is a process that is intended to lead to a joint effort by stakeholders, technical specialists, the authorities and the proponent/developer who work together to produce better decisions than if they had acted independently.

Further, the approach to public participation was in accordance with the principles of the NEMA as elaborated upon in General Notice 657, titled *"Guideline 4: Public Participation"* (Department of Environmental Affairs and Tourism, 19 May, 2006), which states that: *"Public participation process means a process in which potential interested and affected parties (I&APs) are given an opportunity to comment on, or raise issues relevant to specific matters."*

The process followed was designed to provide information to and receive feedback from interested and affected parties (I&AP). Feedback was in turn fed into the EIA process. This provided organisations and individuals with an opportunity to raise concerns and make comments and suggestions to influence the Project layout, design and the final impact assessment report.

During the Scoping Phase the public participation process enables Interested and Affected Parties to:

- Understand the context of the EIA.
- Become informed and educated about the proposed project and its potential impacts.
- Raise issues of concern and suggestions for enhanced benefits.
- Verify that their comments, issues of concern and suggestions have been recorded.
- Assist in identifying reasonable alternatives; and
- Contribute relevant local information and traditional knowledge to the environmental impact assessment process.

During the EIR phase, the process aims to:

- Ensure that relevant information including local and traditional knowledge contributes to the environmental impact assessment process.
- Ensure that issues and suggestions from registered I&AP are considered in the environmental investigations and feedback has been provided.
- Afford opportunities to I&AP to comment on the findings of the EIA; and
- Identify further issues of concern from the findings of the EIA.

During the decision-making phase, the process entitles I&AP to be informed of the outcome (authorisation) and how the decision can be appealed.

6.2 Public Participation undertaken during the Scoping Phase

As per the provisions of the Regulations, an extensive public participation was undertaken during the scoping phase. Below are some of the key activities undertaken.

6.2.1 Site and Related Notification

The Regulations require that site notices be fixed at places that are conspicuous to the public at the boundary or on the fence of the site where the activity to which the application relates is to be undertaken and on any alternative site. Such notices are meant to notify the public of the project and to serve as invite for the public to register as stakeholders in the process.

Nali Sustainability Solutions erected site notices at various locations around the perimeter of the site. The position and sizes of these notices complied with the provisions in the Regulations. Also, the adjacent landowners/occupiers, the ward councillor and government departments and state organs were given the requisite notices.

6.2.2 Advertising

In accordance with the requirements of the Regulations, the project was advertised in the Citizen Newspaper. I&AP were invited to register their interest in the project, to review the Draft Scoping Report and to provide comments as appropriate.

6.2.3 Briefing Document

A Background Information Document (BID) for the project was compiled. The BID provided an outline of the project, details of the EIA process and how I&AP could participate in the process. The BID was distributed to all potential I&APs including adjacent landowners/occupiers.

6.2.4 Issues and Response Report

Issues and concerns raised in the public participation process were compiled into an issues and response report. Despite an extensive distribution of the Draft Scoping Report and notification of entities, no issues were raised. The report was included in the final scoping report submitted to GDARD.

6.2.5 Public Review of the Draft Scoping Report

All the notices and adverts informed the I&APs of the availability of the Draft Scoping Report and the Plan of Study for EIA at www.nalisustainabilitysolutions.co.za and invited them to access and review it.

6.2.6 Authority Consultation

In addition to notifying and requesting comments from organs of state which have jurisdiction in respect of aspects of the proposed activity, specific consultation with GDARD in the manner described below was undertaken.

- Submission of an application for authorisation
- Acceptance of the application and allocation of activity specific reference number.
- Submission of Draft Scoping Report.
- Acceptance of Scoping Report and PoS for EIA followed by comments from GDARD.

6.2.7 Final Environmental Scoping Report

Comments received were addressed and/or incorporated into the Final Scoping Report. The final report was made available on EAP's website to all Registered I&AP. The report was also submitted to GDARD for decision-making.

6.3 Public Participation during the EIR Phase

6.3.1 Notices and Advertising

The availability of the Draft EIA Report will be advertised in the Citizen Newspaper. In addition, notices will be placed on site to notify and invite I&APs to register and review the Draft EIA Report and to provide comments as appropriate.

6.3.2 Public Review of the Draft EIR

The Draft EIR will be made available and I&AP given 30-days to review and provide comments as appropriate.

6.3.3 Organs of state and authority consultation

Copies of the report will be submitted to the municipality and DWS and all other relevant organs of state will be notified of the availability of the report and directed to access the electronic versions on our website. At the same time copies of the report will submitted to GDARD for review.

6.3.4 Issues and Response Report

All comments and issues raised during the public review period will be reviewed, responded to and incorporated into the Issues and Response Report to form part of the Final EIA Report.

6.3.5 Environmental Authorisation and Notifications

On receipt of the environmental authorisation, an email will be sent out to inform stakeholders and Registered I&APs of the authorisation, its associated conditions and the provisions for the appeal process.

7.0 FINDINGS OF SPECIALIST STUDIES

This section presents the key findings from specialists' assessments conducted. These were essential in informing the proposed development as well as the impacts likely from or on the proposed activity.

7.1 Ecological Assessment

Assessments that fulfil the requirements in NEMA (1998) and the associated regulations as well as the GDARD Requirements for Biodiversity Assessments, 2014 were undertaken. All relevant databases such as the NFEPA, SANBI and GDARD C-Plan V3 have been analysed.

According to the study by Cornerstone Consultants, it is quite clear, especially with the satellite imageries and other secondary datasets as well as the findings of this study that the potential impacts of the proposed development activity can be mitigated to ambient levels. The study has found no wetland ecosystem on site but only non-perennial stream and stormwater drainage lines. The sensitivity map(s) indicate that the entire site is transformed at least. However, even though the site is transformed and degraded, this study has found plant species of conservation value and outlined some recommendations to assist in managing the proposed development.

The study concluded and recommended the following:

- The study area falls within the Central Bushveld Bioregion characterized by a grassy ground layer and distinct upper layer of woody plants. During the field survey it has been found out that despite the ecological transformation posed by human activities, there are species of conservation concern onsite. Some species of conservation concern were noted on site, namely *Boophane disticha,* listed as *Declining.*
- The activities that previously took place on site has transformed and degraded the area such that there is no conservation value at ecosystem level. However, there are still some species of conservation value onsite.
- Although watercourse(s) was identified onsite, there is no wetland ecosystem found onsite mainly because the watercourse identified is a non-perennial.
- The proposed development would not have the detrimental environmental impact on the receiving environment that cannot be mitigated to ambient level.
- Matured trees onsite (whether native or not) should be retained as much as possible, and those that may not be retained may need to be relocated within the site with the assistance of the ECO.
- Species of conservation concern must be retained within their natural position as much as possible, otherwise they may be relocated within the site with the assistance of the ECO.
- Alien invasive species must be eradicated at all cost.
- The proposed low-density residential development activity is seen as a less intensive type of development although it requires clearance of vegetation and likely to collect stormwater and cause erosion. The proposed development is proposed to take place mainly in site that is already transformed thereby limiting impacts on already impacted areas.
- The development proposed is associated with changing of the stormwater regime of the area. Therefore, stormwater should be managed in a manner that the predevelopment conditions will be similar to those post developments. The principle of Water Sensitive Urban Designs should be implemented in managing the stormwater and controlling soil erosion. A site and project specific Stormwater Management Plan must be designed and implemented
- The construction phase of this development will transform the nature and aesthetic view of the site. It is therefore in this regard recommended that the site must be rehabilitated and re-vegetated immediately after construction activities are complete. Only indigenous species endemic to the area must be used to re-vegetate and landscape the area.

- The avifaunal species are likely to lose the habitat and roosting spaces. Therefore, measures to retain the avifaunal species and their spaces must be put in place.
- In conclusion, therefore, it is recommended that the proposed residential development be supported and approved as the potential environmental impacts can be mitigated to ambient levels.

