GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George 6530
PO BOX: 9087, George , 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

PROPOSED REZONING AND SUBDIVISION OF PORTION 1 OF THE FARM MATJESFONTEIN NO. 206,

DIVISION WILLOWMORE, EASTERN CAPE PROVINCE

APPLICATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998
(ACT NO. 107 OF 1998), AS AMENDED, AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014

PREPARED FOR: LEZMIN 2087 cc **DATE:** 14 April 2020

DEA REF NO:
SES REF NO:

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DETAILS OF PERSONS WHO COMPILED THIS DOCUMENT:

Role:	Name:	E-Mail Address:	Qualifications:
Author:	Michael Bennett	michael@sescc.net	• B.Sc. Environmental and Geographical Sciences, Ocean and Atmospheric Science
Reviewer:	John Sharples	john@sescc.net	• Masters in Environmental Management (UFS) • Bachelor's degree in Conservation.

Sharples Environmental Services cc (SES) has been actively engaged since 1998 in the fields of environmental planning, assessment and management. Clients include private, corporate and public enterprises on a variety of differing landuse applications ranging from large-scale residential estates and resorts to golf courses, municipal service infrastructure installations and the planning of major arterials. The consultants have over 20+ years of combined experience and operate in the Southern, Eastern and Western Cape regions.

MICHAEL BENNETT (**Environmental Assessment Practitioner, Report Writer):**
Michael studied at the University of Cape Town completing a Bachelor of Science degree majoring in Environmental and Geographic Science and Ocean and Atmospheric Science. Michael joined SES in 2014 and has extensive experience in assessments and monitoring and has worked on a variety of technical projects. See Appendix D for his curriculum vitae.

JOHN SHARPLES (**Managing Director**) - John started Sharples Environmental Services in 1998 and has overseen the company's growth and development since then. John also started the Cape Town office in 2010. John holds a Masters in Environmental Management from the University of the Free State as well as a Bachelors degree in Conservation. He has consulted for 21 years running a team of highly trained and qualified consultants and prior to this gained 12 years of experience working for environmental organizations. John is registered as an Environmental Assessment Practitioner # 1485.

1. Introduction

Sharples Environmental Services cc (SES) has been appointed *by LEZMIN 2087 cc*, to complete the Environmental Management Programme (EMPr) as part of the Basic Assessment Process for the proposed rezoning and subdivision of Portion 1 of the Farm Matjesfontein 206, Baviaanskloof, Willowmore, Eastern Cape.

The proposed development will trigger listed activities in terms of the Amended Environmental Impact Assessment Regulations of 2014 (GN No. R.324 - 327 of 7 April 2017). Environmental Authorisation is therefore required from the competent authority (Eastern Cape Department of Economic Development, Environmental Affairs & Tourism) before construction can commence

2. About this EMPr

This document is intended to serve as a guideline to be used by *LEZMIN 2087 cc* (as the Implementing Agent) and any person/s acting on behalf of the *LEZMIN 2087 cc,* during the pre-construction, construction, post-construction rehabilitation and operational phases of the proposed development. This document provides measures that must (where practical and feasible) be implemented to ensure that any environmental degradation that may be associated with the development is avoided, or where such impacts cannot be avoided entirely, are minimised and mitigated appropriately.

This EMPr has been prepared in accordance with the requirements of an EMPr as specified in the Amended Environmental Impact Assessment Regulations, 2014 (GN No. R. 326 of 7 April 2017), and with reference to the "Guidelines for Environmental Management Programmes" published by the Department of Environmental Affairs and Development Planning (2005).

It is important to note that the EMPr is not designed to manage the physical establishment of the development *per se*, but should rather be seen as a tool which can be used to manage the environmental impacts of the development.

The rehabilitation, mitigation, management and monitoring measures prescribed in this EMPr must be seen as binding to *LEZMIN 2087 cc*, and any person acting on its behalf, including but not limited to agents, employees, associates, guests or any person rendering a service to the development site.

2.1 Important caveat to the report

In the past, some developments have had a devastating impact on the environment even though they have had Environmental Management Programmes in place, while other developments have had a low impact even though no management plans have been compiled.

The Implementing Agent and the attitude of the construction team play an integral role in determining the impact that the development will have on the environment. The ECO (**see Chapter 15.3**) needs to ensure that the all role-players are "on board" with regard to the constraints that the EMPr places on the development and construction team. The end result relies on cooperation and mutual respect and understanding of all parties involved.

3. How to use this document

It is essential that this EMPr be carefully studied, understood, implemented and adhered to as far as reasonably possible, throughout all phases of the proposed development. *LEZMIN 2087 cc* must retain a copy of this EMPr, and another copy of this EMPr must be kept on site at all times during the pre-construction, construction and post-construction rehabilitation phases of the development.

This EMPr must be included in all contracts compiled for contractors and subcontractors employed by *LEZMIN 2087 cc*, as this EMPr identifies and specifies the procedures to be followed by engineers and other contractors to ensure that the adverse impacts of construction activities are either avoided or reduced. *LEZMIN 2087 cc* and any appointed contractors must make adequate financial provision to implement the environmental management measures specified in this document.

This EMPr must be seen as a working document, which may be amended from time to time as needed, in order to accommodate changing circumstances on site or in the surrounding environment, or in order to accommodate requests/ conditions issued by the competent authority, the Eastern Cape Department of Economic Development, Environmental Affairs & Tourism. Amendments to this EMPr must first be approved by the competent authority, in writing.

4. Background and Location of the activity

4.1 Background and description

The Property is currently zoned Agricultural Zone I and has a farmhouse, farm manager's house and some old labourers cottages which have been converted into tourism accommodation. The well-known eco-tourism Leopard Hiking Trail starts on the property and traverses the adjacent properties before ending back on the property (Portion 1 of 206). This trail has been developed in conjunction with the Eastern Cape Nature Conservation Department.

The Applicant proposes to rezone the entire property to Open Space III to allow for the establishment of a private reserve and associated infrastructure, with spot zoning for Resort Zone II.

The vision, over time, is to cease all agricultural activities (as of December 2019, all agricultural activities on the property have permanently ceased) on the property and rehabilitate the farm back to a natural area and manage the farm as a private reserve. It is proposed to remove all internal fences to allow animals to roam freely on the property.

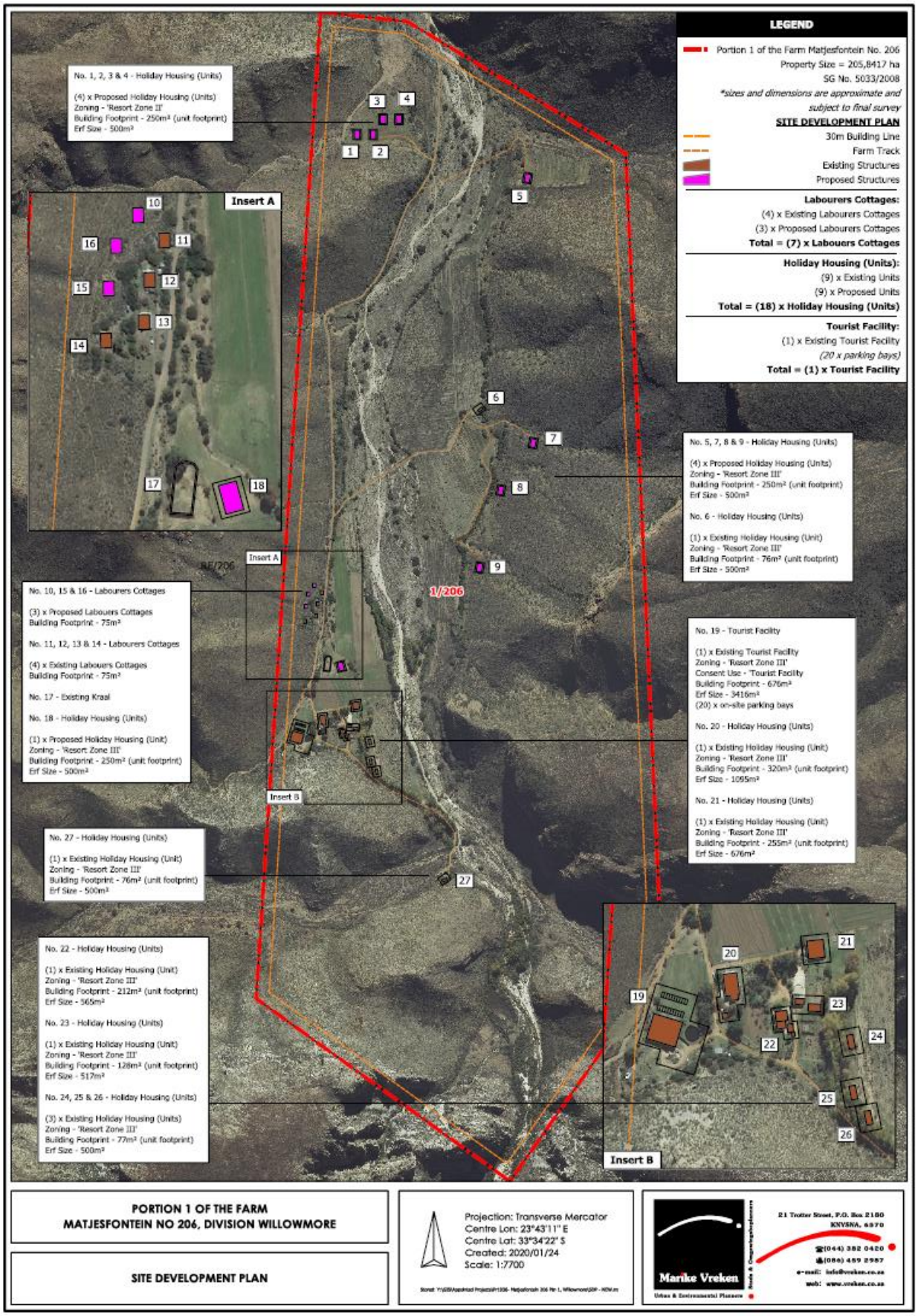

Figure 1: Site Development Plan

4.2 Location of the activity

The site, Portion 1 of the Farm Matjesfontein No. 206, lies in a north-south orientated side valley in the western part of the Baviaanskloof area, 38 km southeast of Willowmore. The narrow valley is flat bottomed, with the Rietrivier meandering northwards towards the Baviaanskloof River. The mountain slopes above the valley floor range from moderately steep to very steep or rocky.

