



Client

P J J van Vuuren Beleggings (Pty) Ltd

Project

Residential Development on Extension 130, North
Riding Environmental Management Programme

Date

November 2019

Labesh

ability to sustain

P J J van Vuuren Beleggings (Pty) Ltd

Environmental Management Programme (EMPr)

EIA Ref No. To be confirmed upon submission of EA to
the competent authority

Plot 24
Haakdoornboom AH
Soutpan Road (M35)
Pretoria North

Cell: 082 789 6525



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Gauteng Spatial Development Framework, 2030.

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<http://bgis.sanbi.org/SpatialDataset>

<http://197.96.144.125/jsviewer/Geohazards/index.html#>

<https://www.windfinder.com/forecast/randburg>

DEFINITIONS

Alternatives

In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the-

- a) property on which or location where the activity is proposed to be undertaken;
 - b) type of activity to be undertaken;
 - c) design or layout of the activity;
 - d) technology to be used in the activity; or
 - e) operational aspects of the activity;
- and includes the option of not implementing the activity.

Application

An application for an Environmental Authorisation (EA).

Basic Assessment Report

A report contemplated in regulation 21 of the EIA Regulations, 2014.

Buffer Area

Unless specifically defined, means an area extending 10 kilometres from the proclaimed boundary of a world heritage site or national park and 5 kilometres from the proclaimed boundary of a nature reserve, respectively, or that defined as such for a biosphere.

Cumulative Impact

In relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

Dangerous Good

Goods containing any of the substances as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "List of classification and labelling of chemicals in accordance with the Globally Harmonized Systems (GHS)" published by Standards South Africa, and where the presence of such goods, regardless of quantity, in a blend or mixture, causes such blend or mixture to have one or more of the characteristics listed in the Hazard Statements in section 4.2.3, namely physical hazards, health hazards or environmental hazards.

Development

The building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, including any associated post development monitoring, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.

Development footprint

Any evidence of physical alteration as a result of the undertaking of any activity.

EAP

An environmental assessment practitioner as defined in section 1 of NEMA.

EMPr

An environmental management programme contemplated in regulations 19 and 23 of the EIA Regulations, 2014.

Environment

The surroundings (biophysical, social and economic) within which humans exist and that are made up of:

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

Environmental Impact Assessment

A systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes Basic Assessment and Scoping and Environmental Impact Reporting.

Independent

In relation to an EAP, a specialist or the person responsible for the preparation of an environmental audit report, means-

- a) that such EAP, specialist or person has no business, financial, personal or other interest in the activity or application in respect of which that EAP, specialist or person is appointed in terms of the EIA Regulations; or
- b) that there are no circumstances that may compromise the objectivity of that EAP, specialist or person in performing such work;

excluding -

- (i) normal remuneration for a specialist permanently employed by the EAP; or
- (ii) fair remuneration for work performed in connection with that activity, application or environmental audit.

Indigenous Vegetation

Vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

Industrial Complex

An area used or zoned for industrial purposes, including bulk storage, manufacturing, processing or packaging purposes.

Mitigation

To anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

Phased Activities

An activity that is developed in phases over time on the same or adjacent properties to create a single or linked entity.

Registered Interested and Affected Party

In relation to an application, means an Interested and Affected Party whose name is recorded in the register opened for that application in terms of regulation 42 of the EIA Regulations, 2014.

Significant Impact

An impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

Specialist

A person that is generally recognised within the scientific community as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socio-economic studies.

Systematic Biodiversity Plan

A plan that identifies important areas for biodiversity conservation, taking into account biodiversity patterns (i.e. the principle of representation) and the ecological and evolutionary processes that sustain them (i.e. the principle of persistence). A systematic biodiversity plan must set quantitative targets/thresholds for aquatic and terrestrial biodiversity features in order to conserve a representative sample of biodiversity pattern and ecological processes.

Watercourse

- (a) a river or spring;
 - (b) a natural channel in which water flows regularly or intermittently;
 - (c) a wetland, pan, lake or dam into which, or from which, water flows; and
- 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 of 1998); and
- a reference to a watercourse includes, where relevant, its bed and banks.

Wetland

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.

ABBREVIATIONS

BAR	-	Basic Assessment Report
BID	-	Background Information Document
CBA		Critical Biodiversity Area
DWS	-	Department of Water and Sanitation
EA	-	Environmental Authorisation
EAP	-	Environmental Assessment Practitioner
EIA	-	Environmental Impact Assessment
EMF	-	Environmental Management Framework
EMPr	-	Environmental Management Programme
ESA		Ecological Support Area
Ha		Hectare
PA		Protected Area
GDARD	-	Gauteng Department of Agriculture and Rural Development
GN	-	Government Notice
I&AP	-	Interested and Affected Party
IWULA	-	Integrated Water Use Licence Application
NEMA	-	National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended
NEM:WA	-	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended
NWA		National Water Act, 1998 (Act No. 36 of 1998)
NHRA	-	National Heritage Resources Act, 1999 (Act No. 25 of 1999), as amended
R	-	Regulation
SANS		South African National Standards
SAHRA	-	South African Heritage Resources Agency

1. PROJECT TITLE

Proposed New Residential Development for P J J van Vuuren Beleggings on Extension 130, North Riding

2. APPLICANT DETAILS

Applicant Name	P J J Van Vuuren Beleggings (Pty) Ltd
Contact Person	Piet Janse van Vuuren
Postal Address	PO Box 555, Wapadrand, 0050
Telephone Number	012 807 0760
Email Address	012 807 0767

3. ENVIRONMENTAL ASSESSMENT PRACTITIONER DETAILS

Environmental Assessment Practitioner Company	Labesh (Pty) Ltd
Contact Person	Lourens de Villiers
Postal Address	Postnet Box 469, Private Bag X504, Sinoville, 0129
Telephone Number	082 789 6525
Email Address	info@labesh.co.za
Qualifications	B.Sc Earth Science (North West University) Hons B.Sc Geography and Environmental Studies (North West University) M.Sc Water Resource Management (University of Pretoria)
Relevant experience	17 years' experience conducting Environmental Impact Assessment processes

The EAP's full Curriculum Vitae is attached to the Basic Assessment Report under Appendix E.

4. LOCATION OF THE PROPOSED DEVELOPMENT AND ACTIVITIES

The property for the proposed development and its associated activities is as follows:

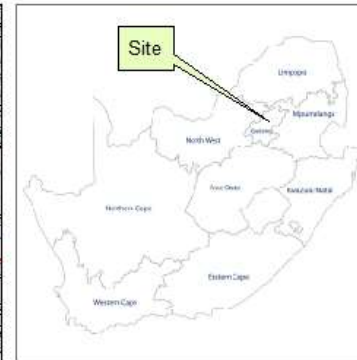
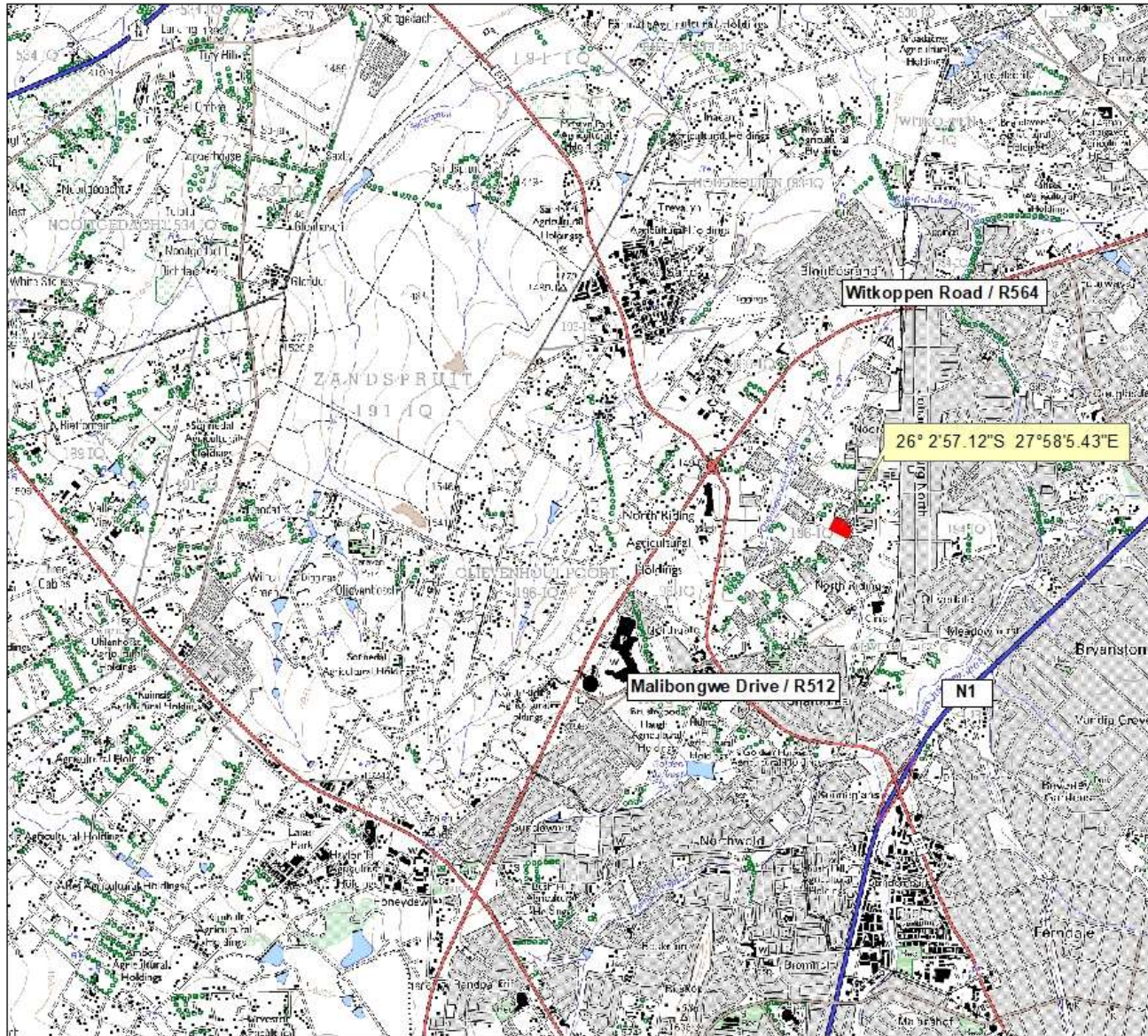
Property/Land Parcel	21 digit Surveyor General Code	Property size
Remaining Extent of Portion 67 (a Portion of Portion 2) of the farm Olievenhoutpoort 196-IQ.	T0IQ00000000019600067	27 572m ² .

The project location is situated north-east of North Riding, in the City of Johannesburg Metropolitan Municipality, Gauteng Province. The sites physical address is: Bellairs Drive, North Riding, Randburg, 2169, Gauteng (on the western side of Bellairs Drive, between Blandford Road and Hyperion Drive).

The GPS coordinates for the project site are as follows:


26°2'57.12", 27°58'5.43".

A locality map, provided on the next page, shows the location of the project property, at an appropriate scale.



Remaining Extent of Portion 67 (A Portion of Portion 2) of the Farm Olifenhoutpoort 196 IQ
LOCALITY MAP

Legend

 Site Boundary_2.7572Ha

NGI Reference: 2627BB
Scale: 1:50 000

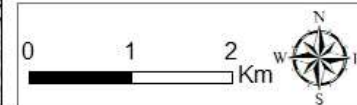


Figure 1: Site locality map.

The following photographs give an indication of the of the project property.



5. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY THAT ARE COVERED BY THE EMPr AS IDENTIFIED BY THE PROJECT DESCRIPTION

5.1 Description of the activities to be undertaken

The project site is currently a vacant property. The proposed residential development will comprise a total of 165 dwelling units (in three (3) storey building). This equates to a density of 59.8 dwellings per hectare (165 dwelling units ÷ 2.7572 hectares = 59.8 dwelling units/hectare). The unit types will include 3 bedroom dwellings units/duplex dwellings. Adequate parking facilities for residents and visitors will be provided. An open space (with an area of 691m²) will be provided on the site. A part of this area will be developed as a play area. Access to the development will be from the east, in Bellairs Drive.

5.2 Listed Activities triggered by the proposed development

The following listed activities are triggered by the proposed development and therefore require Environmental Authorisation, in terms of the Environmental Impact Assessment Regulations of 4 December 2014, as amended:

Table 1: Listed activity/activities triggered by the proposed development

Government Notice and Activity Number	Wording as per the Listing Notice	Description as per the project description relating to each listed activity
GN. R 983 of 8 December 2014, as amended by GN. R 327 of 7 April 2017 (Listed activity no. 27)	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	An area of 2.7572 ha will be cleared for the construction of the proposed new development.

5.3 Water Use Licence Activities

No water use activities are anticipated that will require Water Use Registration and/or Licence applications in terms of Chapter 4 of the National Water Act, 1998 (Act No. 36 of 1998).

5.4 Environmental sensitivity maps – Map at an appropriate scale that superimposes the proposed development footprint on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.