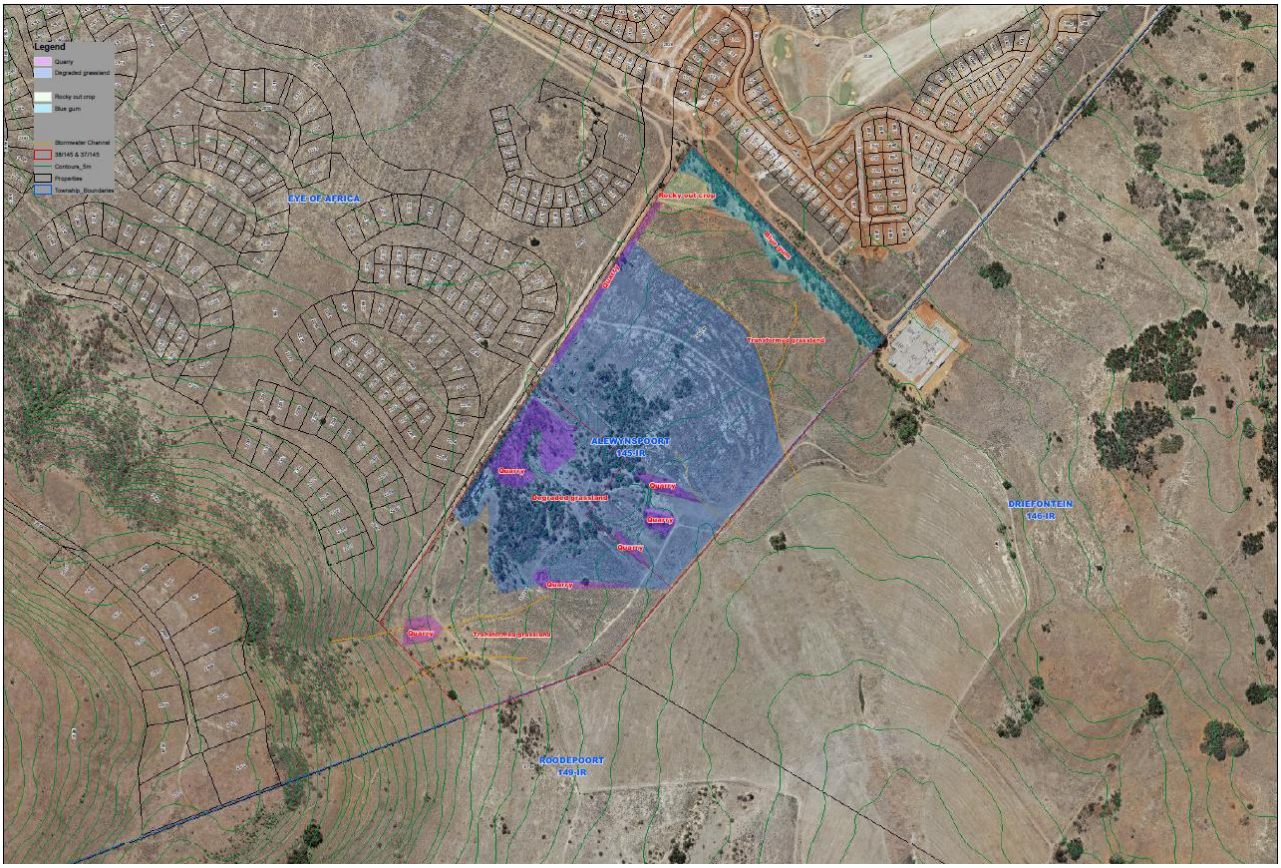

Figure 10: Floral Sensitivity Map

7.2 Wetland assessment

The study undertaken by Cornerstone Consultants did not find any natural wetland on site. However, a non-perennial stream was identified, and the applicant intends to use the area around this natural feature as open space. In addition to the non-perennial stream identified, there were some seepages and stormwater channels that were also identified on site. The study concluded that the seepages were as a result of water damming up the quarries onsite. The study recommended a stormwater management plan that includes the principle of SUDS, and the eradication of alien invasive species.

Evidence was observed on site of transformation of the floristic characteristics of the non -perennial stream. Impacting activities which have altered the expected floristic composition include agriculture, alien infestation, on site. impoundments (dams) and dwelling. All of the above impacts have resulted in the current condition of the watercourse

7.3 Cultural and Heritage Resources

A survey for cultural and heritage resources was carried out by Cornerstone Consulting. Their findings were that the landscape around the project area is primarily well known for Historical Period occurrences, but the

study area has generally been transformed by recent and historical activities largely sterilising the area of heritage remains.

7.3.1 The Stone Age

The site inspection produced no Stone Age material or remains.

7.3.2 The Iron Age Farmer Period

A frontier zone between in the later Iron Age and Colonial times, the Gauteng Province landscape holds scant remnants of precolonial Iron Age Farmer Period remnants. However, the site inspection produced no Iron Age farmer sites.

7.3.3 Historical / Colonial Period

Historically, Eikenhof has been in the heart of Agricultural activities between Johannesburg and Vereeniging. The communities of the area were organised in farms and plots. The project area is surrounded by residential development and agricultural activities. The proposed site was also used for military activities and quarry purposes. The site has been greatly transformed or disturbed, with evidence of Historical Period / Colonial Period remnants clearly visible in the project area.

The study concluded that although no heritage and archaeological resources were found within the area for Phase 2 of the development, cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped, and a qualified archaeologist be contacted for an assessment of the find.

7.4 Visual Impact Assessment

The site forms part of and a natural extension of existing development. Further, it is not as elevated as some of the areas within the estate. As a result of the limited if any negative visual impacts to result from the development, no VIA was undertaken. However, as a measure of good practice it is recommended that:

- Mitigation measures are to be implemented to minimize the visual impacts. With specific reference to glare, careful consideration of the material and colours used in infrastructure design and implementing effective rehabilitation throughout all development phases.
- Other management measures that will have to be implemented to minimize the visual impact on the local and sub regional area include dust control and management, making use of screening opportunities where possible, management of lighting and implementing good housekeeping measures.
- Visual monitoring, to ensure that mitigation measures regarding visual impacts are put in place and maintained, must be implemented throughout all development phases but particularly during the construction phase.

7.5 Noise Impact Assessment

The proposed development forms an extension of residential properties and golf facilities. It is anticipated that development will be in line with SANS 10103 of 2008 - The measurement and rating of environmental

noise with respect to annoyance and to speech communication and the Gauteng Noise Control Regulations, provided that the acoustic screening measures are in place.

Two aspects are important when considering potential noise impacts of a project and it is:

- The increase in the noise level, and
- The overall noise level produced during the construction and the operational phase of the project.

The following activities will generate noise during the construction phase of the development:

- Ground works.
- Foundations.
- Building activities.
- Transportation of building material to and from the construction site.
- Assembling of equipment/machinery and buildings.

The noise sources at the development/s which may create an increase in the noise levels in the near field on a temporary and/or permanent basis during the operational phase of the project:

- Increase in the traffic noise along the access roads of the residential developments.
- Increase in the traffic noise along the existing main access road through the estate).
- Emergency generator.

The following noise mitigatory measures should be considered for the proposed residential development:

- Boundary walls of 2.3m high unless other noise sources require the boundary walls higher than the stated.
- Construction activities may only take place during the daytime.
- The indoor noise levels to comply with the recommended noise levels in Table 1 of SANS 10103 of 2008.
- Any emergency generators to be encapsulated and installed in such a manner that the noise from the generator and/or exhaust will not exceed the prevailing ambient noise levels as measured at any of the boundaries of the residential development.

7.6 Geotechnical assessment

According to the municipal spatial plans, the development site is located outside of the areas affected by the dolomitic band that stretches to the city of Johannesburg. This band runs along the eastern and northern boundaries of the Eye of Africa estate. Therefore, no additional investigations were done for this development. However, as a general requirement, approval/confirmation will be sought from the Council for Geoscience before development commences.