Please refer to Figures 2 and 3 for the locality of the site.

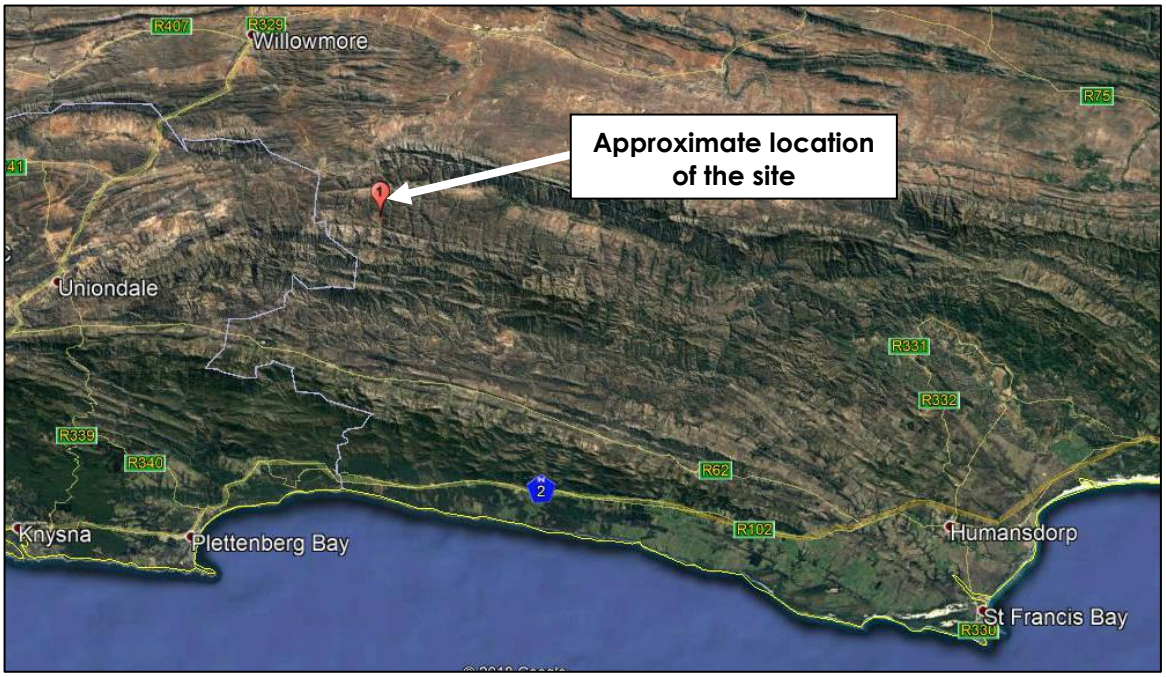

Figure 2: Locality of Portion 1 of the Farm Matjesfontein No. 206

Add Close up Google Earth Images once back in office

Figure 3:

Table 1: Summary Table: Site and Erf Details

Province	Eastern Cape
District Municipality	Sarah Baartman District Municipality
Local Municipality	Dr Beyers Naudé Municipality
Farm name	Portion 1 of the Farm Matjesfontein No. 206
Extent of Farm	205.8417 ha

5. Description of Environmental Setting

5.1 Vegetation description

Mark Berry Environmental Consultants was appointed to undertake the Botanical Survey of the site. According to the report The site is located in an arid mountain fynbos-renosterveld-thicket environment in the Eastern Cape interior, close to the Western Cape Province boundary. Most of the indigenous species recorded are typical renosterveld/fynbos species, such as *Pteronia incana, Elytropappus rhinocertotis, Osteospermum moniliferum, Metalasia densa and Aspalathus hystrix*. A few thicket species were also recorded, including *Dodonaea viscosa, Searsia longispina, Lycium sp*. and *Asparagus spp*. The 2018 Vegetation Map of South Africa classifies the vegetation types found in the area as **Baviaans Valley Thicket** (in the valley bottom), **Baviaanskloof Shale Renosterveld** (lower mountain slopes) and **Kouga Grassy Sandstone Fynbos** (upper mountain slopes). Please refer to Figure 4 for the vegetation map of the subject area.

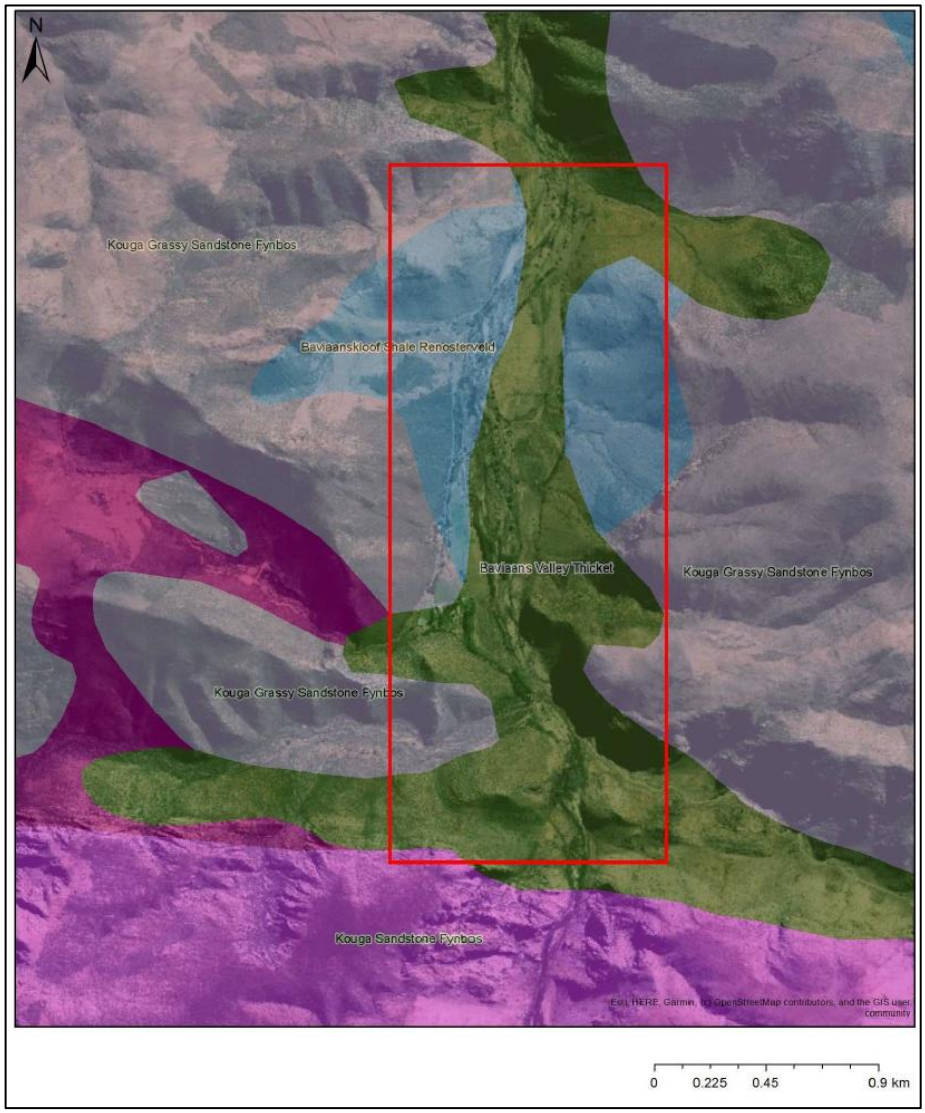

Figure 4: National Vegetation Map

Baviaans Valley Thicket
Baviaans Valley Thicket occurs on the lower slopes and ridges from Willowmore in the west, through the Baviaanskloof to Zuurberg (northwest of Kirkwood) in the east (Grobler et al. 2018). It is dominated by a low succulent thicket, often dense and closed (Mucina & Rutherford 2006). Spekboom (*Portulacaria afra*) is sometimes abundant, while both stem- and leaf-succulents are present (Mucina & Rutherford 2006). Important tree species include Aloe ferox, *Boscia oleoides, Sideroxylon inerme, Searsia longispina, Cussonia spicata, Schotia afra and Putterlickia pyracantha*.

Baviaanskloof Shale Renosterveld
Baviaanskloof Shale Renosterveld occurs on the flat, lower mountain bases of the Baviaanskloof (Mucina & Rutherford 2006). It is described as a low, medium dense, cupressoidleaved shrubland, dominated by renosterbos (*Elytropappus rhinocertotis*) (Mucina & Rutherford 2006). The rocky areas may have small thicket patches. It grades into fynbos on the mid to upper mountain slopes. Important taxa include *Elytropappus rhinocertotis, Aloe ferox, Passerina obtusifolia, Phylica axillaris and Pteronia incana* (Mucina & Rutherford 2006).

Kouga Grassy Sandstone Fynbos
Kouga Grassy Sandstone Fynbos is widely distributed on the mountain slopes between Uniondale in the west and Uitenhage in the east (Mucina & Rutherford 2006). It is described as a low shrubland with sparse, emergent tall shrubs and dominated by grasses in the undergrowth, or grassland with scattered ericoid shrubs (Mucina & Rutherford 2006). Important taxa include *Protea nitida, Aloe ferox, Aspalathus kougaensis, Dodonaea viscosa, Agathosma spp., Erica spp. and Leucospermum cuneiforme* (Mucina & Rutherford 2006).