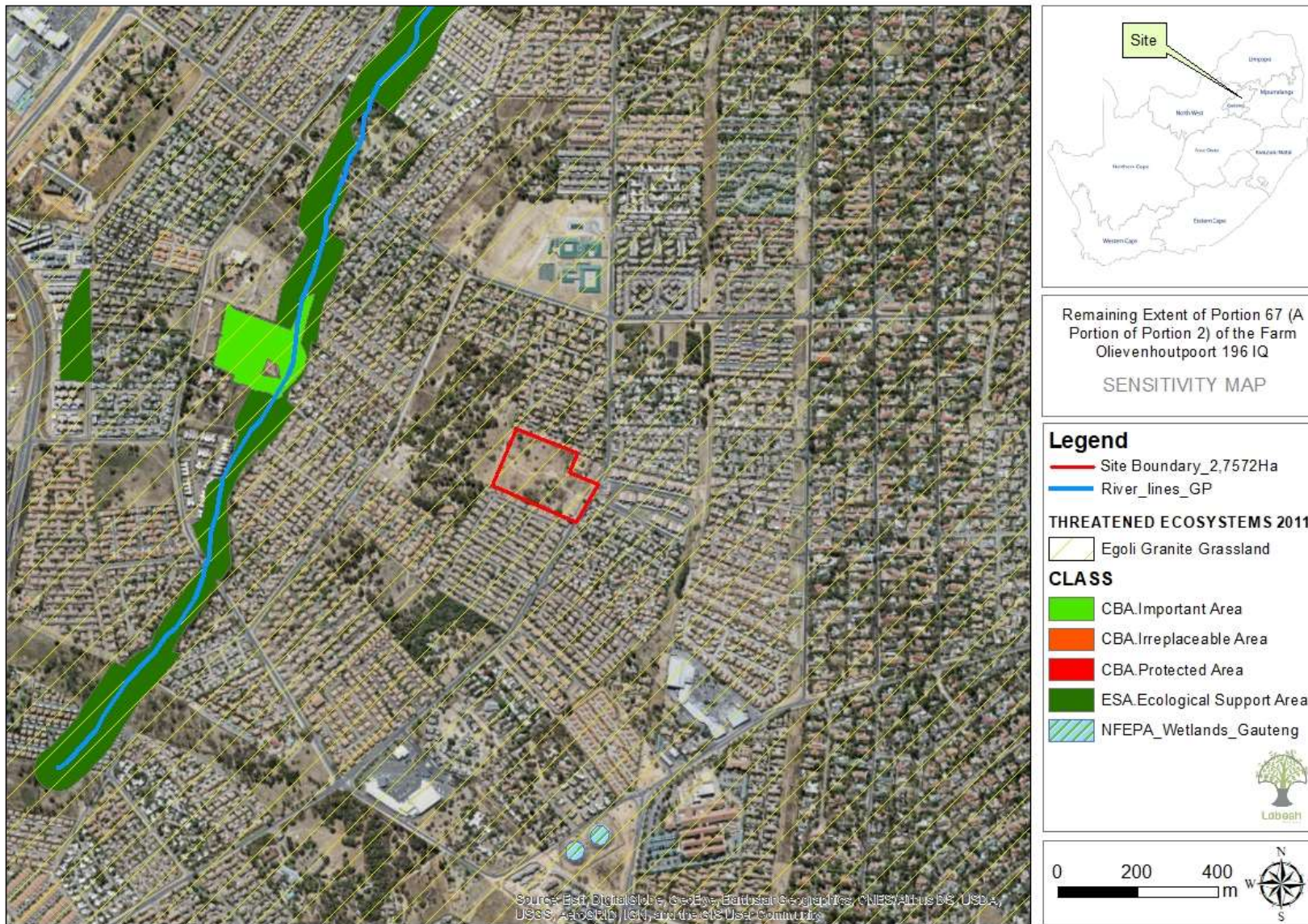


Figure 2: Environmental sensitivity map of the project site

6. POLICY AND LEGISLATIVE CONTEXT OF THE APPLICATION

The following legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments are applicable to the proposed development and have been considered in this Basic Environmental Impact Assessment process. The mitigation measures proposed in this Environmental Management Programme are also aligned with the provisions of the relevant sections of legislation.

Legislation

- The Constitution of South Africa, 1996 (Act No. 108 of 1996), as amended
- The National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended
- The Environmental Impact Assessment Regulations of 4 December 2014, as amended
- The National Water Act, 1998 (Act No. 36 of 1998), as amended
- The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), as amended
- The National Heritage Resources Act, 1999 (Act No. 25 of 1999), as amended
- The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

Spatial tools

- SANBI Biodiversity GIS Database

Municipal development planning frameworks

- Gauteng Provincial Environmental Management Framework, November 2014.
- Gauteng Provincial Environmental Management Framework (Poster).
- Gauteng Spatial Development Framework, 2030.
- City of Johannesburg Land Use Scheme, 2018.
- City of Johannesburg, Joburg 40: Growth and Development Strategy, 2017.

Municipal By-Laws

- All

7. DESCRIPTION OF IMPACT MANAGEMENT OUTCOMES, MANAGEMENT STATEMENTS AND IMPACTS AND RISKS THAT NEED TO BE AVOIDED, MANAGED AND/OR MITIGATED

7.1 Impact Management Outcomes

Please refer to *Table 3* under Section 8 below.

7.2 Impact Management Statements

The applicant, commits to implementing the mitigation actions contained in this Environmental Management Programme in order to ensure that the environmental impacts from their development are minimised.

7.3 Impacts and risks that need to be avoided, managed and/or mitigated

The following impacts and risks have been identified for the preferred alternative and need to be avoided, managed and/or mitigated:

Table 2: Impacts and Risks Identified for the Preferred Alternative

Impact	Phase	Risks
Environment in General	Planning and Design Phase	<ul style="list-style-type: none"> Inadequate planning and design could result in traffic impacts. Inadequate planning and design could result in damage to infrastructure and safety of residents. Inadequate municipal services and storm water infrastructure. The transformation of land with a moderate agricultural sensitivity.
	Pre-construction Phase	<ul style="list-style-type: none"> Unsafe working conditions. Workers being unaware of the dangers of working at the construction site, resulting in a risk to their safety.
Surface and Groundwater	Construction Phase	<ul style="list-style-type: none"> Pollution of surface and/or groundwater resources due to the incorrect management of concrete mixing. Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical substances and dangerous goods. Pollution of surface and/or groundwater resources due to poor waste management. Pollution of surface and/or groundwater resources due to contaminated stormwater.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical substances and dangerous goods. Pollution of surface and/or groundwater resources due to poor waste management. Pollution of surface and/or groundwater resources due to contaminated stormwater.

Impact	Phase	Risks
	Operational Phase	<ul style="list-style-type: none"> • Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical substances and dangerous goods. • Pollution of surface and/or groundwater resources due to poor waste management. • Pollution of surface and/or groundwater resources due to the runoff of contaminated stormwater. • Pollution of surface and/or groundwater resources due to spillages from the sewerage network (pipelines) onsite. • Wastage of resources [municipal water supply and electricity] due to the irresponsible use.
	Decommissioning Phase	<ul style="list-style-type: none"> • No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Fauna	Construction Phase	<ul style="list-style-type: none"> • Disturbance or death of fauna.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> • Disturbance or death of fauna.
	Operational Phase	<ul style="list-style-type: none"> • Cause of pain, suffering or distress to animals and the impact of poisonous chemicals on non-target species.
	Decommissioning Phase	<ul style="list-style-type: none"> • No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Flora	Construction Phase	<ul style="list-style-type: none"> • Site clearance and subsequent loss of vulnerable Egoli Granite Grassland vegetation onsite.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> • Increase in alien invasive plant species on the site.
	Operational Phase	<ul style="list-style-type: none"> • Increase in alien invasive plant species on the site.
	Decommissioning Phase	<ul style="list-style-type: none"> • No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Archaeological, Heritage and Cultural Resources	Construction Phase	<ul style="list-style-type: none"> • Disturbance or destruction of archaeological, heritage or cultural resources.
	Operational Phase	<ul style="list-style-type: none"> • None anticipated.
	Decommissioning Phase	<ul style="list-style-type: none"> • No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.

Impact	Phase	Risks
Palaeontological Resources	Construction Phase	<ul style="list-style-type: none"> Disturbance or destruction of palaeontological resources.
	Operational Phase	<ul style="list-style-type: none"> None anticipated.
	Decommissioning Phase	<ul style="list-style-type: none"> No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Air Quality and Noise	Construction Phase	<ul style="list-style-type: none"> Generation of dust by construction vehicles and wind erosion. Release of emissions from construction vehicles. Generation of nuisance and noise from construction vehicles and equipment/machinery.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> Generation of dust by vehicles, trucks and mobile equipment. Release of emissions from vehicles, trucks and mobile equipment. Generation of nuisance and noise from vehicles, trucks and mobile equipment.
	Operational Phase	<ul style="list-style-type: none"> Release of emissions from vehicles.
	Decommissioning Phase	<ul style="list-style-type: none"> No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Soil	Construction Phase	<ul style="list-style-type: none"> Soil erosion due to the clearance of vegetation. Soil compaction to create foundations for buildings and other associated infrastructure. Soil pollution from spillages from chemical toilets. Soil pollution during concrete mixing. Soil pollution due to the incorrect management of chemical substances and dangerous goods. Soil pollution due to poor waste management (general and hazardous waste). Soil pollution due to runoff of contaminated stormwater.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> Soil pollution due to the incorrect management of chemical substances and dangerous goods. Soil pollution due to poor waste management (general and hazardous waste). Soil pollution due to runoff from contaminated stormwater. Soil erosion due to inefficient rehabilitation of construction areas.
	Operational Phase	<ul style="list-style-type: none"> Soil pollution due to the incorrect management of chemical substances and dangerous goods. Soil pollution due to poor waste management (general and hazardous waste). Soil pollution by contaminated stormwater.