7.7 Landscaping Master Plan

A landscaping plan will be developed as part of the finalisation of the Site Development Plan. However, as can be seen from the layout, areas along the non-perennial stream will form part of a continuous open space system through the township

8.0 ENVIRONMENTAL IMPACT ASSESSMENT

This section provides the details of the methodology used for assessing the significance of impacts emanating from the activity. The criterion for determining impact is in accordance with the provisions of Appendix 3 of the Environmental Impact Assessment Regulations, 2014. The levels of details described in the EIA regulations were fine-tuned by assigning specific values to each impact.

In order to establish a coherent framework within which all impacts could be objectively assessed, it was deemed appropriate to establish a rating system, to be applied consistently to all the criteria. For such purposes, each aspect was assigned a value ranging from one (1) to four (4) depending on its definition. The tables below provide a summary of the criteria and the rating scales used in the assessment of potential impacts.

8.1 Description of nature and scale of impacts

The table below provides a brief description of the terms used to assess the impact of the proposed activity on the environment.

Table 6: Nature, extent, duration, probability and significance of impact

• **Nature**: classification of whether the impact is positive or negative, direct or indirect.
• **Extent**: spatial scale of impact and classified as: ○ **Site:** the impacted area is the whole or significant portion of the site (1). ○ **Local**: Within a radius of 2 km of the construction site (2). ○ **Regional:** the impacted area extends to the immediate, surrounding and neighbouring properties. ○ **National**: the impact can be considered to be of national significance.
• **Duration:** Indicates what the lifetime of the impact will be and is classified as: ○ **Short term**: The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase. ○ **Medium term**: The impact will last for the period of the construction phase, where after it will be entirely negated. ○ **Long term**: The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory. ○ **Permanent**: Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
• **Intensity:** Describes whether an impact is destructive or benign. ○ **Low**: Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected. ○ **Moderate**: Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way. ○ **High**: Natural, cultural and social functions and processes are altered to extent that they temporarily cease. ○ **Very High**: Natural, cultural and social functions and processes are altered to extent that they permanently cease.
• **Probability**: Describes the likelihood of an impact actually occurring: ○ **Improbable**: Likelihood of the impact materialising is very low ○ **Possible**: The impact may occur ○ **Highly Probable**: Most likely that the impact will occur ○ **Definite**: Impact will certainly occur.

- **Significance**: Based on the above criteria the significance of issues was determined. The total number of points scored for each impact indicates the level of significance of the impact, and is rated as:
  - **Low:** the impacts are less important.
  - **Medium:** the impacts are important and require attention; mitigation is required to reduce the negative impacts.
  - **High:** the impacts are of great importance. Mitigation is therefore crucial.
- **Cumulative**: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
- **Mitigation**: Where negative impacts are identified, mitigation measures (ways of reducing impacts) have been identified. An indication of the degree of success of the potential mitigation measures is given per impact.

8.2 Criteria for rating of impacts

This describes the criteria used and the significance rating of the impacts.

Table 7: Criteria for rating of impacts

Criteria for the rating of impacts				
Criteria	**Description**			
Extent	National	Regional	Local	Site
Duration	Permanent	Long-term	Medium-term	Short-term
Intensity	Very high	High	Moderate	Low
Probability	Definite	Highly probable	Possible	Improbable
Points allocation	**4**	**3**	**2**	**1**

Significance Rating of identified impacts		
Impact	**Points**	**Description**
Low	**4-6**	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium	**7-9**	Mitigation is possible with additional design and construction inputs.
High	**10 12**	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high	**13-16**	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Status	Perceived effect of the impact	
Positive (+)	Beneficial impact	
Negative (-)	Adverse impact	
Negative impacts are shown with a (-) while positive ones are indicated as (+)		

8.3 Assessment of anticipated impacts

The environmental issues relating to the physical, biological, economic social and institutional/legal framework have been identified in the body of the report. The section below assesses the beneficial and adverse effects of the proposed activity

8.3.1 Assessment on Impacts during the Construction Phase

8.3.1.1 Biophysical Environment-

Table 8: Assessment of impacts on biophysical environment during construction

Source of impact	Potential impact	Impact Significance before mitigation						Mitigation measures	Impact Significance after mitigation					
		E	D	I	P	Total	Rating		E	D	I	P	Total	Rating
Impacts on Flora														
• Site clearing and the removal of habitat within the watercourse habitat and associated buffer zones, • Construction activities resulting in the removal and destruction of the potential floral SCC occurring within the study area. • Increased human movement and hardened infrastructure surfaces within the study area.	• Loss of threatened, near threatened and endemic taxa: • The anticipated loss of some of the natural habitats that support endemic species will result in the local displacement of endemic listed flora.	-	-	-	-	-	-	• Any disturbances to the intermediate sensitive floral habitat must be actively avoided. Except for infrastructure, the Freshwater Resource and its associated regulatory zones should be excluded from the development. This area must be cordoned off during the construction phase; - • Although no floral SCC was recorded during the site assessment, the following is recommended: - During the surveying and site-pegging phase of surface infrastructure, a walkdown of the area must be done to ensure that any floral SCC, if encountered, be rescued and relocation outside of the development footprint. - All possible SCC individuals situated within the development footprint should be rescued and either relocated to: ○ Suitable similar habitat within the study area but outside the development footprint, should this habitat unit be excluded from the development,	-	-	-	-	-	-

								○ Used within the landscaping plan of the development or ○ Relocated to a registered nursery, the ARC or SANBI. • It should be noted that should SCC individuals be removed from the study area to an area not listed above, permits might be required from the GDARD, and • The rescue and relocation plan should be overseen by a suitably qualified specialist. • No collection of indigenous or medicinal floral species must be allowed by construction personnel. • Edge effect control needs to be implemented to ensure no further degradation and potential loss of vegetation outside of the proposed development footprint area occurs. • Appropriate sanitary facilities must be provided during the construction phase and all waste must be removed to an appropriate waste facility; - No dumping of waste on site should take place. As such it is advised that waste disposal containers and bins be provided during the construction phase for all construction rubble and general waste. • - If any spills occur, they should be immediately cleaned up. In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced preventing the ingress of hydrocarbons into the topsoil. It should be ensured that no spills leak into the Freshwater resource associated with the central portion of the study area,						

								• Informal fires by construction personnel should be prohibited, and no uncontrolled fires whatsoever should be allowed. • Removal of vegetation should be restricted to what is absolutely necessary; - Alien vegetation, as listed in the report, must be removed from the study area during both the construction and operational phases, with specific mention of Category 1b and 2 species in line with the NEMBA Alien and Invasive Species Regulations (2016); • Edge effects of all construction activities, such as erosion and alien and invasive plant species proliferation, which may affect the sensitive habitat areas as stipulated in this report, as well as adjacent grassland and freshwater resource habitat within surrounding areas, need to be strictly managed adjacent to the proposed development footprint areas. Specific mention in this regard is made to Category 1b and Category 2 species identified within the development footprint areas: and • Upon completion of construction activities, it must be ensured that no bare areas remain, and that indigenous grassland species be used to revegetate the disturbed area. Recommended seed mix: Mayfort Biosome Grassland seed mix: http://mayford.co.za/veld-grass.						
Impacts on Fauna															
• General clearing of vegetation • Excavation of soils leading to increased runoff	• Loss of faunal habitat, species and faunal SCC • activities could lead to disturbance and	-	-	-	-	-	-	• The footprint of the proposed development must be fenced/ demarcated off to prevent vegetation clearing and footprint creep into the sensitive freshwater habitat.	-	-	-	-	-	-	