None of the mapped vegetation types are currently listed as threatened (DEA 2011). Baviaanskloof Shale Renosterveld is formally conserved in the Guerna (16%) and Baviaanskloof Wilderness Areas (4%), with a few smaller areas also conserved on private land (Mucina & Rutherford 2006). It has not experienced much transformation. Kouga Grassy Sandstone Fynbos is about 20% formally conserved in several wilderness and conservation areas, including Baviaanskloof, Groendal, Kouga and Berg Plaatz Wilderness Areas (Mucina & Rutherford 2006). About 9% is transformed by agriculture (Mucina & Rutherford 2006). With regards to Baviaans Valley Thicket, also very little is transformed (<2%), while it is well protected in, among other, the Addo Elephant National Park, Baviaanskloof Hartland Nature Reserve and Baviaanskloof Nature Reserve (Grobler et al. 2018). The Baviaanskloof Wilderness Area is also a declared World Heritage Site.

Mitigation measures extracted from the Botanical Survey:
The following mitigation measures should be considered:

- The development footprints and new access roads should be fenced off in order to contain disturbance during the construction phase. No disturbance may occur outside the fenced off areas.
- Search and rescue of indigenous plants that transplant easily, such as succulents, should be undertaken in the affected renosterveld areas ahead of construction activities. These plants must be properly bagged and then transplanted in rehabilitation areas or taken to a nursery for later replanting.
- Screen construction/building material brought onto site for invasive plant contamination. Contaminated material should not be used.
- Rehabilitation of all construction areas should be undertaken after works in that area has been completed. The primary means of rehabilitation should involve the replacement of topsoil and the re-establishment of search and rescued species.
- No foreign plant material should be brought onto site for rehabilitation or landscaping purposes. Only locally indigenous species should be used for this purpose.

- There is a good chance that indigenous species will re-colonise the disturbed areas if the aliens are controlled. Regular follow-up clearing of aliens would be required in order to achieve rehabilitation successfully.
- Monitor rehabilitation success for a period of one year after completion of building activities and rehabilitation of the site.

6. Legal Framework

6.1 Environmental Impact Assessment Regulations (2017)

The following listed activities, in terms of the amended Environmental Impact Assessment Regulations, 2017 (GN No. R. 324 – 327) will be triggered by the proposed development:

Table 2: Listed activities in terms of the amended Environmental Impact Assessment Regulations (2017)

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.
None applicable to the proposal		
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.
6	**The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more.** **a. Eastern Cape** **i. Outside urban areas:** (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; **(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** **(ff) Core areas in biosphere reserves;** **(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;** (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (jj) An estuarine functional zone, excluding areas falling behind the development setback line; or (kk) A watercourse; or	The proposed rezoning to Resort Zone II will allow trigger this activity as more than 15 people can be accommodated on the property and the property is surrounded by a World Heritage Site, (therefore within 10km)

	ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
12	**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.** **a. Eastern Cape** 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 identified in bioregional plans;** iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. Outside urban areas, within 100 metres inland from an estuarine functional zone; or v. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.	This threshold will be exceeded to undertake the proposal and the site has been mapped as a CBA.

Environmental Authorisation (EA) was granted for the proposal on the _____ (EA REF:_____), attached as Appendix E. The following conditions within the EA are hereby incorporated into this EMPr as per condition ___ of the EA.

Table 3: Conditions of the EA (_____)

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6.2 Other applicable legislation

LEZMIN 2087 cc, is responsible for ensuring that all contractors, labourers and any other appointed person/entity acting on the their behalf, remain compliant with the conditions of the received environmental authorisation and water-use authorisations, as well as the provisions of all other applicable legislation, including *inter alia*:

- National Environmental Management Act (NEMA) (Act No 107 of 1998, as amended);
- National Environmental Management Biodiversity Act (Act 10 of 2004);
- National Environmental Management: Waste Act (Act 59 of 2008);
- National Heritage Resources Act (Act No 25 of 1999);
- Occupational Health and Safety Act (Act 85 of 1993);

The above listed legislation have general applicability to most development applications, and it is *LEZMIN 2087 cc* responsibility to ensure that all contractors and employees are aware of their obligations in terms of these Acts. This EMPr does not detract from any other legal requirements.

7. Scope of this EMPr

This EMPr describes the measures that must be implemented in order to avoid, minimise, manage and monitor the potential environmental impacts of the development, during all phases of the project life cycle, namely:

- Planning and Design Phase
- Pre-construction Phase
- Construction Phase
- Post-Construction Rehabilitation
- Operational (Maintenance) Phase

General environmental management measures that must be applied throughout the project lifecycle (as and where applicable) are described in Chapter 9 below. Additional management measures that must be implemented to address specific impacts that may arise during each phase are provided in **Chapters 9-13** of this EMPr.

8. General Environmental Management

The following general management measures are intended to protect environmental resources from pollution and degradation during all phases of the project life cycle. These measures must be implemented as and where applicable, reasonable and practicable during the pre-construction, construction and post-construction rehabilitation and operational phases of the proposed development.

8.1 Site access

The property is currently accessible from the R332 via a servitude road over Remainder Farm 205 and Remainder Farm 206. There are existing gravel tracks that traverse the property at various points. Currently the proposed sites do have access tracks albeit that some of them will have to be extended slightly (approximately 20m) and some will have to be upgraded in sections where they are prone to flood damage or have not been repaired after flooding yet. The main access gravel road has to be periodically maintained by the property owner after floods/rainfall events as the road crosses the Riet River several times. Maintenance of this route generally entails the clearing of deposited river material (silt and rocks) after the stream dries up.

Figure 5: Site access route

In general, all construction vehicles need to adhere to traffic laws. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. As far as possible care must be taken to ensure that the local traffic flow pattern is not be too significantly disrupted and all vehicle operators therefore need to be educated in terms of "best-practice" operation to minimise unnecessary traffic congestion or dangers. Construction vehicles must therefore not unnecessarily obstruct the access point or traffic lanes used to access the site. Construction vehicles also need to consider the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles. Adequate signage that is both informative and cautionary to passing traffic (motorists and pedestrians) warning them of the construction activities. Signage would need to be clearly visible and need to include, among others, the following:

- Identifying working area as a construction site;
- Cautioning against relevant construction activities;
- Prohibiting access to construction site;
- Clearly specifying possible detour routes and / or delay periods;
- Possible indications of time frames attached to the construction activities, and;
- Listings of which contractors are working on the site.

Other mitigation measures include:

- ECO to do awareness training with the contractor and labourers before construction commences.
- Ensure appropriate behaviour of operators of construction vehicles.

8.2 Site demarcation
The following areas must be clearly demarcated on site during the pre-construction or construction phases of the development, as appropriate.

Construction working area
Prior to the commencement of any land-clearing or construction activities, the outer boundary of the development area must be surveyed and pegged. The demarcation boundary must be tight around the site, typically allowing a working area of no more than 2.5m around the development footprint. This demarcation boundary is to ensure that land clearing and construction activities are restricted to only that area strictly required for the proposed development, and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the development footprint.

No-go areas
Prior to the commencement of any land-clearing or construction activities, all sensitive areas (as identified by the ECO), must be demarcated and must not be disturbed during the construction phase.

No-go areas must be off-limits to all construction workers, vehicles and machinery during all phases of the development. No vegetation may be cleared from within the no-go areas, and no dumping of any material (waste, topsoil, subsoil etc.) may occur in these areas. Construction/ maintenance workers must be informed of the no-go areas, and if necessary appropriate signage and/or temporary fencing (e.g. droppers with danger tape) can be used to enforce the no-go areas.

In the case of this proposal the No-Go areas will be those areas located outside of the development footprint. As such a desinated and shaded eating/rest area must be demarcated (prefferable adjacent to or within the site camp) to prevent labourers wondering around and trampling on sensitive vegetation.

Demarcation of the site camp
The area chosen for the site camp and associated facilities must be the minimum area reasonably required to accommodate the site camp facilities, and which will involve the least disturbance to the environment. It is recommended that easily accessible, transformed areas are used for the site camp. Site selection must be done in consultation with the ECO.

8.3 Site camp and associated facilities
The site camp and associated facilities may not be established within the floodplain of the Maalgate River. The following general management measures pertaining to the set-up, operation and closure of a site camp must be applied where appropriate, reasonable and practicable:

Fencing & Security: The site camp area must be secured to prevent any un-authorised individuals from entering the site camp and possibly getting injured or posing a safety and/or security risk. Adequate signage must be displayed, designating the site office / camp as a restricted area to non-personnel. If necessary the site camp and associated areas may be fenced off along the demarcated boundaries of these areas, preferably with 2m high fence and shade netting or similar.

Fire Fighting Equipment: No less than 2 fire extinguishers must be present in the site camp. The extinguishers must be in a working condition and recently serviced. A fire extinguisher must always be present wherever any "hot works" (e.g. welding, grinding etc.) are taking place. It is recommended that all construction workers receive basic training in fire prevention and basic fire-fighting techniques, and are informed of the emergency procedure to follow in the event of accidental fires (also see Chapter 13). No open fires may be made on the construction site during any phase of the project. No smoking

must be allowed on the construction site. In the case of accidental fires the contractor shall alert the Local Authority's Fire Department as soon as a fire starts and not wait until the fire can no longer be controlled.

Waste Storage Area: Sufficient bins for the temporary storage of construction related waste must be provided inside the site camp and/or at the working area. Construction-related waste must be managed as specified in Section 8.6.

Hazardous Substances Storage Area: Fuels, chemicals, lubricants and other hazardous substances must be stored in a demarcated, secured and clearly sign-posted area within the site camp away from the riparian zone. Refer to Section 8.7 for further recommendations relating to the storage or hazardous substances and fuels.

Potable Water: An adequate supply of potable water must be provided to construction workers at the site camp.