Impact	Phase	Risks
	Decommissioning Phase	<ul style="list-style-type: none"> No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Socio-economic	Construction Phase	<ul style="list-style-type: none"> Potential increase in crime in the area. Potential decrease in crime due to increased presence on currently vacant land. Generation of employment opportunities. Stimulation of the local economy.
	Operational Phase	<ul style="list-style-type: none"> Increased security due to presence of residents on formally vacant land. Generation of employment opportunities for domestic workers, gardeners and other services. Stimulation of the local economy.
	Decommissioning Phase	<ul style="list-style-type: none"> No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.
Traffic	Construction Phase	<ul style="list-style-type: none"> Increase in traffic volumes to the site.
	Post Construction/Rehabilitation Phase	<ul style="list-style-type: none"> Increase in traffic volumes to the site.
	Operational Phase	<ul style="list-style-type: none"> Increase in traffic volumes in the area.
	Decommissioning Phase	<ul style="list-style-type: none"> No decommissioning activities are anticipated or planned for the development. Therefore, no impacts have been identified or assessed as part of this Environmental Impact Assessment process.

8. DESCRIPTION OF PROPOSED IMPACT MANAGEMENT ACTIONS (ENVIRONMENTAL MANAGEMENT PROGRAMME ACTIONS)

8.1 Impact Management Outcome and Action Table

Please refer to *Table 3* below.

Table 3: Environmental Management Programme – Impact Management Outcome and Action Table

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Planning and Design Phase				
Planning and Design Phase				
Planning and design related to traffic.	Inadequate planning and design could result in traffic impacts.	To effectively plan and design the residential development to minimise traffic impacts.	<ul style="list-style-type: none"> The City of Johannesburg to confirm whether any road reserve widening is required. Road upgrades/changes, or bulk contribution for upgrade/changes, as required by the City of Johannesburg must be implemented. 	<ul style="list-style-type: none"> Applicant Engineer
Planning and design related to infrastructure.	Inadequate planning and design could result in damage to infrastructure and safety of residents.	To effectively plan and design the residential development to avoid damage to infrastructure and safety of residents.	<p>Site Selection</p> <ul style="list-style-type: none"> The new infrastructure should preferably be constructed on an already disturbed site. The new infrastructure may not be constructed on a wetland or within a drainage line. The new infrastructure must preferably be constructed on a level/flat site. The site must have the correct land use zoning to enable the new infrastructure to be constructed and operated. <p>The proposed project should be constructed as per the approved Site Development Plan from the City of Johannesburg Metropolitan Municipality.</p>	<ul style="list-style-type: none"> Applicant Engineer
Planning and design related to municipal services and stormwater.	Inadequate municipal services and stormwater infrastructure.	To ensure the necessary municipal services and infrastructure with adequate capacity are available for the residential development.	<ul style="list-style-type: none"> The City of Johannesburg to confirm the availability of the following services (with adequate capacity): <ul style="list-style-type: none"> Licensed municipal landfill sites, with sufficient air space; Municipal sewage system; Stormwater infrastructure; Water supply; and Power/electricity supply. 	<ul style="list-style-type: none"> Applicant Engineer
Planning and design related to land use.	The transformation of land with a moderate agricultural sensitivity to land.	To ensure land is used appropriately and optimally.	<ul style="list-style-type: none"> The site must have the correct land use zoning to enable the infrastructure to be constructed and operated. The land should be used in line with the areas spatial and management frameworks. 	<ul style="list-style-type: none"> Applicant Engineer
Pre-Construction Phase				
Pre-Construction Phase				
Construction site establishment.	Unsafe working conditions.	To ensure that the construction site is operated in a safe and responsible manner for the duration of the construction phase.	<ul style="list-style-type: none"> The construction site must be demarcated (fenced or delineated with danger tape). A site plan must be drawn up by the construction contractor and kept on file. The site plan must show proposed stockpile areas, waste storage areas and ablution facilities. Signage indicating that the site is a “Construction Site” and indicating the risks associated with the site must be displayed. Emergency numbers, “No-smoking” signs and “No Open Flame” signs must also be displayed at the construction site. Fire-fighting equipment must be placed at the construction site and must be easily accessible. The fire-fighting equipment must be maintained on a yearly basis. Where welding, hot-work and flame-cutting activities are undertaken, fire-fighting equipment must be at hand. 	<ul style="list-style-type: none"> Applicant Construction contractor
Appointment of workers (employees and contractors) to commence construction activities onsite.	Workers being unaware of the impact that their activities may have on the environment.	To adequately educate workers (employees and contractors) regarding environmental awareness.	<ul style="list-style-type: none"> Before any employees or contractors commence work at the development, each individual must undergo an Induction Training session that will cover the aspects as detailed in the Environmental Awareness Plan (contained in this EMPr). Attendance registers must be completed and kept on file. Employees and contract workers must be issued with suitable Personal Protective Equipment (PPE), as applicable to each persons' job onsite. 	<ul style="list-style-type: none"> Applicant Construction contractor
Surface and Groundwater				
Construction Phase				

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Construction activities.	Pollution of surface and/or groundwater resources due to the incorrect management of concrete mixing.	To prevent the contamination of water during to concrete mixing.	<ul style="list-style-type: none"> Concrete should ideally be mixed on an impermeable surface such as a concrete slab. Cement bags (new and used) must be stored under roof or in closed containers where they will not be exposed to rain. Dry concrete must be removed and disposed of together with other building rubble. Ready-mix concrete trucks may clean chutes into foundations, but not elsewhere onsite. 	<ul style="list-style-type: none"> Applicant Construction contractor
Construction activities.	Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical substances and dangerous goods.	To prevent the release of pollutants, chemical substances and dangerous goods, such as fuels, into the environment.	<ul style="list-style-type: none"> A register must be compiled of all chemical substances and dangerous goods used onsite. MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. Chemicals must be used as prescribed by the product and MSDS guidelines. Drip trays must be readily available onsite and used for any repair work, maintenance work of refuelling undertaken onsite. Vehicles should regularly be inspected to ensure that any fuel or oil leaks are repaired. Spill kits must be readily available onsite and personnel must be trained on the appropriate procedures to clean hydrocarbon spillages. No wastewater or wash water may be released into the environment from construction activities. 	<ul style="list-style-type: none"> Applicant Construction contractor
Construction activities.	Pollution of surface and/or groundwater resources due to poor waste management.	To ensure that waste (construction waste, general waste and hazardous waste) is managed in an environmentally responsible manner.	<ul style="list-style-type: none"> Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams should not be mixed. Waste stored onsite must be kept in appropriate containers with lids that can be closed. Waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. No waste may be stored on open soil or within wetlands and/or watercourses. Sufficient ablution facilities must be provided. Chemical toilets must be serviced regularly and must be provided with toilet paper at all times. Any spillages from the chemical toilets must immediately be cleaned and the contaminated soil disposed of as hazardous waste. Construction waste must be stored in a designated area. Building rubble must be stored separately from domestic waste and may be stored on bare soil as it is inert in nature. It must, however, be ensured that other waste (general and/or hazardous waste) is not mixed together with the building rubble. Refuse bins must be provided for domestic waste. Large volumes of waste may not accumulate onsite. No waste may be burnt or buried onsite. Building rubble must be kept clean of plastic and brick ties. 	<ul style="list-style-type: none"> Applicant Construction contractor
Runoff of contaminated stormwater.	Pollution of surface and/or groundwater resources.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> Storm water must be diverted around areas where there are pollution sources. Storm water drainage infrastructure must be regularly inspected for obstructions. No contaminated storm water may be released into the environment from the construction activities. Washing or cleaning of equipment and machinery must occur in a designated area and the contaminated wash water must be contained. Such an area could be a plastic drum, a leak-proof container or a plastic lined pit. 	<ul style="list-style-type: none"> Applicant Construction contractor
Post Construction/Rehabilitation Phase				
Rehabilitation activities	Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical	To prevent the release of pollutants, chemical substances and dangerous goods, such	<ul style="list-style-type: none"> A register must be compiled of all chemical substances and dangerous goods used onsite. MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. 	<ul style="list-style-type: none"> Applicant Construction contractor