and sedimentation freshwater habitat • Site clearing and the removal of habitat within the freshwater habitat and associated buffer zones • Vegetation clearance and construction • Collision of faunal species with construction vehicles • Potential hunting/trapping /killing of faunal species by construction personnel • Dumping of material outside designated areas	compaction of soils in close proximity of the freshwater habitat and outside of the footprint area, leading to decreased faunal habitat							• No new access roads should be constructed crossing over the freshwater habitat; • Vegetation clearance and commencement of construction activities should either be scheduled to coincide with low rainfall conditions when erosive stormwater is anticipated to be limited or alternatively stormwater controls must be established at the start of construction and dust suppression implemented. • Revegetation of disturbed areas that form part of the proposed open space areas should be carried out in order to restore habitat availability and minimise soil erosion and surface water runoff. • When rehabilitating disturbed areas, it is recommended that natural indigenous vegetation be used so that faunal species that were displaced by vegetation clearing activities are able to utilise and inhabit these areas. • Removal/ cutting down of large indigenous trees (>2.5m) within the riparian areas should be avoided as these are considered important for avifauna and cannot be readily replaced through rehabilitation. • Spills and /or leaks from construction equipment must be immediately remedied and cleaned up so as to ensure that these chemicals do not enter into the soil later or freshwater habitat. • Each construction team/site should have an individual that has undergone a snake handling course so as to safely catch and release any snakes within the site. • Construction personnel are to be informed and educated with about general faunal species that						

								may be encountered on site, notably of snakes. Personnel are to be instructed that if encountered they are not to kill the faunal species but let them either move off on their own or call the nominated construction personnel who is to safely catch and release the snake; • No hunting/trapping or collecting of faunal species is allowed. • Should any faunal SCC be encountered/observed during construction activities in that area are to be halted and a biodiversity specialist consulted to determine the best way forward. • Construction edge effects, notably stormwater runoff, are to be actively managed so as to ensure that the downslope freshwater habitat is not impacted upon. As such, SuDs should be utilized as part of the development to recreate additional freshwater habitat that could be colonized by aquatic faunal species. • No informal fires by construction personnel are allowed; and • Initiate an alien and invasive plant control.						
Soil erosion and sedimentation																	
• Clearance of vegetation. • Rainfall/ stormwater and inadequate drainage. • Leakages and spillages of chemicals/polluting material	• Destabilisation of surface geology and soil as a result of excavations and heavy loads; • Erosion, degradation and loss of topsoil due to construction activities as well as	-	-	-	-	-	-	• Site disturbances must be limited to areas where structures will be constructed. Cleared areas to be effectively stabilised to prevent and control erosion. Excess rocks and boulders can be used for erosion protection work on site. • Stormwater management plan to be implemented. • Areas susceptible to erosion must be protected by installing the necessary protective materials. • Any tunnels or erosion channels developing	-	-	-	-	-	-

	storm water runoff; • Soil compaction and erosion leading to sedimentation of the wetland. • Soil pollution							during the construction period shall be backfilled and compacted. • Suitable excavated material is to be stockpiled next to excavations for use as backfill. Excess material from excavations and construction rubble must be appropriately disposed of. • Soil stockpiles must be situated away from drainage areas. Soil from the excavation for bio-retention ponds to be stockpiled upward slope of the excavations. • Areas exposed to erosion due to construction activities must be vegetated with species naturally occurring in the area. • Dry chemicals to be stored on an impervious surface protected from rainfall and storm water run-off. • Spill kits should be on-hand to deal with spills immediately. • Spillages or leakages must be treated according to an applicable procedure as determined by a plan of action for the specific type of disturbance. • All construction vehicles should be inspected for oil and fuel leaks regularly and frequently. Vehicle maintenance will not be done on site except in emergency situations in which case mobile drip trays will be used to capture any spills. Drip trays should be emptied into a holding tank and returned to the supplier						
Increase in invasive plants															
Construction related activities such as clearing of	Spread of alien plants	-	-	-	-	-	-	• Eradication of the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and reinvasion.	-	-	-	-	-	-	

vegetation and disturbance of soils								• Weeds and invader plants will be controlled in the manner prescribed for that category by the CARA or in terms of Working for Water guidelines. The control of these species should even begin prior to the construction phase considering that small populations of these species was observed during the field surveys. • Institute strict control over materials brought onto site, which should be inspected for seeds of noxious plants and steps taken to eradicate these before transport to the site. Routinely fumigate or spray all materials with appropriate low-residual herbicides prior to transport to or in a quarantine area on site. The contractor is responsible for the control of weeds and invader plants within the construction site for the duration of the construction phase. Alien invasive tree species listed by the CARA regulations should be eradicated. • Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish. • A plan should be developed for control of noxious weeds and invasive plants that could occur as a result of new surface disturbance activities at the site. The plan should address monitoring, weed identification, the manner in which weeds spread, and methods for treating infestations. Require the use of certified weed-free mulching. Prohibit the use of fill materials from areas with known invasive vegetation problems. The spread of invasive non-native plants should be avoided by						

								keeping vehicles and equipment clean and reseeding disturbed areas with native plants. • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. Once detected, an eradication/control programme should be implemented to ensure that the species' do not spread to surrounding natural ecosystems.						
Contamination of the environment															
Spillages of hydrocarbons and other chemicals as well as construction related waste and ineffective waste and pollution management	Contamination and pollution of soils, surface and groundwater resources	-	-	-	-	-	-	• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants • A walled concrete platform, dedicated store with adequate flooring or bermed area should be used to accommodate chemicals such as fuel, oil, paint, herbicide and insecticides, as appropriate, in well-ventilated areas. Sufficient care must be taken when handling these materials to prevent spillages. • Surface water draining off contaminated areas containing oil and petrol would need to be channelled towards a sump which will separate these chemicals and oils. • Oil residue shall be treated with oil absorbent such as Drizit or similar and this material removed to an approved waste site. • Storm water shall not be allowed to flow through the batching area. Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the Site Engineer.	-	-	-	-	-	-

								• All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring. • Implement and adhere to the conditions of the Environmental Management Programme (EMPr).								
Impacts on non-perennial stream																	
• Site clearance and construction works. • Spillages of hydrocarbons and other chemicals as well as construction related waste and ineffective waste and pollution management. • Construction of infrastructure services.	• Loss of wetland habitat and ecological structure. • Changes to wetland ecological and sociocultural service provision. • Wetland hydrological function and sediment balance affected. • Contamination of surface and groundwater due to spillage, leakage, incorrect storage and handling of chemicals, oils, lubricants, cement, fuels and other hazardous materials • Erosion of the banks and wetland pollution	-	-	-	-	-	-	• Limit clearing of vegetation and associated soil disturbances to essential areas only. Protect exposed soils by means of geotextile such as hessian sheeting. Ensure contractor laydown areas are placed outside of the wetland areas and buffer zones. • All wetland areas and associated buffer zones to be clearly demarcated on site, and, except for infrastructure services, to remain off limits to all non-essential personnel. No vehicles to be permitted within the wetland habitat. • Protect exposed soils and stockpiles by covering with a suitable geotextile such as hessian sheeting. Limit the time in which soils are exposed. No stockpiles to be permitted within wetland areas or buffer zones. • Stockpiles during the construction of the retention ponds to be upslope of the excavated areas. • All wastes are to be removed from the site and disposed of at a registered facility. • Storm water management measures to be installed to prevent erosion and minimise sedimentation of the stream. • All hazardous substances must be stored on an impervious surface in a designated bunded area	-	-	-	-	-	-

	• Impeded flow of surface water							able to contain 110% of the total volume of materials stored at any given time. • Vehicles to be regularly inspected for leaks and to be refuelled on sealed surface to prevent ingress into soils. All spills are to be immediately cleaned up and treated accordingly. • Contractor's camp, storage areas and sanitary areas must be kept outside of the buffer zone. • These sites must be kept tidy, in good condition and sanitary throughout the whole project. Refuse bins must be cleaned/ emptied, and the waste must be removed at regular intervals in order to ensure capacity is always available. • A minimum of 1 chemical lavatory per 10 individuals must be provided. If applicable (i.e. if no other facilities, such as a change house, are available), all portable lavatories must be secured to the ground to prevent them from toppling due to wind, and should be located at least 100m away from the freshwater resources to prevent inadvertent sewage contamination of the freshwater resources.						