Ablution Facilities: Chemical toilet facilities or other approved toilet facilities (at least 1 toilet for each sex and for every 30 workers) must be provided and located on the site in such a way that the toilets will not cause any form of pollution of the site. Toilets must be placed within the site camp and must be well outside any riparian zone. The ablution facilities must not be linked to the river system in any way. The toilets must be placed on a level surface and secured to prevent them from blowing over. The toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced or moved. Performing ablutions outside of the provided toilet facilities is strictly prohibited.

Eating Area & Rest Area: A dedicated area within which construction workers can rest and eat during breaks must be provided within the site camp. Seating and shade must be provided.

Vehicle & Equipment Maintenance Yard: Where possible, construction vehicles and equipment that require repair must be removed from site and taken to a workshop for servicing. If emergency repairs and/or basic maintenance of construction vehicles or equipment are necessary on site, such repair work must be undertaken within the designated maintenance yard area away from the riparian. Repairs must be conducted on an impermeable surface, and/or a tarpaulin and/or drip trays must be laid down prior to emergency repairs taking place, to prevent any fuel, oil, lubricant or other spillages from contaminating the environment.

House-keeping: the site camp and related site camp facilities must be kept neat and orderly at all times, to prevent potential safety risks and to reduce the visual impact of the site during construction.

8.4 Vegetation clearing

Where vegetation must be cleared the following measures must be implemented where applicable, reasonable and practical:

- Where feasible vegetation must simply be trimmed to facilitate access/ construction, rather than being completely cleared or removed.
- Vegetation clearing/trimming must be cleared by hand (i.e. brush cut) and stockpiled for use as mulch/ brush-packing during rehabilitation of the site. Any alien vegetation that is cleared must be disposed of in consultation with the ECO, unless the cleared alien vegetation does not contain seeds in which case it may be retained for use in site rehabilitation.
- No bulldozing must be undertaken for the purpose of vegetation clearing.

- Only the areas required to accommodate the construction activities and access to the construction site must be cleared/trimmed of vegetation.
- Vegetation outside of the construction footprint and beyond any No-Go areas must not be cleared.

8.5 Topsoil and subsoil management

It is recommended that topsoil be removed from any area where physical disturbance of the surface will occur, including within the footprint of the development site (working area) and possibly within the site camp, ablution area, vehicle maintenance yard, refuelling area and temporary waste storage area. Topsoil removal and stockpiling must be undertaken only after consultation with the ECO.

- Removed topsoil and subsoil must be stockpiled for the duration of the active construction period, and utilised for the final landscaping and rehabilitation of disturbed areas on site.
- The removed topsoil must be stockpiled in a berm, in a demarcated area as agreed with the ECO.
- Removed subsoil must be stockpiled separately from topsoil.
- The topsoil & subsoil storage area must be located on a level area outside of any surface drainage channels outside the riparian zone, and at a location where it can be protected from disturbance and river flow/floods during construction and where it will not interfere with construction activities.
- Where applicable topsoil and subsoil stockpiles must be adequately protected from being blown away or eroded by storm water. If necessary, shade cloth or other suitable measures must be used to stabilise and protect the stockpile from wind/water erosion. Topsoil stockpiles must not be covered with tarpaulin, as this may smother and decrease the virility of topsoil.
- Handling of topsoil must be minimised as much as possible, and the location of the topsoil berm must be chosen carefully to avoid needing to relocate the topsoil berm at a later date. The ECO must be consulted with regards to the placement of the stockpiles, to ensure that the selected location is in compliance with this EMPr and EA (once granted).
- Ideally, topsoil is to be handled twice only, once to strip and stockpile, and once to replace, level, shape and scarify.
- If soil stockpiles will be stored for an extended period of time, the stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding, (or application of herbicides if agreed with the ECO).
- Soil material that will not be re-utilised on site may be removed from site and taken to an appropriate site for re-use or disposal.
- Note that the topsoil must be the final layer applied to a rehabilitated/ re-landscaped site, after subsoil/ spoil material has been placed and shaped on the site.

8.6 Integrated waste management approach

It is recommended that an integrated waste management system is adopted on site. The system must be based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Waste bins for the different categories of recyclable waste (i.e. paper, plastic, metal) must be provided on site. These bins must be emptied and the waste must be taken to a registered recycling facility. The receipts from the facility must be kept on file and must be available on request. Images 1 and 2 show two such systems within a construction site.

Image 1: Recycling system implemented on a construction site. Skips provided for general waste, plastic, cardboard and metal.

Image 2: Recycling system implemented on a construction site. Lidded bins provided for general waste, plastic, cardboard and metal.

The non-recyclable and non-reusable waste (e.g. builder's rubble, etc.) generated on site must be stored and disposed of at a landfill site licensed in terms of the applicable legislation.

8.7 Hazardous substances and fuels

If hazardous substances and fuels such as diesel, oil, lubricant, detergents etc. are to be stored on site for construction purposes, a designated area must be set aside for this within the site camp.

- All hazardous substances must be stored in the designated area within the site camp.
- The area selected for storage of hazardous fuels must be located on a level area, well outside of any water courses, water bodies or surface drainage channels.
- The designated area must be clearly demarcated and secured by use of fencing and/or cages, to prevent access by un-authorised persons and/or animals.
- Access to the hazardous material storage area must be restricted to authorised personnel only and must be treated as a no-go zone to unauthorised personnel.
- Appropriate hazard signage indicating the nature of the stored materials must be prominently displayed at the storage area.
- Those persons tasked with handling any hazardous substances must be equipped with the knowledge, equipment and safety gear necessary to handle the substance/s safely.
- Material Safety Data Sheets (MSDSs) must be available on site for all hazardous chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes
- Storage vessels of hazardous substances must be situated in an impermeable bunded area large enough to accommodate at least 110% of the capacity of the tank in question. If plastic sheeting

is used to line the bunded area, care must be taken to ensure it is not punctured in any way during the course of the construction period.
- Fuel tanks must ideally be elevated so that leaks can easily be detected.
- No smoking may be permitted at or surrounding the area where fuels and hazardous substances are stored.
- Firefighting equipment must be located in close proximity to the storage area.

8.8 Cement and concrete batching

Cement and concrete batching is not permitted within the working area as it is located within the floodplain of the Maalgate River, but may only take place on designated impermeable, bunded surfaces, as agreed with the ECO, outside of the floodplain.

- Cement/ concrete must not be mixed on bare ground.
- Cement/concrete must not be mixed within any riparian zone.
- The impermeable/ bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment, the river/ riparian zone or contaminate the soil.
- Cement run-off and excess cement slurry must be collected in the designated impermeable area, allowed to dry and then disposed of at an appropriate facility. Alternately, the contaminated water can be collected in sealed tanks and transported to an appropriate disposal site for disposal.
- Empty cement bags are currently not recycled within the Garden Route and must be disposed of in the un-recyclables waste bins on site.

8.9 Erosion control and stormwater management

Appropriate measures must be implemented to control the flow of storm water across the construction site, to prevent possible flooding, soil loss and dispersion of pollutants. All exposed earth surfaces must also be protected from wind and water erosion. Stripped areas must not remain uncovered for extended periods of time and must be provided with a suitable cover (vegetation, mulch, brush-packing) as soon as possible.

The scale and nature of the erosion and storm water control measures implemented on site must be appropriate to the conditions on site, and sufficient to achieve the desired outcomes (soil preservation, prevention of flooding, storm water control) to the satisfaction of the ECO and consulting engineer.

It may be necessary to implement small-scale erosion protection measures at the construction site, to prevent soil erosion. Such measures may include the use of shade netting, geo-fabric, brush-packing, logs and stakes or similar barriers in areas susceptible to erosion and along exposed slopes. The netting/fabric is placed directly across the path of flow of storm water. Poles and logs, staked in along the contours of a slope susceptible to erosion may also be used.

8.10 Excavations and Earthworks

Any major earthworks with heavy machinery must be under constant supervision and operators are to be aware of all the environmental obligations, as there is always the potential to inflict damage to the sensitive areas. Any unnecessary or excessive heavy machinery movement must be kept to a minimum i.e. only what is absolutely necessary. Areas to be excavated must be clearly demarcated. It may be necessary to demarcate excavations or earthworks along busier haulage routes with orange barrier netting (or a similar product).

All excavated material must be stored on a flat surface away from any drainage line or area susceptible to erosion. The location must be decided upon in consultation with the ECO. Stored material must be protected from wind and water erosion and this may entail covering the material with suitable shade cloth material or similar (if and when necessary). The shade cloth may need to be weighed down by logs (or similar material) in such a manner that any stream flow is directed away from the stockpile, reducing the risk of erosion.

8.11 Site closure and rehabilitation

Upon completion of the construction phase, all disturbed areas, including the working area (disturbance corridor), temporary access roads, and all areas utilised for the site camp and associated site camp facilities will require rehabilitation as follows:

- On completion of the construction operations, the site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material.
- All areas within the working area and site camp that have become devoid of vegetation or where soils have been compacted due to construction activities must be scarified or ripped to improve filtration and reduce run-off.
- All demarcation fencing, including all droppers, wires, netting and barrier tape must be removed from site and taken to an appropriate site for re-use or disposal.
- Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the ECO. Any soil contaminated with oil, fuel or other hazardous substance must be collected and disposed of as hazardous waste.
- All construction waste, litter and rubble are to be removed from the site and disposed of at an appropriate facility. Burying or burning of waste or rubble on site is prohibited.
- Topsoil that was removed and stockpiled before construction/ maintenance, must be replaced by spreading it evenly over the areas from which it was removed. This topsoil (and the seedbank it contains) will facilitate the re-vegetation of the site.
- Disturbed areas, especially areas where excavations have taken place, must be shaped as appropriate (original topography must be restored where possible), and covered with a layer of stockpiled topsoil as soon as possible.
- Any topsoil, subsoil or other excavated material that cannot be utilised during site rehabilitation must be removed from the site and disposed of at an appropriate disposal site.
- The disturbed, newly rehabilitated surfaces (particularly steeper slopes and areas recently covered with topsoil) must be protected from wind & water erosion using mulch, brush packing or other appropriate erosion protection measures. Brush-packing/ mulching is done by covering the exposed surface with organic plant material such as branches, plant cuttings and leafy material. Ideally the vegetation removed from site at the start of the construction must be utilised. Brush-packing/ mulching plays a valuable role in erosion control, while also promoting re-vegetation of the site by retaining moisture in the soil, introducing seeds and/or trapping wind-blown seeds and providing organic material (compost) to promote new plant growth.
- Final rehabilitation of the site must be done to the satisfaction of the ECO, and must adhere to all conditions/ requirements of the Environmental Authorisation.