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
	substances and dangerous goods.	as fuels, into the environment.	<ul style="list-style-type: none"> Chemicals must be used as prescribed by the product and MSDS guidelines. Drip trays must be readily available onsite and used for any repair work, maintenance work of refuelling undertaken onsite. Vehicles should regularly be inspected to ensure that any fuel or oil leaks are repaired. Spill kits must be readily available onsite and personnel must be trained on the appropriate procedures to clean hydrocarbon spillages. No wastewater or wash water may be released into the environment from rehabilitation activities. 	
Rehabilitation activities	Pollution of surface and/or groundwater resources due to poor waste management.	To ensure that waste (general waste and hazardous waste) is managed in an environmentally responsible manner.	<ul style="list-style-type: none"> Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams should not be mixed. Waste stored onsite must be kept in appropriate containers with lids that can be closed. Waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. No waste may be stored on open soil or within wetlands and/or watercourses. Sufficient ablution facilities must be provided. Chemical toilets must be serviced regularly and must be provided with toilet paper at all times. Any spillages from the chemical toilets must immediately be cleaned and the contaminated soil disposed of as hazardous waste. Waste must be stored in a designated area. Building rubble must be stored separately from domestic waste and may be stored on bare soil as it is inert in nature. It must, however, be ensured that other waste (general and/or hazardous waste) is not mixed together with the building rubble. Refuse bins must be provided for domestic waste. Large volumes of waste may not accumulate onsite. No waste may be burnt or buried onsite. Building rubble must be kept clean of plastic and brick ties. 	<ul style="list-style-type: none"> Applicant Construction contractor
Runoff of contaminated stormwater.	Pollution of surface and/or groundwater resources.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> Storm water must be diverted around areas where there are pollution sources. Storm water drainage infrastructure must be regularly inspected for obstructions. No contaminated storm water may be released into the environment from the rehabilitation activities. Washing or cleaning of equipment and machinery must occur in a designated area and the contaminated wash water must be contained. Such an area could be a plastic drum, a leak-proof container or a plastic lined pit. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational Phases				
Maintenance and upkeep of residential development.	Pollution of surface and/or groundwater resources due to the incorrect management and potential release of pollutants, such as chemical substances and dangerous goods.	To prevent the release of pollutants, chemical substances and dangerous goods, such as fuels, into the environment.	<ul style="list-style-type: none"> A register must be compiled of all chemical substances and dangerous goods used onsite. MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. Chemicals must be used as prescribed by the product and MSDS guidelines. Spill kits must be readily available onsite and personnel must be trained on the appropriate procedures to clean hydrocarbon, paint or other chemical spillages. Vehicles should regularly be inspected to ensure that any fuel or oil leaks are repaired. Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. 	<ul style="list-style-type: none"> Applicant
Waste management activities.	Pollution of surface and/or groundwater resources due to poor waste management.	To ensure that waste (general waste and hazardous waste) is	<ul style="list-style-type: none"> Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams must not be mixed. Domestic waste stored onsite must be kept in appropriate containers with lids that can be closed. 	<ul style="list-style-type: none"> Applicant

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
		managed in an environmentally responsible manner.	<ul style="list-style-type: none"> Domestic waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. Waste must be stored in a designated area. Large volumes of waste may not accumulate onsite. No waste may be burnt or buried onsite. 	
Runoff of contaminated stormwater.	Pollution of surface and/or groundwater resources.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> A storm water management plan must be developed and implemented at the development. Storm water must be diverted around areas where there are pollution sources. Storm water drainage infrastructure must be regularly inspected for obstructions. No contaminated storm water may be released into the environment. 	<ul style="list-style-type: none"> Applicant
Spillages from the sewerage network (pipelines) onsite.	Pollution of surface and/or groundwater resources due to spillages from the sewerage network (pipelines) onsite.	To prevent spillages of sewage onsite.	<ul style="list-style-type: none"> Ablution facilities must regularly be cleaned. Should toilets run slowly or become blocked, this should be investigated to ensure that this is not due to a broken or blocked pipe underground. Any broken or blocked pipes must be repaired. 	<ul style="list-style-type: none"> Applicant
Irresponsible use of resources (municipal water and electricity).	Wastage of resources [municipal water supply and electricity] due to the irresponsible use.	To prevent resource (municipal water and electricity) wastage.	<ul style="list-style-type: none"> Consumption of water and electricity must be monitored. Use energy efficient lighting, where possible. Switch off lights and appliances when not in use. Water pipes and hoses should be inspected on a regular basis and any leakages should immediately be repaired. Running water taps or hoses may not be left unattended. High pressure hoses should be used, where possible. 	<ul style="list-style-type: none"> Applicant

Fauna

Construction Phase

Site clearance.	Disturbance or death of fauna.	To prevent the disturbance or death of fauna.	<ul style="list-style-type: none"> Where possible fauna species are encountered or exposed during the construction phase (especially slow-moving species such as tortoises) these should be removed and relocated to natural areas in the vicinity. This remediation requires the employment of appropriate specialists to oversee the removal of any such species during the initial ground clearing phase of construction (i.e. initial ground-breaking by earthmoving equipment). Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance. Alien and invasive plants must be removed. When holes or trenches are dug, construction must be completed as quickly as possible; otherwise such holes may act as death traps for animals. Holes and trenches must be inspected regularly to ensure that no animals are trapped. During the construction phase there will be increased surface water runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate the environmental impact. 	<ul style="list-style-type: none"> Applicant Construction contractor
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Operational Phase

Pest control.	Cause of pain, suffering or distress to animals and the impact of poisonous chemicals on non-target species.	To prevent pain, suffering or distress to animals and the impact of poisonous chemicals on non-target species.	<ul style="list-style-type: none"> Reference should be made to the National Council for SPCA's deterrents and pest control guidelines for humane pest deterrent and control methods. No snares, lethal trapping devices, substances or any form of animal control that cause or may cause suffering may be used in the control of pests. Poisonous chemicals may have impacts on non-target species, including humans. When pesticides/chemicals remain the only alternative control, employees and/or contractors should adhere to the safety, storage and disposal guidelines specific to the pesticide/chemical being used. 	<ul style="list-style-type: none"> Applicant
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Flora