8.3.1.2 Socio-economic impacts

Table 9: Assessment of socio-economic impacts during construction

Source of impact	Potential impact	Impact Significance before mitigation						Mitigation measures	Impact Significance after mitigation					
		E	D	I	P	Total	Rating		E	D	I	P	Total	Rating
Noise														
• Ground works/clearance.	• Increase in noise generated by	-	-	-	-	-	-	• Surrounding residents must be notified in advance of construction schedules.	-	-	-	-	-	-

• Excavation/Foundations. • Building activities. • Transportation of building material to and from the construction site. • Assembling of equipment/machinery and buildings.	construction activities • Noise from vehicular traffic • Noise from machinery on site							• Impose construction down time from 17h00 to 07h00 daily, public holidays and over weekends. Work hours must be strictly enforced unless permission is given by the relevant authority. Permission must not be granted without consultation with the local residents and businesses by the Environmental Officer (EO). • The EO must inform the residents of houses and businesses adjacent to the development in writing 24 hours prior to any planned activities that will be unusually noisy or any other activities that could reasonably have an impact on the adjacent sites. These activities could include, but are not limited to, blasting, piling, use of pneumatic jackhammers, and compressors, bulk demolitions. • All construction vehicles must be in a good working order to reduce possible noise pollution. • Noise reduction by limiting unnecessary noise, especially loud talking, shouting or whistling, radios, sirens or hooters, motor revving, etc. The use of silent compressors is a specific requirement. • The conditions as set out in the Occupational Health and Safety Act No. 85 of 1993 must be adhered to be the contractor, especially where noise levels will exceed 85 Db.						
Traffic congestion and safety																	
Construction vehicles moving to and from the site using internal estate road network	Increase in vehicular traffic leading to impeded flow	-	-	-	-	-	-	• Vehicular movement beyond the site boundaries must be limited during peak hour traffic, i.e. between 07:00-09:00am, and 16:00-18:00pm. • As per the Traffic Impact Study, the phased development will be subject to the completion of road upgrades and access routes, where necessary.	-	-	-	-	-	-			

								• The main contractor must ensure all construction vehicles accessing the site only utilise the designated route and access to the site. • Enforce speed limits at all times on all external access roads. Unless otherwise specified, the speed limit on construction roads is 50km/h. • Allow for safe pedestrian and cycling access and crossing where necessary. • Ensure adequate and appropriate warning signage for construction vehicles turning at the main entrance/exit. • Traffic controllers must be positioned at strategic points along the access road to ensure minimum disruption of traffic by construction vehicles						
Dust nuisance																	
Construction activities including vegetation clearance and ground levelling Vehicular movement on construction roads	Dust generation and pollution which would affect adjacent developments as a result of construction activities and vehicles on site.	-	-	-	-	-	-	• Dust emissions must be kept low at all times during construction, and dust suppression measures such as water spraying should be implemented regularly on areas of the construction site associated with high dust emissions. • Construction vehicles with mud laden tyres should be cleaned prior exit to prevent mud deposition along the local roads. • Dispersive material in trucks should be dampened or covered.	-	-	-	-	-	-
Visual impacts																	
• Site clearing, including the removal of topsoil and vegetation leading to higher visual contrast	• Landscape character and sense of place • Visual intrusion and VAC	-	-	-	-	-	-	• Site offices and temporary structures should be limited to single storey and situated at such a location so as to reduce visual intrusion. • The construction site should be demarcated and screened with a solid material in order to limit	-	-	-	-	-	-

with the surrounding • Construction of general surface infrastructure including access roads • Topographically altering the landscape within the Erasmus Park Phase 2 development area during site sloping activities	• Visual exposure and visibility • Impacts due to night-time lighting.							visual impact on passing motorists and residential in a direct line of site of the development. • Where infrastructure is sited within view of visually sensitive areas, it must be placed as far away as possible or within lower-lying areas where it may be screened by topography. Where full screening of infrastructure components is not possible, siting should take advantage of partial screening opportunities, such as vegetation, or making use of a colour palette that will blend into the surrounding landscape. • It must be ensured that where possible existing vegetation be retained during the construction phase to act as visual screens, with particular reference to existing tall trees and larger shrubs, with care also taken to retain existing vegetation along the site boundaries. • Where possible, existing natural vegetation is to be retained during the construction and operational phases of the project and incorporated into the concurrent site rehabilitation especially in line of sight from sensitive receptors. • Roadside vegetation and use of tall trees should be incorporated into landscaping plans of the proposed Erasmus Park Phase 2 development Screening by vegetation will become effective once the vegetation has grown to 8m in height. • Erosion, which may lead to increased levels of visual contrast and further detract from the visual environment, must be prevented throughout the lifetime of the project by means of putting soil stabilisation measures in place where required and through concurrent rehabilitation.						

								• Dust suppression must take place during the construction phase of the development. • Outdoor lighting must be strictly controlled. • Low-level lighting or limiting mounting heights of lighting fixtures or utilising foot-light or bollard level lights is recommended. The use of high light masts and high pole top security lighting should be avoided along the periphery of the development. Any high lighting masts should be covered to reduce glow and light spillage. • Use of minimum lumen or wattage in light fixtures						
Waste management																	
Construction activities Construction material on site	• Contamination of the site with general and hazardous waste • General waste produced on site includes: Office waste; Operational waste (clean steel, wood, glass); and General domestic waste (food, cardboards, paper, bottles, tins). • Contamination or pollution of or effluent release into surface	-	-	-	-	-	-	• No construction waste must be dumped in surrounding areas, and all waste illegally dumped on site must be removed and disposed at a registered landfill site. • All building waste generated during construction must be managed in terms of the Gauteng Building and Demolition Waste Guidelines, 2009 which prescribe a waste hierarchy approach to waste management. • A suitable flat area must be designated for the temporary storage of all waste material from the construction site. • Appropriate measures should be taken to divert stormwater away from the waste storage area. • None re-usable/recyclable building rubble and solid material must be disposed at a registered waste facility. • The contractor must ensure all waste disposal certificates are kept on file for record purposes and as proof should these be required. Littering is strictly prohibited, and appropriate receptacles	+	+	-	-	-	-

	water, groundwater, rivers and other nearby hydrological or ecological systems with general and hazardous waste.							should be made available within the construction site. • Domestic waste generated on site during construction to be collected in waste skips. Waste skips containing food waste must be covered. • Adequate on-site chemical sanitation systems (one toilet for every 10 workers) must be provided within walking distance to all construction workers. • Solid construction waste not posing a pollution hazard should be used on site as backfill or aggregate material as much as possible. Should no backfilling material be required, this waste should either be taken to a recycling facility or disposed at a registered landfill facility. • The burning of litter or waste on site is highly prohibited. Litter patrols must take place once a week to ensure the site as well as the property is kept free of litter. • Waste shall be separated into recyclable and non-recyclable waste. Bins shall be clearly marked for ease of separation. The contractor must adhere to all the relevant laws and regulations applicable to the disposal of construction waste and rubble. • The contractor shall provide sufficient closed containers on site, as well as waste skips, which must be placed in the crew camp, to handle the amount of litter, wastes, and builder's wastes generated on site. • Containers shall be emptied once weekly by a licensed waste contractor and disposed of at a registered landfill site. No solid waste or any materials used may be disposed of on site.						