9. Environmental Impact Management Planning and design phase

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development. Proper planning is also essential to ensure that adequate provision is made to implement the environmental requirements of this EMPr, and to ensure that the development remains compliant with the received Environmental Authorisation.

The environmental management objectives (goals) during this phase are to:

- Appoint an Environmental Control Officer.
- Complete the detailed design of the structures and detailed site layout plan.
- Update the EMPr (if necessary).

These environmental management objectives, as well as the management actions that must be implemented in order to achieve the desired objective and avoid/minimise potential impacts are discussed in more detail below.

OBJECTIVE 1: APPOINTMENT OF AN ENVIRONMENTAL CONTROL OFFICER

***Impact Management Objective:* To appoint a suitably qualified and experienced Environmental Control Officer.**		
Potential impact to avoid	Failure to appoint an ECO will result in non-compliance with the Environmental Authorisation and the requirements of the EMPr.	
Impact Management Outcome	The conditions of Environmental Authorisation and the requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• A suitably qualified and experienced Environmental Control Officer must be appointed before any activities commence on site. • The appointed ECO must adhere to the requirements stated in Chapter 17 of the EMPr and any other requirements specified in the Environmental Authorisation. • The appointed ECO must be advised of the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	LEZMIN 2087 cc	During design phase
Performance Indicator	A qualified ECO is appointed prior to the commencement of any construction activities (including pre-construction set-up activities) on site.	

OBJECTIVE 2: DETAILED DESIGN AND SITE LAYOUT PLAN

Impact Management Objective: ***To compile a detailed design and site layout plan that adheres to the conditions of the Environmental Authorisation.***		
Potential impact to avoid	Substantial deviation from the conceptual layout plan may result in: • Non-compliance with the Environmental Authorisation during construction. • Triggering of additional listed activities not authorised in the Environmental Authorisation. • An increase in the severity of the impacts identified and assessed in the EIA or may result in new impacts not previously assessed and not provided for in the EMPr, resulting in environmental degradation.	
Impact Management Outcome	Development is compliant with Environmental Authorisation and the EMPr.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The final detailed design & layout must adhere to the conceptual layout assessed in the Environmental Impact Assessment (EIA) process. • The final detailed design & layout must adhere to the conditions of the Environmental Authorisation (EA). • If the final detailed design differs from that assessed during the EIA, the revised layout must be assessed by an Environmental Consultant and the received EA must be amended by the Competent Authority before proceeding. • Interested & Affected Parties may need to be provided with an opportunity to comment on any proposed amendment to the EA.	LEZMIN 2087 cc	During design phase
Performance Indicator	Detailed designs and site layout plans that adhere to the conditions of the EA and EMPr are finalised prior to the commencement of construction.	

OBJECTIVE 3: UPDATE ENVIRONMENTAL MANAGEMENT PROGRAMME

The Environmental Authorisation issued for the development may require certain amendments to be applied to the EMPr. In addition, the final site layout and detailed design may also necessitate the amendment of the EMPr, in order to ensure that the development is accommodated in the EMPr.

Impact Management Objective: ***To ensure the EMPr adheres to the requirements of the Environmental Authorisation and makes provision for the final detailed site layout.***	
Potential impact to avoid	• Failure to update the EMPr in accordance with conditions specified in the EA may result in non-compliance with the EA.

	• Failure to update the EMPr to accommodate the final detailed site layout may result in non-compliance with the EA.		
Impact Management Outcome	Good environmental management is promoted on site.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• An independent Environmental Consultant must be appointed to amend the EMPr. • All amendments to the EMPr specified in the EA must be applied to the EMPr unless agreed otherwise in writing with the Competent Authority. • Amendments to the EMPr must be approved in writing by the Competent Authority. • Public participation may be required on the proposed EMPr amendments. The Competent Authority must be consulted for clarity on these requirements.		LEZMIN 2087 cc	During design phase
Performance Indicator	An updated EMPr that adheres to the conditions of the EA and that reflects the requirements of the final detailed site layout is approved by the Competent Authority prior to commencing activities on site.		

10. Environmental Impact Management Pre-Construction Phase

Proper set-up during the pre-construction phase can set the foundation for good environmental management during the active construction phase to follow and can avoid potential impacts from arising at a later date.

The Impact Management Objectives for this phase of the project relate to:

- Demarcation of no-go areas and working areas.
- Establishment of site camp and associated site facilities.
- Pre-construction ECO visit.

OBJECTIVE 1: IDENTIFY & DEMARCATE NO-GO AND WORKING AREAS

Impact Management Objective: ***Identify and demarcate no-go areas, working areas and site facilities.***			
Potential impact to avoid	• Insensitive location of working areas and site facilities may result in environmental impacts during construction phase. • Failure to accurately demarcate working areas may result in increased disturbance footprint. • Failure to demarcate no-go areas may result in disturbance to these areas during construction.		
Impact Management Outcome	Future construction activities will be restricted to within the designated areas & environmentally sensitive areas (no-go areas) will be protected from disturbance.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• The environmentally sensitive areas must be identified and be designated as no-go areas. • Demarcation of working area and no-go areas must be done in accordance with Section 8.2 of this EMPr. • Site camp facilities must be situated as far away from the No-Go areas as possible.		Identifying: ECO/ Engineer Demarcating: Contractor	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)
Performance Indicator	No-go areas, working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commence on site.		

OBJECTIVE 2: ESTABLISH ENVIRONMENTALLY SENSITIVE SITE CAMP & SITE FACILITES

Impact Management Objective: ***To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.***		
Potential impact to avoid	• Inappropriate siting of site camp facilities may result in impacts to sensitive resources (e.g. contaminated run-off from refuelling area may flow into river). • Failure to properly demarcate and set up site facilities may result in disorganised construction activities and unnecessary disturbance to the site. • Failure to provide the necessary site facilities and/or failure to equip these facilities with the necessary equipment/materials may impede good environmental management & compromise ability to respond to emergencies.	
Impact Management Outcome	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of the EMPr are provided on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The site camp and site facilities described in Section 8.3 of this EMPr must be provided on site. • The site camp and associated site facilities must be set-up and managed in accordance with the general environmental management measures specified in Chapter 8 of this EMPr.	Contractor	Pre-construction phase (prior to start of construction activities)
Performance Indicator	Appropriate, well organised and properly equipped site facilities are available on site prior to commencement of construction activities. The location and set up of the facilities does not impact on the natural resources.	

OBJECTIVE 3: PRE-CONSTRUCTION ECO INSPECTION

It is essential that the appointed ECO be advised of the intended construction start date before construction activities commence on site, so that the ECO can conduct an initial site inspection to assess the pre-commencement condition of the site. The ECO can also advise on the appropriate siting and demarcation of the site facilities, and the identification and demarcation of the no-go areas. The ECO may also conduct the first round of environmental awareness training at this stage, if the construction workers are present on site.

Impact Management Objective: ***Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site.***	
Potential impact to avoid	• Failure to appoint ECO or to notify ECO of commencement prior to commencement may result in non-compliance with the EA.

	• If a pre-commencement ECO inspection is not performed, the Applicant may be held liable for environmental degradation that took place prior to the Contractor commencing work on site.
Impact Management Outcome	• Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases. • Site facilities are appropriately located on site. • Construction workers receive environmental awareness training before commencing work on site.

IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The appointed ECO must be advised of the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	Contractor	Start of construction phase
Performance Indicator	A pre-commencement site inspection is conducted by the appointed ECO before construction activities commence on site.	

11. Environmental Impact Management Construction Phase

A number of potential environmental impacts may arise during the construction phase of the development. These impacts have been identified and assessed during the Environmental Impact Assessment process. Environmental Management objectives and actions that will prevent the identified potential impacts from arising – or where avoidance is not possible, that will minimise and mitigate the impact – are provided in this section.

The environmental management actions and mitigation measures prescribed in this section must be implemented throughout the construction phase, and must be implemented in conjunction with the general management measures specified in Chapter 8 of this EMPr as well as any other conditions stated in the Environmental Authorisation. The Environmental Control Officer must monitor and enforce the implementation of the relevant environmental management measures, and may provide guidance on the implementation of these environmental management measures as and when required.

The environmental management objectives (goals) for the Construction phase are:

- Prevent soil erosion
- Prevent pollution of the soil and ground water
- Loss of Biodiversity
- Job creation

The environmental management actions that must be implemented in order to achieve the desired objectives and avoid/minimise potential impacts are discussed in more detail in the sections below.

OBJECTIVE 1: PREVENT SOIL EROSION

Impact Management Objective: ***To prevent soil loss on site.***		
Potential impact to avoid	• Areas disturbed and/or cleared of vegetation (work corridor) during construction may be vulnerable to increased water and wind erosion. • Stockpiles of soil (topsoil/subsoil) at the site may be vulnerable to wind/water erosion. • Increased soil erosion may increase turbidity/ sediment load in watercourses, which may impact aquatic biota and habitats.	
Impact Management Outcome	Soil erosion is kept to a minimum if not completely mitigated.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Cleared areas and any other area susceptible to erosion must be provided with a suitable cover as soon as possible and/or stabilised via the implementation of appropriate erosion control measures, as described in Section 8.9. This may include use of cut-off drains, temporary	Contractor	Construction phase

drainage channels, brush-packing, mulching, planting or sodding, use of environmentally benign soil binders, use of geo-textile or other coverings. The appropriate measures must be selected by the contractor in consultation with the ECO. • Stockpiles of topsoil & spoil material must be protected from wind & water erosion as described in Section 8.5 (e.g. covering with shade cloth or similar) and stored away from the river. • Stockpiles of earth material may not be located within the watercourses or any storm-water drainage pathways and must be outside of the reach of potential flood waters. • Only the minimum area required to accommodate construction may be cleared of vegetation, to limit unnecessary exposure of surfaces. • Site camps, material stockpiles and other facilities must be located on already transformed/ disturbed areas on surrounding agricultural land (e.g. at existing shed/ storage facilities). • All disturbed areas must be rehabilitated after construction to the satisfaction of the Environmental Control Officer, as described in Section 8.12 (e.g. ripping hardened surfaces, infilling of any erosion gulleys, brush packing, reseeding etc.).		
Performance Indicator	No erosion occurring on the site or surroundings as a result of construction activities.	