Construction Phase

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Site clearance.	Site clearance and subsequent loss of vulnerable Egori Granite Grassland vegetation onsite.	To minimise the extent of vegetation removal and the impact of removal that cannot be prevented.	<ul style="list-style-type: none"> Avoid any form of erosion and rehabilitate where needed. Use only indigenous plant species for gardens and rehabilitation. Remove all alien woody species. If applicable, rescue red data listed and protected species, and replant at suitable places (e.g. gardens) within the development. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational Phase				
Invasion by alien invasive plant species.	Increase in alien invasive plant species and densities on the site.	To prevent the establishment and spread of alien invasive plant species.	<ul style="list-style-type: none"> All alien seedlings and saplings must be removed as they become evident. Manual/mechanical removal is preferred to chemical control. Dispose of eradicated plant material at an approved solid waste disposal site. Poisonous chemicals may have impacts on non-target species, including humans. When herbicides/chemicals remain the only alternative control, employees and/or contractors should adhere to the safety, storage and disposal guidelines specific to the herbicide/chemical being used. 	<ul style="list-style-type: none"> Applicant
Archaeological, Heritage or Cultural Resources				
Construction Phase				
Construction activities.	Disturbance or destruction of archaeological, heritage or cultural resources.	To prevent the disturbance or destruction of archaeological, heritage or cultural resources.	<ul style="list-style-type: none"> If any archaeological, heritage or cultural resources, sites, features or objects are exposed during the construction activities, all construction activities in the area must be stopped and a relevant specialist must be contacted to investigate the site and recommend the way forward. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational Phase				
Operational activities.	None anticipated.	Not Applicable.		Not Applicable.
Palaeontological Resources				
Construction Phase				
Construction activities.	Disturbance or destruction of palaeontological resources.	To prevent the disturbance or destruction of palaeontological resources.	<ul style="list-style-type: none"> If any palaeontological resources, sites, features or objects are exposed during the construction activities, all construction activities in the area must be stopped and a relevant specialist must be contacted to investigate the site and recommend the way forward. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational Phase				
Operational activities.	None anticipated.	Not Applicable.		Not Applicable.
Air Quality and Noise				
Construction Phase				
Construction activities.	Generation of dust by vehicles, trucks and mobile equipment and wind erosion.	To prevent the generation of dust.	<ul style="list-style-type: none"> Implement dust suppression techniques. Install a wind screen around the construction site. Speed bumps and traffic signs should be erected to prevent speeding onsite. Limit vegetation clearance until it is necessary for soil stripping. A complaints register must be kept onsite and be easily accessible to any party who wishes to lodge a complaint. The complaints register must include the following fields: <ul style="list-style-type: none"> ➤ The date of the complaint; ➤ The name and surname of the person lodging the complaint; ➤ Details of the complaint; and ➤ How and when the complaint was addressed. 	<ul style="list-style-type: none"> Applicant Construction contractor

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Construction activities.	Release of emissions from construction vehicles.	To minimise emissions from construction vehicles.	<ul style="list-style-type: none"> Regular maintenance of vehicles to minimise the release of emissions. 	<ul style="list-style-type: none"> Applicant Construction contractor
Construction activities.	Generation of nuisance and noise from construction vehicles and equipment/machinery.	To prevent the generation of excessive noise.	<ul style="list-style-type: none"> Noisy activities must be scheduled during times of the day that will result in the least disturbance to adjacent sensitive receptors. Noisy work may not be undertaken on weekends and public holidays. No amplified music is allowed onsite. Sirens and/or hooters may only be used during emergencies and drills. Vehicles must not be left idling unnecessarily. All vehicles must be regularly maintained. A complaints register must be kept onsite and be easily accessible to any party who wishes to lodge a complaint. The complaints register must include the following fields: <ul style="list-style-type: none"> The date of the complaint; The name and surname of the person lodging the complaint; Details of the complaint; and How and when the complaint was addressed. 	<ul style="list-style-type: none"> Applicant Construction contractor
Post Construction/Rehabilitation Phase				
Rehabilitation activities	Generation of dust by vehicles, trucks and mobile equipment.	To prevent the generation of dust.	<ul style="list-style-type: none"> Implement dust suppression techniques. Speed bumps and traffic signs should be erected to prevent speeding onsite. Install a wind screen around the construction site. A complaints register must be kept onsite and be easily accessible to any party who wishes to lodge a complaint. The complaints register must include the following fields: <ul style="list-style-type: none"> The date of the complaint; The name and surname of the person lodging the complaint; Details of the complaint; and How and when the complaint was addressed. 	<ul style="list-style-type: none"> Applicant Construction contractor
Rehabilitation activities	Release of emissions from vehicles, trucks and mobile equipment.	To minimise emissions from vehicles, trucks and mobile equipment.	Regular maintenance of vehicles to minimise the release of emissions.	<ul style="list-style-type: none"> Applicant Construction contractor
Rehabilitation activities	Generation of nuisance and noise from vehicles, trucks and mobile equipment.	To prevent the generation of excessive noise.	<ul style="list-style-type: none"> Noisy activities must be scheduled during times of the day that will result in the least disturbance to adjacent sensitive receptors. Noisy work may not be undertaken on weekends and public holidays. No amplified music is allowed onsite. Sirens and/or hooters may only be used during emergencies and drills. Vehicles must not be left idling unnecessarily. All vehicles must be regularly maintained. A complaints register must be kept onsite and be easily accessible to any party who wishes to lodge a complaint. The complaints register must include the following fields: <ul style="list-style-type: none"> The date of the complaint; The name and surname of the person lodging the complaint; Details of the complaint; and How and when the complaint was addressed. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational Phase				
Operational activities.	Release of emissions from vehicles.	To minimise emissions from vehicles.	<ul style="list-style-type: none"> Speeds bumps and traffic signs should be erected to prevent speeding onsite. Set up a notice board with the purpose of making residents aware of: 	Applicant

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
			<ul style="list-style-type: none"> ➤ Public transport systems in the area; and ➤ The benefits of carpooling and sharing. 	
Soil				
Construction Phase				
Site clearance during the construction phase.	Soil erosion due to the clearance of vegetation.	To prevent erosion during site clearance.	<ul style="list-style-type: none"> • Limiting vegetation clearance until it is necessary for soil stripping. • Implement adequate erosion prevention measures, such as measures to dissipate runoff water velocities. • Implement adequate storm water management measures. • Topsoil and subsoil must be stored on separate stockpiles. • Cover topsoil stockpiles to prevent the soil being washed away during rainfall events. • Topsoil must be replaced during rehabilitation and landscaping. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Construction activities.	Soil compaction to create foundations for buildings and other associated infrastructure.	To prevent soil compaction.	<ul style="list-style-type: none"> • The development footprint must be optimised to minimise the area that will be compacted during the construction activities. • Soil should be moved when dry, as far as possible. • Excessively heavy vehicles should not be used for earthmoving activities. This will minimise compaction of the soil. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Spillages from chemical toilets.	Soil pollution from spillages from chemical toilets.	To prevent spillages from chemical toilets and ensure that any spillages are cleaned effectively.	<ul style="list-style-type: none"> • Sufficient ablution facilities must be provided. • Chemical toilets must be serviced regularly and must be provided with toilet paper at all times. • Any spillages from the chemical toilets must immediately be cleaned and the contaminated soil disposed of as hazardous waste. Safe Disposal Certificates must be obtained and kept on record. • Chemical toilets must be screened from view from the outside of the construction site. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
The mixing of concrete.	Soil pollution during to concrete mixing.	To prevent the contamination of soil during to concrete mixing.	<ul style="list-style-type: none"> • Concrete should ideally be mixed on an impermeable surface such as a concrete slab. • Cement bags (new and used) must be stored under roof or in closed containers where they will not be exposed to rain. • Dry concrete must be removed and disposed of together with other building rubble. • Ready-mix concrete trucks may clean chutes into foundations, but not elsewhere onsite. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Construction activities.	Soil pollution due to the incorrect management of chemical substances and dangerous goods.	To prevent the release of pollutants, chemical substances and dangerous goods, such as fuels, into the environment.	<ul style="list-style-type: none"> • Drip trays must be readily available onsite and used for any repair work, maintenance work of refuelling undertaken onsite. • Vehicles should regularly be inspected. Immediately repair any leaking machinery or vehicles. • Place oil drums on impermeable surfaces or plastic liners. • Immediately clean any hydrocarbon spillages and dispose of as hazardous waste. • No wastewater or wash water may be released into the environment from construction activities. • Spill kits must be readily available onsite and personnel must be trained on the appropriate procedures to clean hydrocarbon spillages. • A register must be compiled of all chemical substances and dangerous goods used onsite. • MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. • The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. • Chemicals must be used as prescribed by the product and MSDS guidelines. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Construction activities.	Soil pollution due to poor waste management (general and hazardous waste).	To ensure that waste (construction waste, general waste and hazardous waste) is managed in an environmentally responsible manner.	<ul style="list-style-type: none"> • Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams should not be mixed. • Waste stored onsite must be kept in appropriate containers with lids that can be closed. • Waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. • Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. • No waste may be stored on open soil or within wetlands and/or watercourses. • Construction waste must be stored in a designated area. 	<ul style="list-style-type: none"> • Applicant • Construction contractor