								• No rubble or discarded building material should remain in a non-designated within the construction site for more than one week. • An area must be designated for mixing of concrete and must take place on an impervious surface such as concrete slab, metal, or plastic sheeting which is provided with cut-off drains or berms to contain any contaminated run-off. • Contain water and slurry from cement and concrete mixing operations as well as from batching area wash bays. Direct such wastewater into a settlement pond or sludge dam for later disposal. • Liquid waste consists mainly of used oil, contaminated fuel, and lubricants, as well as waste paint etc. Liquid wastes must be collected in original containers and stored inside a surfaced or bunded storage area. The bunded surface area volume should be equal to 110% of the total volume of liquid stored. • All hazardous solid and liquid waste to be disposed of at a class H:H registered landfill site only. All concrete that is spilled outside these areas must be promptly removed by the Contractor and taken to an approved dumpsite. • After all the concrete mixing is complete all waste concrete must be removed from the batching area and disposed of at an approved dumpsite. No concrete residue is to be washed off into rivers, streams, or wetlands.						
Health, safety and security																	
• Increase of people and vehicular	• Increase in crime in the area	-	-	-	-	-	-	• Access to the site must be limited to the workforce only.	-	-	-	-	-	-			

movement in the area. • Dangers posed by construction site. • Workforce exposed to dangerous equipment	• Migration of job seekers into the area in search of employment. • Accidents and threat to life in construction environment							• Accommodation for members of the workforce is not permitted on site unless authorisation has been given in terms of the Environmental Authorisation issued for the site. Crew camps must be kept to the north and eastern portions of the site in such an event. • No crewmember will be allowed to move onto private property under any circumstances. • The contractors must provide and maintain a method statement for "Crew camps and construction lay down areas". • The development will have 24-hour access control and security. • Safety equipment and emergency measures to be available on site. • Community Liaison Officer can be appointed. The CLO to be consulted regarding employment of members of the surrounding communities.						
Employment opportunities and accruing economic activities															
• Labour demands from construction activities • Increase in number of people buying from local traders	• Additional employment opportunities resulting from construction works • Increase in business/trade by local suppliers	+	+	+	+	+	+	• Direct and indirect jobs and business opportunities will be created during the construction phase. Businesses in the material supply chain will also benefit. • As far as reasonably possible people from nearby communities especially with disadvantaged backgrounds must be employed by the principal construction contractor and sub-contractors. • Skills transfer should be promoted where possible.	+	+	+	+	+	+

8.3.2 Assessment of Impacts during the Operation Phase

Table 10: Assessment ofImpacts during the operation phase

Source of impact	Potential impact	Impact Significance before mitigation						Mitigation measures	Impact Significance after mitigation					
		E	D	I	P	Total	Rating		E	D	I	P	Total	Rating
Impacts on Flora														
• Increased introduction and proliferation of alien plant species leading to further transformation of remaining natural vegetation • Increased littering as a result of more human activity, further altering floral habitat and diversity • Inadequate rehabilitation of compacted soil areas leading to limited vegetation regrowth • Inadequate implementation of a rehabilitation, management and maintenance plan leading to increased alien invasive plant proliferation and further loss of natural vegetation.	Loss of floral habitat, species and SCC	-	-	-	-	-	-	• All sensitive habitat excluded from the development, should remain demarcated for the life of the operation, and no entry of unauthorised personnel should be allowed. • Ongoing alien and invasive plant monitoring and eradication/control should take place throughout the operational phase of the development, and the project perimeters should be regularly checked during the operational phase for alien and invasive plant proliferation as well as bush encroachment to prevent spread into surrounding natural areas. Specific mention in this regard is made to Category 1b and Category 2 species identified within the development footprint areas. • Indigenous vegetation should be used during the landscaping of the project, maintenance and monitoring of garden ornamentals used in the landscaping should be included in the monitoring and maintenance plan to prevent the spread of such species to the sensitive habitat units excluded from the development; • No indiscriminate disposal of waste must be permitted. Bins should be provided along the open space areas, to allow for disposal of waste. Bins should be emptied twice weekly and disposed of registered waste facilities.	+	+	+	-	+	-

								• The rehabilitation of natural vegetation should proceed in accordance with a landscape plan compiled by a suitable specialist. This plan should consider all development phases of the project indicating rehabilitation actions to be undertaken during and once construction has been completed, ongoing rehabilitation during the operational phase of the project; - Monitor the success of rehabilitation efforts seasonally; and • Continue with, and update, the alien and invasive plant control plan accordingly.						
Impacts on Fauna														
• Ineffective rehabilitation leading to proliferation of alien plant species in the disturbed areas • Erosion stemming from bare soil areas leading to sedimentation. • Footprint creep resulting in additional faunal habitat loss. • Spillages from waste water plant leading to pollution of habitat	• Loss of faunal habitat, species and faunal SCC	-	-	-	-	-	-	• All sensitive habitat excluded from the development, should be protected and managed as part of the open space system. • Open space areas are to be suitably planned and maintained with faunal species in mind. As such habitat for faunal species should be recreated using fallen tree stumps and rocks combined with indigenous vegetation. All plants used should be carefully selected so as to provide a suitable food resource to faunal species. • No hunting/trapping or collecting of faunal species is allowed. • Monitor the success of rehabilitation efforts seasonally; and • Continue with and update the alien and invasive plant control plan accordingly. • Maintenance plan developed and implemented to ensure	-	-	+	-	+	-
Impacts on ground water and non-perennial stream														
		-	-	-	-	-	-		+	+	+	-	+	-

• Potential indiscriminate waste disposal. • Increased impermeable surfaces in the vicinity of the wetland and the catchment. • Operations and maintenance of stormwater and sewage infrastructure. • Overflows and breakdowns of the sewer plant polluting ground and surface water • Potential for increased proliferation of alien floral species, leading to reduced ability to support biodiversity, and provide ecological services such as flood attenuation.	• Altered water quality due to waste disposal. • Pollution of riparian soils, groundwater and surface water • Altered runoff patterns and increased water inputs to the wetland, • Altered flow regime may lead to changed wetland zonation, • Contamination as result of overflows and poor maintenance • Contamination of wetland soils, groundwater and surface water							• No waste disposal is to be permitted within wetland areas or the associated NEMA zone of regulation & GDARD setback area. All waste is to be removed from the site and disposed of at a registered facility. • Adequate stormwater management plan to be incorporated into the design of the development. Release of stormwater into the wetland must not result in further bank incision or erosion. Highly recommended that Sustainable Drainage Systems (SUDs) be implemented. • All wetland areas and associated buffer zones to be clearly demarcated on site, and, except for infrastructure services, to remain off limits to all non-essential personnel. No vehicles to be permitted within the wetland habitat. • Any spills to be immediately cleaned up and treated accordingly. Ensuring that suitable wetland vegetation remains post construction to assist in filtering toxicants from stormwater runoff. • Package plant maintenance plan be developed and implemented. • Alien vegetation management plan to be developed and implemented. Incorporate indigenous terrestrial and wetland vegetation into landscape plan (if applicable). • Stormwater discharge from the retention ponds to flow slowly into the wetland without any erosion. Regular inspection and maintenance to take place to prevent failure of infrastructure.						
Noise																	
• Increase in the traffic noise along the access road	• Traffic noise on the proposed residential	-	-	-	-	-	-	• There will be no busy road adjacent to the proposed development,	-	-	-	-	-	-			

• Mechanical ventilation and other sources of noise from the proposed office and shopping centre developments • Emergency generator	development from R82 and other roads. • Mechanical ventilation and other sources of noise from the developments – HVAC system, heat pumps, extractor fans. • Emergency generator.							• The indoor noise levels to comply with the recommended noise levels in Table 1 of SANS 10103 of 2008. • All point sources such as HVAC systems, mechanical ventilation systems, extract systems and any other sources of noise to be acoustically screened off. A lay-out plan to be provided and assessed for any additional noise sources which must addressed. • The emergency generator to be encapsulated and installed in such a manner that the noise from the generator and/or exhaust will not exceed the prevailing ambient noise levels as measured at any of the boundaries of the development.								
Traffic congestion and safety																	
Increase in vehicular traffic	• Increased number of vehicles on the local road network • Planned road improvements and upgrades will affect the local traffic pattern and the normal flow of traffic in the area.	-	-	-	-	-	-	• As per the Traffic Impact Study, the phased development will be subject to the completion of road upgrades and access routes. • Access points to the site must be kept clear to allow for efficient flow in and out of the development. • Enforce speed limits at all times on all external access roads. • Road upgrades should be phased to limit disruption and prevent blockages in the flow of traffic. • Allow for safe pedestrian and cycling access and crossing where necessary.	+	+				
Visual Impact																	
• Increase in vehicular movement due to	• Landscape character and sense of place	-	-	-	-	-	-	• Where possible, existing natural vegetation is to be retained during the construction and operational phases of the project and incorporated into the	+	+	+	-	+	-			