OBJECTIVE 2: PREVENT POLLUTION AND SOIL/ WATER CONTAMINATION

Impact Management Objective: ***To prevent environmental pollution and contamination of soil and Maalgate River***		
Potential impact to avoid	• Fuel, oil, lubricant or other pollutants may leak from vehicles/ machinery and contaminate soil, surface water and/or ground water. • Spills of hazardous substances may contaminate environment. • Chemical toilets may leak. • Contaminated run-off from the site or site camp facilities may pollute soil or water resources. • Waste (solid or liquid) from the construction site may be blown or washed into surrounding environment. • Contamination of soil or water may impact surrounding and downstream land/water users, biota and livestock.	
Impact Management Outcome	The environment (including soil, surface water and groundwater) is not contaminated.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• General management measures relating to the management of waste and hazardous substances stated in the EMPr must be implemented as and where applicable, in consultation with the ECO. In addition:	Contractor	Construction phase

General Pollution Management: • No pollution of ground water resources may occur due to any activity on the site (i.e. foreign chemicals or substances allowed to seep/leach into the soil) • No storm water runoff from any premises containing waste, or water containing waste emanating from construction activities may be discharged into the environment. Polluted stormwater must be contained on the site (i.e. laydown and storage areas must be demarcated in addition to the installation of a geo-textile on the downslope side of the areas to contain and filter any runoff that may have picked up contaminants from materials in the storage areas.) • Cement batching / mixing / rinsing may not take place directly on the soil surface, it must be done on an impervious lining that will prevent cement particles from contaminating the soil. General Waste Management: • Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface. • Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. • Waste must be placed in the appropriate waste bins/skips/ stockpiles. • Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins. • Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. • Waste bins/skips must be regularly emptied and must not be allowed to overflow. • Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. • The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. • Waste generated on site must be classified and managed in accordance with the *National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013)*. • Disposal of waste to landfill must be undertaken in accordance with the *National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013)*. • All waste, hazardous as well as general, which result from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF).		

Pollution Management – hydrocarbons (oil, fuel etc.) • Vehicles and machinery must be in good working order and must be regularly inspected for leaks. • If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired. • Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs. • Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips. • Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks. • Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage. • Where feasible, fuel tanks should be elevated so that leaks are easily detected. • A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit. • Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste. Pollution Management – Ablution facilities • Chemical toilets should be kept at the site camp, on a level surface and secured from blowing over. • Toilets must be located well outside of any storm water drainage lines, and may not be linked to the storm water drainage system in any way. • Chemical toilets must be regularly emptied and the waste disposed of at an appropriate waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets. Pollution Management – Hazardous Substances • Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. • Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should		

additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases. • Hazardous chemicals and fuels should be stored on bunded, impermeable surfaces with sufficient capacity to hold at least 110% of the capacity of the storage tanks.		
Performance Indicator	The environment (including soil, surface water and groundwater) is not contaminated.	

OBJECTIVE 3: LOSS OF BIODIVERSITY

Impact Management Objective: ***To ensure that the loss of biodiversity is prevent as far as possible.***		
Potential impact to avoid	• Physical disturbance to the botanical ecosystems outside of the development footprints during the construction phase.	
Impact Management Outcome	Construction activities do not impact on vegetation located outside of the development footprints.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Construction personnel, equipment and materials must be limited to the minimal practical working distance. • The area outside of the working area must be treated as a 'No-go' Area. • All equipment and materials storage areas must (if practical, reasonable and feasible) be located at a minimum distance of 50m from the watercourses. The appointed ECO must be consulted in this regard. • Construction must be avoided during rainy days, to erosion and vegetation loss. • Manual labour must be favoured over mechanical methods. Heavy machinery may only be used as a last resort if manual methods are not feasible or practical. • Construction work must be well-planned and well-managed so that construction work proceeds quickly and efficiently, thus minimising the duration of disturbance. **Disturbance / loss of aquatic vegetation and habitat** • Excepting the minimal space needed for the working corridor, all water resources are to be considered No-Go areas and a 32 m construction buffer must be adhered to. Any unnecessary intrusion into these areas is prohibited. Where intrusion is required, the working corridor must be kept to a minimum and identified and demarcated clearly before any construction commences to minimise the impact. • Existing access routes must be utilised during construction.	Contractor	Construction phase

• The construction zone must be clearly demarcated (e.g. via pegs / barrier tape) prior to the commencement of construction activities. Site supervisors must ensure that impacts are confined to the construction zone. • Designated areas for stockpiling of raw materials must be identified before material is brought onto site. No stockpiling is to occur on or near slopes or water resources. All stockpiling areas must be approved by the ECO before stockpiling occurs.		
Performance Indicator	Vegetation clearance and disturbance is limited to only within the footprints of the proposal	

OBJECTIVE 4: JOB CREATION

Impact Management Objective: ***To create employment opportunities with potential for skills transfer, for members of the local community.***		
Potential impact to be promoted	• Temporary jobs opportunities will be created during the construction phase. • There may be opportunities to transfer skills from more experienced workers to less experienced workers.	
Impact Management Outcome	The local community benefits from the employment opportunities created during the construction phase.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• No mitigation required for this positive benefit. However, where practical preference must be given to previously disadvantaged individuals from the local community when appointing contractors/ workers. • Skills transfer between members of the workforce should be encouraged	Contractor	Construction phase
Performance Indicator	The majority of the construction team is from the local community, with preference given to historically disadvantaged individuals. Skills transfer from experienced to less experienced workers is actively encouraged on site.	

12. Environmental impact management post construction rehabilitation phase

After all construction activities have ceased, the sites must be cleared of all construction related equipment, materials, facilities and waste. In addition all disturbed surfaces – including disturbed areas around the structures and all areas utilised for site facilities – must be stabilised, rehabilitated and provided with a suitable cover. All temporary access roads constructed must be rehabilitated and access must be restricted from the public.

The environmental management objective (goal) for this phase is to:

- Rehabilitate & stabilise disturbed areas and ensure environmentally sensitive closure of the construction sites.

OBJECTIVE 1: SITE CLOSURE & REHABILITATION

Impact Management Objective: ***To rehabilitate all areas disturbed by construction activities in an environmentally sensitive manner.***		
Potential impact to avoid	• Failure to remove all construction related waste and materials may result in environmental pollution. • Failure to remove all construction related equipment, machinery and site facilities may pose an impact to the natural environment. • Failure to stabilise disturbed surfaces may result in soil erosion and increased storm water run-off, which may limit successful revegetation of the site.	
Impact Management Outcome	• The site is neat and tidy, and all exposed surfaces are suitably covered/ stabilised. • There is no construction-related waste or pollution remaining on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• On completion of the construction operations, the site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material. • Surfaces are to be checked for waste products from activities such as concreting and cleared in a manner approved by the ECO. • Any contaminated soil must be collected and disposed of as hazardous waste. • All construction waste, litter and rubble are to be removed from the site and re-used elsewhere, or recycled/disposed of at an appropriate facility. • Burying or burning of waste or rubble on site is prohibited. • All areas within the working area and site camp that have become devoid of vegetation or where soils have been compacted due to construction activities must be scarified or ripped. • Topsoil removed during the establishment of the site camp and the working area must be spread evenly over the entire site camp area and all other disturbed/ exposed areas after those areas have been ripped, scarified, shaped and contoured (as required). • Where necessary seeding and planting of vegetation can take place after the replacement of the topsoil. Hardy, drought tolerant, non-invasive plant species must be selected. If needed, a layer of mulch can be applied to the newly shaped/ landscaped and topsoiled areas. The mulch will serve to limit erosion and will promote the re-vegetation of the site by retaining moisture in the soil and providing organic material (compost) for new plant growth. Mulched material must be spread to a depth of ± 50mm – a thinner layer is likely to be ineffective in protecting the site, while thicker layers may suppress plant growth.	Contractor	Construction phase

• All exposed soils and recently topsoiled areas are to be re-vegetated or stabilised to the satisfaction of the ECO, to protect these areas from wind and water erosion. No areas are to be left exposed to erosive forces. Erosion protection measures that can be applied include mulching (described above), the placement of geotextile, onion bags filled with wood chips, brush-packing or other similar measures. • Any topsoil, subsoil or other excavated material that cannot be utilised during site rehabilitation must be removed from the site and reused elsewhere on the property or disposed of at an appropriate disposal site. • Where necessary disturbed soils must be revegetated with the local indigenous vegetation such as that which occurs at the site, or provided with other suitable cover. • It is recommended that follow-up alien clearing be conducted before the site audit, within 3 months after construction is complete.		
Performance Indicator	• All construction-related materials, equipment, facilities, waste and contaminated soils have been removed from the site. • Compacted soils have been scarified/ ripped and stabilised. • All disturbed/exposed surfaces have been provided with a suitable covering and/or stabilised. • No alien vegetation is evident on site.	

13. Emergency Preparedness

13.1 Emergency response procedures

The potential environmental risks that may arise as a result of construction activities, or during the maintenance of the structures must be identified, and appropriate emergency response procedures must be compiled for each emergency scenario. Potential environmental emergencies that require an emergency response include – but are not limited to – unplanned fires, sewage spills, spills of hazardous chemicals, snake bites etc.