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
			<ul style="list-style-type: none"> • Building rubble must be stored separately from domestic waste and may be stored on bare soil as it is inert in nature. It must, however, be ensured that other waste (general and/or hazardous waste) is not mixed together with the building rubble. • Refuse bins must be provided for domestic waste. • Large volumes of waste may not accumulate onsite. • No waste may be burnt or buried onsite. • Building rubble must be kept clean of plastic and brick ties. 	
Runoff of contaminated stormwater.	Soil pollution due to runoff of contaminated stormwater.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> • Storm water must be diverted around areas where there are pollution sources. • Storm water drainage infrastructure must be regularly inspected for obstructions. • No contaminated storm water may be released into the environment from the construction activities. • Washing or cleaning of equipment or machinery must occur in a designated area and the contaminated wash water must be contained. Such an area could be a plastic drum, a container or a plastic lined pit. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Post Construction/Rehabilitation Phase				
Rehabilitation activities.	Soil pollution from spillages from chemical toilets.	To prevent spillages from chemical toilets and ensure that any spillages are cleaned effectively.	<ul style="list-style-type: none"> • Sufficient ablution facilities must be provided. • Chemical toilets must be serviced regularly and must be provided with toilet paper at all times. • Any spillages from the chemical toilets must immediately be cleaned and the contaminated soil disposed of as hazardous waste. Safe Disposal Certificates must be obtained and kept on record. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Rehabilitation activities.	Soil pollution due to the incorrect management of chemical substances and dangerous goods.	To prevent the release of pollutants, chemical substances and dangerous goods, such as fuels, into the environment.	<ul style="list-style-type: none"> • Drip trays must be readily available onsite and used for any repair work, maintenance work of refuelling undertaken onsite. • Vehicles should regularly be inspected. Immediately repair any leaking machinery or vehicles. • Place oil drums on impermeable surfaces or plastic liners. • Immediately clean any hydrocarbon spillages and dispose of as hazardous waste. • No wastewater or wash water may be released into the environment from construction activities. • Spill kits must be readily available onsite and personnel must be trained on the appropriate procedures to clean hydrocarbon spillages. • A register must be compiled of all chemical substances and dangerous goods used onsite. • MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. • The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. • Chemicals must be used as prescribed by the product and MSDS guidelines. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Rehabilitation activities.	Soil pollution due to poor waste management (general and hazardous waste).	To ensure that waste (general waste and hazardous waste) is managed in an environmentally responsible manner.	<ul style="list-style-type: none"> • Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams should not be mixed. • Waste stored onsite must be kept in appropriate containers with lids that can be closed. • Waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. • Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. • No waste may be stored on open soil or within wetlands and/or watercourses. • Construction waste must be stored in a designated area. • Building rubble must be stored separately from domestic waste and may be stored on bare soil as it is inert in nature. It must, however, be ensured that other waste (general and/or hazardous waste) is not mixed together with the building rubble. • Refuse bins must be provided for domestic waste. • Large volumes of waste may not accumulate onsite. • No waste may be burnt or buried onsite. • Building rubble must be kept clean of plastic and brick ties. 	<ul style="list-style-type: none"> • Applicant • Construction contractor

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Rehabilitation activities.	Soil pollution due to runoff from contaminated stormwater.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> Storm water must be diverted around areas where there are pollution sources. Storm water drainage infrastructure must be regularly inspected for obstructions. No contaminated storm water may be released into the environment from the construction activities. Washing or cleaning of equipment or machinery must occur in a designated area and the contaminated wash water must be contained. Such an area could be a plastic drum, a container or a plastic lined pit. 	<ul style="list-style-type: none"> Applicant Construction contractor
Rehabilitation activities.	Soil erosion due to inefficient rehabilitation of construction areas.	To prevent soil erosion.	<ul style="list-style-type: none"> Rehabilitation must already be initiated during the construction phase, where possible. Areas for rehabilitation must be cleared of any building rubble and/or debris before rehabilitation is commenced with. Soil should be moved when dry, as far as possible. Weeds must be removed prior to soil replacement. Areas under rehabilitation must be cordoned off to prevent pedestrian and vehicular access. Re-vegetation must be undertaken using indigenous species, as far as possible. Areas under rehabilitation must be monitored to ensure successful vegetation establishment. Organic fertilizers and topsoil should be added to areas where vegetation establishment is not effective. 	<ul style="list-style-type: none"> Applicant Construction contractor
Operational phase				
Maintenance and upkeep of residential development.	Soil pollution due to the incorrect management of chemical substances and dangerous goods.	To prevent the release of pollutants, chemical substances and dangerous goods, such as fuels, into the environment.	<ul style="list-style-type: none"> A register must be compiled of all chemical substances and dangerous goods used onsite. MSDS' (Material Safety Data Sheets) must be maintained for all chemical substances and dangerous goods. The MSDS' must also be displayed onsite. The chemical substances and dangerous goods must be stored safely and as per the requirements of the MSDS for each chemical substance and dangerous good. Locked storage areas are preferable. Chemicals must be used as prescribed by the product and MSDS guidelines. Vehicles should regularly be inspected to ensure that any fuel or oil leaks are repaired. Any soil that has been contaminated by oil, diesel or petrol must be regarded as hazardous and disposed of at an appropriately licensed facility. Safe Disposal Certificates must be obtained and kept on record. 	<ul style="list-style-type: none"> Applicant
Waste management activities.	Soil pollution due to poor waste management (general and hazardous waste).	To ensure that waste (general waste and hazardous waste) is managed in an environmentally responsible manner.	<ul style="list-style-type: none"> Waste must be managed according to its hazard classification (i.e. general vs. hazardous waste). General and hazardous waste streams must not be mixed. Domestic waste stored onsite must be kept in appropriate containers with lids that can be closed. Domestic waste must be taken to appropriately licensed facilities for reuse, recycling, recovery or disposal. Safe Disposal Certificates must be obtained and kept on record. Waste must be stored in a designated area. Large volumes of waste may not accumulate onsite. No waste may be burnt or buried onsite. 	<ul style="list-style-type: none"> Applicant
Runoff of contaminated stormwater.	Soil pollution.	To prevent the contamination of storm water.	<ul style="list-style-type: none"> A storm water management plan must be developed and implemented at the development. The Storm Water Management Plan must take cognisance of rainfall frequencies and the 1:100 year flood regime. Storm water must be diverted around areas where there are pollution sources. Storm water drainage infrastructure must be regularly inspected for obstructions. No contaminated storm water may be released into the environment. 	<ul style="list-style-type: none"> Applicant
Socio-economic				
Construction Phase				
Construction activities.	Potential increase in crime in the area.	To prevent an increase in incidents of crime in die area.	<ul style="list-style-type: none"> Reference checks should be conducted on all workers before they are appointed. Workers should not be allowed to leave the construction site during the day and should be transported to and from the site on a daily basis. 	<ul style="list-style-type: none"> Applicant Construction contractor
Construction activities	Decrease in crime due to increased presence on currently vacant land.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.