resident, office and retail workers • Sunlight reflecting off the windows of taller buildings creating glint and glare impacts, • Night-time lighting due to 24-hour office lighting.	• Visual intrusion and VAC • Visual exposure and visibility • Impacts due to night-time lighting							concurrent site rehabilitation especially in line of sight from sensitive receptors. • To limit the potential of sunlight reflecting off the windows from taller buildings it is recommended that tinted windows be utilised, particularly for the top three storeys • Outdoor lighting must be strictly controlled. • Low-level lighting or limiting mounting heights of lighting fixtures or utilising foot-light or bollard level lights is recommended. The use of high light masts and high pole top security lighting should be avoided along the periphery of the development. Any high lighting masts should be covered to reduce glow and light spillage. • Care should be taken when selecting luminaries to ensure that appropriate units are chosen and that their location will reduce spill light and glare to a minimum. Only "full cut-off" light fixtures that direct light only below the horizontal must be used on buildings.						
Employment opportunities and accruing economic activities																	
• Labour demands from cooperation activities • Improved land attracting more taxes. • Increased market for goods and services.	• Additional employment opportunities from the activities. • Increase in economic/business activity in the area • Increase in property rates and taxes to	+	+	+	+	+	+	Not mitigation measures but benefits accruing as a result of the project • The greatest proportion of operational phase direct impacts • If the proposed Development were not to occur, the economic and socio-economic benefits in terms of additional business sales, GGP, employment, as well as property rates, would be lost to the local, metropolitan and provincial economies.	+	+	+	+	+	+

	the municipality																
Access to and improved infrastructure and socio-economic services in the area																	
Developed precinct	• Improved roads. • Access to a mix of residential units. • Access to social infrastructure	+	+	+	-	+	-	• Infrastructure provisions to be in accordance with municipal requirements. This will lead to improved infrastructure services due to upgrades as part of the development. • Provision of reticulated sewer and water services within the proposed development	+	+	+	-	+	-		

8.3.3 No-go Option

Table 11: Assessment of the No-Go option

Nature of impact	Implications	Significance
Biophysical		
Impacts on Flora	No construction and operations impact. However, degradation may continue given the extent of disturbance observed on site leading to loss of floral species	+
Impacts on Fauna	Although there will be no impacts induced by the development, degradation of the habitat may continue given the extent of disturbance observed on site	+
Soil erosion and sedimentation	No soil erosion induced by development	+
Increase in invasive plants	With no development, the rate of increase of invasive plants is expected to be slow. It will be required that the landowner manages the spread of these plants on a continuous basis.	-
Contamination of the environment	Except through uncontrolled illegal activities, this impact will be avoided	+
Impacts on wetland	No installation and operation of infrastructure close to the streams, therefore the wetland and associated habitat will not be disturbed through construction. However, the proposed rehabilitation work will not take place which might contribute to the degradation of the resource	-
Socio-economic		
Noise	No noise generated or addition to existing levels	+
Traffic congestion and safety	No additional traffic into the road system.	+

Dust nuisance	Without clearance of vegetation and excavations, dust nuisance will not be experienced	+
Visual impact	The current status, open space will continue. Therefore, there will be no change in sense of place or introduction of buildings changing the visual character of the site	+
Waste management	No waste generated on site. However, site has to be secured so that no dumping of waste takes place.	+
Health, safety and security	No concerns, however, site should not be used as refuge for nefarious activities	+
Access to wide choice of housing typologies in the area	No housing units created	-
Employment opportunities and accruing economic activities	No opportunities created	-
Access to and improved infrastructure	No infrastructure provided. Access to such services to be found in alternative areas/sites	-

9.0 ENVIRONMENTAL IMPACT STATEMENT

9.1 Summary of key findings

During the EIA process, the impact of the proposed development on the biophysical and socio-economic environments was assessed. Specialists were appointed to conduct relevant aspects of the project. Below is a summary of the key findings (details can be obtained from the relevant specialist reports).

Table 12: Summary of key findings in specialists' reports

Nature of assessment	Aspects Assessed	Findings and recommendations
Ecological assessment	Faunal assessment	Based on the findings of the ecological assessment it is the opinion of the ecologists that from a faunal ecological viewpoint, the proposed project be considered favourably. However, all essential mitigation measures and recommendations presented in this report should be adhered to as to ensure the ecology within the proposed construction areas as well as surrounding zone of influence is protected or adequately rehabilitated in order to minimise the deviations from the Present Ecological State. Particular attention needs to be paid to the location and extent of wetland features in order to ensure development related activities do not encroach unnecessarily into these zones and that ongoing functionality of these systems is maintained.
	Floral assessment	The proposed development of Development site was found to be largely on degraded vegetation units, with potential impacts in isolated areas on wetlands. The importance of rehabilitation and implementation of mitigation measure to prevent negative impacts on the environment during and after the construction phase should be considered a high priority. Considering the results from the field surveys, mitigation needs to be implemented on the more natural areas such as the wetlands to prevent any negative impacts on the ecosystem, although the remainder of the site is in a highly degraded to modified state. It is recommended that, from a floral ecological perspective, the proposed development activity be considered acceptable, provided that the recommended mitigation measures for the identified impacts are adhered to.

Wetland assessment	The study undertaken by Cornerstone Consultants did not find any natural wetland on site. However, a non-perennial stream was identified, and the applicant intends to use the area around this natural feature as open space. In addition to the non-perennial stream identified, there were some seepages and stormwater channels that were also identified on site. The study concluded that the seepages were as a result of water damming up the quarries onsite. The study recommended a stormwater management plan that includes the principle of SUDS, and the eradication of alien invasive species.
Heritage Impact	The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped, and a qualified archaeologist be contacted for an assessment of the find. If such site were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by NC-PHRA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required.
Visual Impact Assessment	The proposed project is expected to have low visual intrusion on portions of the surrounding farms and the residential are. Due to the undulating terrain, vegetation, existing anthropogenic structures and residential suburbs with well-established gardens comprising tall trees and the visual absorption capacity of the area, the visual impacts are expected to be low. No sensitive receptors exist close to the site. The overall value and sense of place of the receiving environment is considered to be of low significance. Therefore, the project should be considered favourable from a visual impact perspective, provided that the required mitigation and management measures be implemented in support of Integrated Environmental Management (EIM).
Noise Impact Assessment	The proposed development will be in line with SANS 10103 of 2008 - The measurement and rating of environmental noise with respect to annoyance and to speech communication and the Gauteng Noise Control Regulations, provided that the acoustic screening measures are in place.
Geotechnical investigations	The site is not underlain by dolomite therefore no studies were conducted. The requirements of the Council for Geoscience and NHRBC must be met as part of securing the development rights.

9.2 Key positive and negative impacts

Based on the impact assessment, a number of potentially negative and positive impacts have been identified, assessed and summarised in the table below.