- The construction contractor is responsible for identifying potential significant environmental risks that may arise as a result of pre-construction, construction and rehabilitation activities, and the contractor must formulate emergency response procedures for these potential incidents.
- The Applicant (or Maintenance Contract team) is responsible for identifying the environmental risks that may arise during the operational (maintenance) phase of the development, and must formulate emergency response procedures for these potential incidents.
- The ECO, the contractor and the Applicant are responsible for ensuring that all construction workers are aware of the emergency procedures, and are properly trained on how to identify and respond to an emergency incident during construction.
- Depending on who is managing/ undertaking maintenance activities, the Applicant is responsible for ensuring that all members who form part of the maintenance team during the operational phase are aware of the emergency procedures to be followed in response to an emergency incident during the undertaking of maintenance of the structure.
- An emergency procedure must clearly indicate who will take charge during an emergency, and the roles and responsibilities of workers and authorities during an emergency.
- The construction contractor is responsible for ensuring that the requirements of the Occupational Health & Safety Act (OHSA) are adhered to during the construction phase. The Applicant is responsible for ensuring compliance with the OHSA during the undertaking of maintenance activities.

13.2 Emergency preparedness

The following measures must be implemented, as appropriate, to ensure effective responses to emergencies:

- All workers on site during the construction and maintenance phase must be properly educated about possible emergency incidents that may arise, how to avoid such incidents and how to respond in the event of an incident. "Refresher" training sessions on emergency procedures must be held if needed.
- All workers must ideally be given basic fire-awareness training, and advised on basic firefighting and safety techniques. Fire-fighting equipment must be available on site during construction activities (see section 8.3).
- All workers must be trained on how to respond in the event of a spill of a hazardous substance (fuel, chemicals etc.), if hazardous substances are to be used on site.
- A spill kit for containing and/or neutralising spills of hazardous substances (e.g. hydrocarbons) must be available on site at all times, when hazardous substances are present.
- Any incidents of pollution or spillage of hazardous materials during construction must be reported to the ECO as soon as possible. The ECO must then (depending on the nature of the spill) notify the relevant authorities, if needed. During the operational phase of the development, the Applicant is responsible for notifying the relevant authorities of any pollution incidents that arise as a result of maintenance activities.
- A first aid kit must be available on site at all times.

- Emergency contact numbers (including the fire department, police and ambulance) must be prominently displayed on site at all times and regularly updated.
- All emergency incidents must be recorded in a site incident log. The cause of the incident, the measures taken in response to the incident and the efficacy of those measures must also be recorded. This information must be used to inform future emergency preparedness planning, and to avoid or prevent similar incidents from arising again.

14. Method statements

The Competent Authority and/or the ECO may require the Applicant or Construction Contractor to submit Method Statements for one or more construction-related activity, or any aspect of the management of the site, before the activity is undertaken or during the performance of the activity, if the activity is causing or may cause significant environmental damage, or pose a health and safety risk.

Method Statements need not be complex and lengthy, but must clearly state **how**, **when** and **where** the activity concerned will be undertaken, and must specify **who** will be responsible for undertaking each component of that activity. Method Statements must be prepared by the Construction Contractor and submitted to the ECO for approval before undertaking the activity concerned.

The ECO and / or Competent Authority have the authority to request method statements for other activities, including but not limited to:

- Establishment of site camp and stockpile area.
- Cement/ concrete batching, disposal and emergency contingencies.
- Topsoil and sub-soil storage/ stockpiling.
- Storage of fuels and hazardous chemicals and emergency contingencies.
- Waste management system.
- Storm water management and control.
- Emergency preparedness plan / emergency response procedure (see Chapter 13).

The ECO has the authority to prevent activities from being undertaken until such time as a satisfactory Method Statement has been submitted to the ECO and approved by the ECO.

15. Roles and Responsibilities

This EMPr, once approved by the competent authority, should be seen as binding to the Applicant, and any person acting on the Applicant's behalf, including but not limited to agents, employees, associates, contractors and service providers.

The Applicant and all other persons who may be directly involved in the development are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

15.1 Duties and Responsibilities of the Applicant

The Applicant is ultimately responsible for ensuring that the environmental management measures specified in this EMPr, as well as any other conditions specified by the competent authority, are implemented and adhered to during the construction and operational phase (maintenance activities) of the proposed development.

The Applicant or party delegated by the applicant is responsible for monitoring and maintenance during the operational phase. The Applicant must ensure that all appointed service providers, contractors and maintenance workers are capable of complying with all statutory requirements of this EMPr and the conditions of the Environmental Authorisation. The Applicant is responsible for ensuring that this EMPr and the conditions of the Environmental Authorisation are implemented and adhered to during maintenance activities undertaken by the Applicant.

The Applicant or appointed consultant is responsible for identifying emergency situations that may arise during operational and maintenance activities undertaken by the Applicant, and must formulate appropriate emergency response procedures for these emergency scenarios.

15.2 Duties and Responsibilities of the Contractor

The "Construction Contractor" is the entity responsible for undertaking the physical development of the sites. The construction contractor is responsible for ensuring that all environmental management measures specified in this EMPr and in the EA are implemented during the pre-construction, construction and post-construction rehabilitation phases, unless agreed otherwise with the Applicant. The contractor will be responsible for all costs incurred in the rehabilitation of the site and for ensuring effective environmental management during construction. The contractor must therefore make adequate financial provision for the implementation of all prescribed measures.

The Contractor must appoint a Dedicated Environmental Officer (DEO), who will act as the Contractor's representative to monitor and enforce compliance with the conditions of this EMPr, throughout all phases of construction.

In addition to the above, the Construction Contractor is responsible for the following:

- Identify emergency situations that may arise as a result of construction activities, and formulate appropriate emergency response procedures (see Chapter 13).
- Ensure that all construction workers, including sub-consultants and service providers, undergo environmental awareness training prior to commencing work on site, or as soon as possible thereafter (see Chapter 16).
- Compile the required method statements, which must be to the satisfaction of the ECO, before commencing with the activity to be governed by the method statement (Chapter 14).
- Respond to concerns or issues identified by the ECO, as relates to environmental management, and implement the appropriate management or remediation measures, at the Contractor's own expense (unless agreed otherwise)
- Should third parties be called to the site to perform clean up and rehabilitation procedures, the Construction Contractor will be responsible for all associated costs.

Note that failure to comply with the requirements and conditions of this EMPr and the Environmental Authorisation may result in fines or other penalties being levied against the Construction Contractor by the Competent Authority.

15.3 Duties and Responsibilities of the ECO

The appointed Environmental Control Officer (ECO) is responsible for undertaking regular site visits to monitor and report on the implementation of the EMPr and adherence to the conditions of the Environmental Authorisation during the pre-construction, construction and post-construction rehabilitation phases. The ECO is not required to monitor the site during the operational phase of the development.

Competency of the ECO

The ECO must be independent of the Applicant, Engineer, Construction Contractor and their service providers. The appointed ECO must be suitably qualified and experienced, and must be able to demonstrate that he / she is of sufficient competency to undertake the required task. The ECO should preferably be a resident in close proximity to the development area to ensure quick response if required. The ECO must work in close co-operation with the Construction Contractor, resident engineer or DEO (where applicable) and all contractors in order to identify potential problems before they occur, and provide suitable guidance as to how the identified problems (environmental impacts) can be avoided.

Duties of the ECO

The duties of the ECO include, but are not limited to:

- Conduct a pre-construction site inspection to ascertain the pre-commencement condition of the site (i.e. the status quo) and determine whether faunal search-and-rescue is required;
- Conduct environmental awareness training (see Chapter 16);
- Undertake regular site visits to monitor compliance with all mitigation, monitoring and management measures contained in the EMPr and the Environmental Authorisation, during the pre-construction, construction and rehabilitation phases of the development (see section below regarding frequency of ECO visits).
- Evaluate the achievement of the performance indicators associated with each impact management objective specified in this EMPr (Chapters 9-13)
- Liaise with site contractors, engineers and other members of the development team with regard to the requirements of the EMPr;
- Provide guidance as and when required regarding the implementation of the environmental management measures contained in the EMPr and EA, so as to assist the Applicant and contractor in remaining compliant with these measures;
- Assist in finding environmentally acceptable solutions to construction problems;
- Ensure that the working area, site camp facilities, access roads and no-go areas are properly demarcated;
- Ensure that proper topsoil management practices are adhered to on site;
- Ensure that proper waste management & pollution prevention strategies are practised on site;
- Examine method statements;
- Recommend additional environmental protection measures, should this be necessary;
- Furnish contractors with verbal warnings in case of contravention of the EMPr;
- Recommend that the competent authority furnish errant contractors with predetermined fines, when verbal and / or written warnings are ignored;
- Ensure satisfactory rehabilitation of disturbed areas on site, after construction is complete;
- Keep detailed records of all site activities that may pertain to the environment, and produce compliance-monitoring reports (ECO Reports) for submission to the Applicant, and the Competent Authority on a monthly basis during the construction phase;

- Submit a final post-construction monthly report (completion report), The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.
- All ECO Reports and Inspection Reports must be submitted to the Applicant and Competent Authority.

Frequency of ECO visits

For the first 3 months the ECO must monitor the site weekly (4 per month), there after the frequency may be reduced to a minimum of two visits a month, at the ECO's discretion, to check compliance with the conditions of the EA and mitigation measures and recommendations of this EMPr. The ECO has the discretion to undertake additional visits if he / she feels this is justified due to the actions of the contractors, and to make *ad hoc* visits in order to ensure compliance.

Authority of the ECO

The ECO has the authority to recommend that the Engineer suspend all works (or part thereof) occurring on site, should any action being undertaken on site not comply with the environmental requirements, and where such actions pose a serious threat to any element of the surrounding environment.