Aspect	Impact and Nature	Impact Management Outcomes	Impact Management Actions and Statements in order to avoid, modify, remedy, control or stop pollution or environmental degradation	Responsible party/person(s)
Construction activities	Generation of employment opportunities.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.
Construction activities.	Stimulation of the local economy.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.
Operational Phase				
New residences in the area.	Increased security due to presence of residents on formally vacant land.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.
New residences in the area.	Generation of employment opportunities for domestic workers, gardeners and other services.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.
New residences in the area.	Stimulation of the local economy.	This is a positive impact and no mitigation measures are therefore required.		Not applicable.
Traffic				
Construction Phase				
Construction activities.	Increase in traffic volumes to the site.	To minimise the effect of an increase in traffic volumes.	<ul style="list-style-type: none"> • Avoid using access roads during peak times, as far as possible. • Ensure that construction vehicles are roadworthy and that drivers comply with road rules. • Loads must be securely fastened and may not exceed the tonnage limitations for each vehicle. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Post Construction/Rehabilitation Phase				
Rehabilitation activities	Increase in traffic volumes to the site.	To minimise the effect of an increase in traffic volumes.	<ul style="list-style-type: none"> • Avoid using access roads during peak times, as far as possible. • Ensure that construction vehicles are roadworthy and that drivers comply with road rules. • Loads must be securely fastened and may not exceed the tonnage limitations for each vehicle. 	<ul style="list-style-type: none"> • Applicant • Construction contractor
Operational Phase				
Operational activities.	Increase in traffic volumes to the site.	Increase in traffic volumes in the area.	<ul style="list-style-type: none"> • Ensure optimal operation of access gates where applicable to ensure minimal impact on traffic flow. • Set up a notice board with the purpose of making residents aware of: <ul style="list-style-type: none"> ➢ Public transport systems in the area; and ➢ The benefits of carpooling and sharing. 	Applicant

8.2 Applicable Environmental Management Standards and Practices

- Norms and Standards for the Storage of Waste (GN 926 of 29 November 2013).

8.3 Applicable provisions of the NEMA, 1998, as amended, regarding closure

The provisions of NEMA, 1998, pertaining to closure are not applicable to this proposed development as the development does not include the prospecting, exploration or extraction of a mineral or petroleum resource.

8.4 Applicable provisions of the NEMA, 1998, as amended, regarding financial provision for rehabilitation

The provisions of NEMA, 1998, pertaining to financial provision for rehabilitation are not applicable to this proposed development as the development does not include the prospecting, exploration or extraction of a mineral or petroleum resource.

8.5 Method of monitoring the implementation of the impact management actions

Construction Phase

An independent Environmental Control Officer (ECO) must be appointed to conduct monthly compliance audits during the construction phase of the proposed development. The audits must verify compliance with the Environmental Authorisation and this Environmental Management Programme and a formal report must be compiled after each audit. The reports must be submitted to the Competent Authority. Once the construction phase has been completed, a post-construction audit must be conducted by the independent ECO and the report also submitted to the Competent Authority.

Operational Phase

An internal ECO must be appointed to conduct monthly compliance audits during the operational phase of the proposed development and to ensure that corrective actions are implemented where required. Reports resulting from these audits do not need to be submitted to the Competent Authority.

An independent ECO must be appointed to conduct annual compliance audits during the operational phase of the proposed development. The audits must verify compliance with the Environmental Authorisation and this Environmental Management Programme and must comply with the requirements of Appendix 7 of the Environmental Impact Assessment Regulations of 2014, as amended. A formal report must be compiled after each audit and the reports must be submitted to the Competent Authority.

8.6 The frequency of monitoring the implementation of the impact management actions

Construction Phase

Monthly independent ECO compliance audits.

Operational Phase

Monthly internal ECO compliance audits and annual external ECO compliance audits.

8.7 Persons who will be responsible for the implementation of the impact management actions

The applicant is ultimately responsible for the implementation of the impact management actions, during all phases of the development, even where the implementation of the actions may be contracted out to a third party. During the construction phase, sub-contractors will for the most part be carrying out the required impact management actions and these actions

should therefore be adequately communicated to the contractors. During the operational phase, the applicant will be mostly responsible for carrying out the required impact management actions along with the site manager.

The applicant must appoint a designated person for the function of internal/in-house ECO and an external, suitably qualified Environmental Assessment Practitioner for the function of external, independent ECO.

8.8 Time periods within which the impact management actions must be implemented

Planning and Design Phase

The management actions for the Planning and Design Phase must be completed before the Pre-construction Phase is commenced with.

Pre-construction Phase

The management actions for the Pre-construction Phase must be completed before the Construction Phase is commenced with.

Construction Phase

The management actions for the Construction Phase must be completed prior to the completion of the Construction Phase (i.e. before the Operational Phase is commenced with). Rehabilitation should be conducted concurrent with construction as far as possible. Any additional rehabilitation should be conducted within one year from the completion of construction.

Operational Phase

The management actions for the Operational Phase must be implemented during the Operational Phase, on a continual basis.

8.9 Mechanism for monitoring compliance with the impact management actions

Please refer to Sections 8.5 and 8.6 of this EMP.

8.10 Program for reporting on compliance, taking into account the requirements as prescribed by the EIA Regulations, 2014, as amended

Table 4: Reporting program

Type of reporting	Reporting Frequency	Authority to report to
Construction Phase		
Monthly independent ECO compliance audits	Monthly, for the duration of the construction phase	Competent Authority (GDARD)
Post-construction phase independent ECO compliance audit	Once-off, upon completion of the construction phase	Competent Authority (GDARD)
Operational Phase		
Monthly independent ECO compliance audits	N/A – Internal reporting	N/A – Internal reporting
Annual external ECO compliance audits	Yearly	Competent Authority (GDARD)

9. ENVIRONMENTAL AWARENESS PLAN

The applicant will ensure that its employees are adequately informed of the environmental risks that may result from work that they conducted onsite and how these risks must be dealt with in order to avoid pollution or the degradation of the environment, through the implementation of this Environmental Awareness Plan.

The Environmental Awareness Plan for the development consists of two parts, namely, initial Induction Training and ongoing job-specific, Toolbox-talk Training. The same training material will be utilised during both the Induction Training and Toolbox-talk Training.

Induction Training

Before any employees or contactors commence work at the development, each individual must undergo an Induction Training session. This is required during the following phases of the proposed project:

- Pre-Construction phase;
- Construction phase (including rehabilitation); and
- Operational phase.

An attendance register must be kept by the Applicant and each individual who has completed the Induction Training must complete the attendance register. This will also function as an acknowledgement that each individual has understood the training received.

Toolbox-talk Training

Toolbox-talk Training must be conducted biannually during the operational phase of the proposed development and all operational employees must attend these sessions.

An attendance register must be kept by the Applicant and each individual who has completed the Toolbox-talk Training must complete the attendance register. This will also function as an acknowledgement that each individual has understood the training received.

Training Material

The same material will be used for both the Induction Training and Toolbox-talk Training sessions and will cover the following topics:

- What is meant by the term “environment”;
- Why the environment requires protection;
- The environmental risks that may result from work that is performed at the development, during the above-mentioned phases of the project;
- How the identified risks may impact upon the environment;
- How the identified risks can be mitigated;
- The protection of workers who refuse to do environmentally hazardous work, as provided for in the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended;
- Environmental Management Programme conditions that are specifically applicable to employee’s work onsite;
- Fire-fighting procedures; and
- Hydrocarbon spill response procedure, including spill kit usage training.

The training can be presented in a verbal format if required.

10. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

No specific information has been required by the Competent Authority at this stage of the application process.