Table 13: Key positive and negative impacts

Positive	Negative
Biophysical Environment	
The design of the layout has considered and integrated the physical, ecological and hydrological constraints of the site.	There will be permanent alteration of the biophysical environment as a result of the development. Mitigation measures proposed to be implemented.
Activity utilises a predominately degraded site. Minimal sensitive biodiversity features will be lost with the implementation of the proposed activity	Remnants of areas with vegetation regarded as of medium sensitivity will be lost. Area currently viewed as passive open space will be lost
Rehabilitation of the wetland and implementation of proper stormwater management system. The potential for improvement is significant if stormwater management is done correctly and if sediment generation is managed	• The development will lead to an increase in hardened surfaces thereby increasing storm water run-off. • The activity will lead to reduced connectivity between the watercourse elements to the south of the site.
Opportunity to effectively manage alien vegetation specie proliferation through a dedicated management programme	• Possible spread of alien vegetation resulting from extensive vegetation clearance and soil disturbance.
Socio-economic Environment	
Creation of substantial employment opportunities during the construction phase followed by substantial economic, employment and housing opportunities during the operational phase	• Activity could lead to influx of people into the area which could lead to strain on infrastructure and social problems. • Potential traffic congestion if the road infrastructure is not improved.
Provision of economic development, services and business opportunities and infrastructure in the area.	• Change in the character of the area which might not suite current residents in the area. • Removal of illegal activities utilising the site.
Improvement in infrastructure services in the area	Possible disruption to daily lives of residents during construction and infrastructure improvements
Improvement to the tax base for municipality	Realisation of such improvements might take a long time given the nature of development
Activity is aligned with municipal and provincial spatial plans will lead to infill and densification within the urban fabric	Infrastructure, including road network might be strained if no commensurate upgrades are implemented
Alignment with government policy on integrated settlements.	Services infrastructure might be strained if no commensurate upgrades are implemented
Visual impact- the design of the scheme will result in a visually pleasing architectural style and should enhance the environment	Development could result in a significant degree of visual intrusion if the height and treatment of designs do not consider the predominant theme, VIA recommendations and municipal restrictions.

10.0 CONCLUSION AND RECOMMENDATIONS

10.1 Process followed

The Environmental Impact Assessment (EIA) process for the proposed activity has been undertaken in accordance with the EIA Regulations published in Government Notice No. R. 982 of 2014 in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) (as amended). To ensure that the activity is implemented in an environmentally responsible and sustainable manner, relevant/applicable legislation has been considered. The provisions in the latter as well as the specialist studies, input from stakeholders and knowledge of the site informed the identification and development of appropriate options and management measures that should be implemented to ensure that the project is sustainable.

The conclusions of this draft EIAR including comments and concerns from Interested and Affected Parties (I&APs), are as a result of a comprehensive EIA study. These studies are based on issues identified in the Environmental Scoping Study as well as the public participation process in the EIR phase.

10.2 Assumptions, uncertainties or gaps in knowledge

No impact assessment can be completely certain of the exact nature and extent of the various impacts that would result from a given development activity. However, this assessment strives to limit any uncertainties by optimising the collection of base data, and by following a rigorous impact assessment methodology. Consequently, it can be stated that the uncertainty in this study would be limited to changes in the development circumstances at a scale that is beyond the locally focussed impact assessment exercise such a drastic change to the economic climate that alters the viability of the proposal. In addition to the above, the specialists have included relevant assumptions and limitations in their reports.

Relative to their, the following is important:

- All information provided by the applicant and the appointed specialist was correct and valid at the time it was provided.
- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process, which information would not reasonably be evident during the drafting of this report.
- All data from an unpublished research is valid and accurate; and
- The scope of this investigation is limited to assessing the potential environmental and socio-economic impacts which would be reasonably associated with the Eye of Africa Residential Township.

10.3 Concluding remarks

This draft EIAR provides an assessment of both the benefits and potential negative impacts anticipated as a result of the project. It further provides a description of the affected environment and alternatives proposed for the development.

Based on the information contained in this report, and taking into account the outcome of the public participation process, the impact assessment, opinions and recommendations included in the specialist studies as well as all supporting documentation, it is the opinion of the EAP that there are no fatal flaws against the proposed development and that the proposal will not compromise the ability of the Province to meet its ecological biodiversity targets. Should the proposed mitigation measures be implemented correctly, the development will be viable.

From a socio-economic perspective, positive impacts that include creation of employment opportunities, increased economic activities, provision of infrastructure and services, increase in municipal taxes, alignment with municipal and provincial spatial as well as support of integrated development were identified.

From the assessment it is the view of the EAP that this project will have positive social and economic contributions. Although acknowledged that the implementation of the project will result in the short term negative impacts on the biophysical environment, the implementation of the mitigation measures outlined in this report and the EMPr as well as through adequate environmental monitoring and enforcement those impacts can be successfully mitigated.

Thus, from all the findings of this report, it will be recommended that the activity is authorised on the basis of the preferred alternatives.

10.4 Conditions and final recommendations

In order to achieve appropriate environmental standards and ensure that the findings of the environmental studies are implemented through practical measures, the recommendations from this EIA study are included within an EMPr. The implementation of this EMPr is considered essential in managing the negative environmental and social impacts in the implementation of the project.

In addition, the following key conditions should be included as part of the authorisation:

- This authorisation does not absolve the proponent from complying with any other statutory requirements applicable to the undertaking of the activity.
- A suitably qualified and experienced (independent) Environmental Control Officer (ECO) must be appointed to monitor compliance with environmental laws as well as to ensure that the mitigation /rehabilitation measures and recommendations in the EMPr are implemented during the construction phase of the development.
- The 1 in 100-year flood line or 30m wetland buffer zone, whichever is greater, must be pegged and demarcated by a wetland specialist prior to the commencement of any construction activities.
- All construction related impacts (including service roads, site camp, temporary ablution, disturbance of natural habitat, storing of equipment/building materials/vehicles or any other activity), save for installation of services and related infrastructure, must be excluded from the wetland area.
- All foundations for buildings and structures or infrastructure services must be designed according to site specific geological conditions of the site.

- The final Stormwater Management Plan that includes bio-retention ponds and SuDs principles must be submitted to the Midvaal Local Municipality for approval.
- A Water Use Authorisation must be obtained from the Department of Water and Sanitation for any proposed wetland crossings or structures within the 1 in 100-year flood line and/or that trigger a requirement for a water use licence or authorisation.
- The design of buildings and structures should also incorporate the green building standards that promote optimal resource efficiency.
- Should any subsurface archaeological deposits, artefacts or skeletal material be uncovered during construction activities, all activities should be suspended, and the archaeological specialist should be notified immediately.
- Storm water during construction should be channelled down gradient towards the wetland buffer and dissipaters or siltation traps installed where necessary to prevent erosion and sedimentation.
- An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate avoidance, reduction, recycling, re-use and disposal where appropriate. Uncontaminated boulders rubble generated during the construction can be re-used as backfilling material on site. The ELO must ensure that no refuse or builders rubble generated on the construction site is placed, dumped, or deposited on adjacent properties or public open space during or after construction.

11.0 APPENDICES

APPENDIX 1: SITE LAYOUT

APPENDIX 2: PUBLIC PARTICIPATION INFORMATION

APPENDIX 3: SPECIALIST STUDIES AND REPORTS

3.1: Biodiversity Impact Assessment

3.2: Wetland Delineation and Assessment

3.3: Heritage Impact Assessment

3.4: Traffic Impact Assessment

3.5: Geotechnical Assessment

3.6: Engineering Services Report

APPENDIX 4: CORRESPONDENCE WITH AUTHORITIES

4.1 Approval of the Scoping Report

4.2 Comments from the Midvaal Local Municipality

4.3 Comments from SAHRA

APPENDIX 5: ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX 1: SITE LAYOUT AND PLAN

APPENDIX 2: PUBLIC PARTICIPATION INFORMATION

To be included in the Final EIR

APPENDIX 3: SPECIALIST STUDIES AND REPORTS

3.1 BIODIVERITY ASSESSMENT REPORT

3.2: WETLAND DELINEATION REPORT

3.3 HERITAGE IMPACT ASSESSMENT REPORT

3.4 TRAFFIC IMPACT ASSESSMENT

3.5 GEOTECHNICAL ASSESSMENT

3.6 ENGINEERING SERVICES REPORT

APPENDIX 4:CORRESPONDENCE WITH AUTHORITIES

4.1 APPROVAL OF THE SCOPING REPORT

4.2 COMMENTS FORM MIDVAAL LOCAL MUNICIPALITY

4.3 COMMENTS/APPROVAL FROM SAHRA

APPENDIX 5: ENVIRONMENTAL MANAGEMENT PROGRAMME