The ECO has the authority to recommend measures to the Engineer, regarding measures that must be implemented on site in order to ensure compliance with the EMPr and Environmental Authorisation, and/or to prevent environmental degradation or pollution from occurring.

The ECO has the authority to issue verbal and written warnings to contractors. Should verbal and written instructions and/or warnings be ignored, the ECO has the authority to request the Engineer to issue pre-determined fines or other penalties.

16. Environmental Awareness Plan

Environmental Awareness Training must be conducted prior to the commencement of construction activities. It is the applicant's responsibility to familiarise himself/herself with the content and requirements of this EMPr. The applicant is also responsible to ensure that the contractor and all labourers working on site during the construction phase are familiar with the content of this EMPr.

The following actions must be taken to ensure that all relevant parties are aware of their environmental role and duties:

1. This EMPr must be kept on site at all times.
2. The provisions of this EMPr and the conditions of the Environmental Authorisation must be explained in detail to all staff during Awareness Training.
3. Training booklets will be handed out to all labourers and must be explained to them.
4. Weekly checks to be done by the Applicant's environmental representative (where available) who must be on site at all times.
5. The ECO to do frequent site visits, as recommended in Section 15.3 of the EMPr.
6. Monthly monitoring reports to be compiled by the ECO. These reports will be circulated to all parties involved (including the applicant, contractor and the competent authority).

The Construction Contractor must make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions

(undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain the EMPr and the conditions contained therein. Attention will be given to the construction process and how the EMPr fits into this process. Other items relating to sound environmental management which must be discussed and explained during the environmental awareness training sessions include:

- The demarcated "No-Go" areas;
- General do's and don'ts of the site;
- Making of fires;
- Waste management, use of waste receptacles and littering;
- Use of the toilets provided;
- Use and control of construction materials and equipment etc.;
- Control, maintenance and refuelling of vehicles;
- Methods for cleaning up any spillage;
- Access and road safety;
- Emergency procedures (e.g. in case of fire, spillage etc.)
- General "best practice" principles, with regards to the protection of environmental resources.

Environmental awareness training and education must be ongoing throughout the construction phase, and must be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of the EMPr), or as new workers come to site. Translators must be utilised where needed. An Environmental Awareness Guideline has been compiled and is included in Appendix C of the EMPr.

17. Monitoring, Record Keeping and Reporting

17.1 Environmental Auditing

In accordance with the requirements of the Amended Environmental Impact Assessment Regulations of 2014 (GN No. R.327 of 7 April 2017), the holder of the Environmental Authorisation (i.e. the Applicant) must, for the period that the Environmental Authorisation is valid, appoint a suitably qualified independent person to conduct an environmental audit to audit compliance with the conditions of the Environmental Authorisation and the EMPr.

The Applicant is responsible for appointing, managing and remunerating the appointed auditor. The auditor may be the appointed Environmental Control Officer (ECO), provided the ECO is sufficiently qualified and experienced to fulfil the auditing requirements specified below.

The appointed auditor must undertake regular environmental audits according to the frequency specified in the Environmental Authorisation. Following each audit the environmental auditor must submit an audit report to the Competent Authority (in this instance the DEA&DP).

- Environmental auditing and environmental audit reports must adhere to the requirements of the Environmental Impact Assessment Regulations, in particular Section 34 (*Auditing of Compliance with Environmental Authorisation, Environmental Management Programme*) and Appendix 7 (*Objective and Content of Environmental Audit Report*)
- The audit report must provide verifiable findings on the level of compliance with the provisions/ conditions of the Environmental Authorisation and the EMPr, and must also comment on the ability of the measures contained in this EMPr to sufficiently avoid, manage and mitigate environmental impacts.

- Where the findings of the audit report indicate that the impact management measures stated in the EMPr are insufficient to adequately address environmental impacts, recommendations as to how the EMPr must be amended so as to address the identified shortcomings must be made and submitted to the competent authority together with the audit report.

17.2 Construction phase monitoring, reporting and record keeping

The appointed Environmental Control Officer (ECO) is responsible for monitoring the site at regular intervals during the construction phase, in order to ensure that the provisions of this EMPr and the Environmental Authorisation are adhered to and that sound environmental management is ensuing on site. For the first 3 months the ECO must monitor the site weekly (4 per month), there after the frequency may be reduced to a minimum of two visits a month, at the ECO's discretion. The ECO will be required to attend the monthly site meetings, which can be combined with one of the site inspections.

The ECO must compile a monthly ECO report detailing the ECO's observations on site, any instances of non-compliance and any issues or aspects that require attention, follow-up or remedial action. The ECO reports must be submitted to the Applicant, and to the Competent Authority if so requested by that authority. The ECO inspection reports must include both photographic and written records.

ECO Inspections - Photographic Records

The condition of the surrounding natural environment must be monitored regularly in order to ensure that construction and management activities are not impacting negatively on the condition of the landscape and any sensitive ecosystems. The most effective way to achieve this is by means of a detailed photographic record. In this way, a record of any shift in ecosystem condition can be maintained and potential impacts be detected at an early stage. It is thus recommended that fixed-point photo-monitoring sites could be set up, and photographs should be taken at these sites during each ECO inspection. Where necessary, the entire working area should be well documented and photographed.

ECO Inspections - Written Records

The following record-keeping during the pre-construction, construction and rehabilitation phases of the development is recommended:

- The ECO should complete an ECO Checklist after each ECO site visit.
- The ECO must compile an ECO monitoring report and submit this to the Applicant, the Contractor and the Competent Authority (the latter only if required by the Competent Authority). The monthly reports must be a summary of the ECO inspections from the preceding month, and must highlight the key concerns/ issues on site, instances of non- compliance with the EA and EMPr, all instructions issued to the contractor, actions taken and aspects that still require attention.
- All ECO reports and ECO instructions must be retained on file by the Applicant at least for the duration of the construction period (retaining reports for a period of at least 5 years is recommended, in the event that the Competent Authority should request information).
- A record (minutes) of construction site meetings, liaison site meetings between the ECO and resident engineer or contractor, monitoring reports, ECO instructions and ECO observations should be clearly documented and filed on a master file off-site for safe keeping.
- It is recommended that a site register (incident register) should be kept on site at the site office for the recording of any environmental incidents (e.g. fires, spills etc.), observations which are contrary to the stipulations within the EMPr and any other contravention deemed necessary for the attention of the resident engineer. Actions taken to remedy the incidents should also be recorded.

- A complaints register should be kept on site in which complaints by any member of the public should be logged.

Construction Phase Record Keeping

A copy of the approved EMPr, the Environmental Authorisation, Water Use Authorisation and any relevant construction method statements must be kept on site at all times during pre-construction, construction and rehabilitation activities. The ECO Reports must be retained by the Applicant for a period of at least 5 years, and must be provided to the Competent Authority upon request.

17.3 Corrective Action Procedure

Correction actions need to be followed in the event where there is non-compliance with a condition of the EA and any recommendation and mitigation measure as stipulated in this EMPr in order to rectify the non-compliance and to prevent reoccurrence.

The ECO will be responsible for reporting non-compliance with any condition of the EA and the recommendations and mitigation measures as included in this EMPr. The ECO will also be responsible for the compilation of non-compliance reports and identifying steps to correct the non-compliance.

The ECO must report all non-compliance issues to the contractor whose responsibility it is to correct. A timeframe for the completion of the corrective actions must be agreed to by ECO. Once the corrective actions have implemented the contractor must notify the ECO. The ECO must review the effectiveness of the corrective actions and if it is found to be inadequate, additional measures must be implemented. Only once the corrective actions have been completed to the satisfaction of the ECO will the matter be considered as closed.

In instances where there are repeated instances where the requirements and conditions of this EMPr and the Environmental Authorisation are contravened or not fully complied with, the Construction Contractor may be liable for financial penalties. Penalties shall be issued by the Engineer, in accordance with the Schedule of Fines contained in the table below. Penalties may be issued at the Engineer's discretion, and/or upon the request/ recommendation of the ECO or Competent Authority.

Depending on the nature of transgression, the Engineer and/or ECO may issue one or more warnings to the Contractor prior to the issuing of a fine. Warnings may be given in writing or orally, but oral warnings must be followed up with written confirmation of the warning within 48 hours of the oral warning. The Engineer has the discretion to issue a fine <u>without</u> first issuing a warning, if the severity of the transgression is judged by the Engineer and/or ECO and/or Competent Authority to warrant such action.

The Engineer must ensure that the levying of fines/penalties forms part of the contract between the Construction Contractor and the Engineer, and is subject to the provisions of South African contract law.

The table below specifies the transgressions for which the Construction Contractor may incur financial penalties, and the amount of the fines that may be levied. Levying of fines/ penalties is subject to alignment with South African Contractual Law. For repeat offences of the same/ similar transgression by the same party, the value of the fine shall be doubled for each subsequent repeat offence to a maximum value of **R50 000.00** per offence.

Note: "Provisions", as stated in the table below, relates to the requirements specified in this EMPr and any requirements or conditions specified in the EA, as well as any other requirements governing the environmental management aspects of the development, which the Contractor is responsible for implementing.

#	Finable Transgression	Min Fine	Max Fine
1	Failure to notify the ECO of the commencement of construction or pre-construction activities, prior to the commencement of such activities	R1 000	R2 000
2	Failure to comply with the provisions relating to the demarcation of the working area, site camp and associated facilities, and the maintenance of the demarcated boundaries.	R1 000	R5 000
3	Failure to comply with the provisions relating to the demarcation of all "no-go" areas, and the maintenance of the demarcated boundaries.	R2 000	R5 000
4	Failure to provide secured ablution facilities (1:30 ratio) on site.	R500	R15 000
5	Failure to comply with the provisions relating to the clearance of vegetation on site.	R2 000	R5 000
6	Clearance of indigenous vegetation (regardless of the density of alien vegetation present) outside of the demarcated boundaries of the working area and site camp.	R2 500	R15 000
7	Damage to indigenous vegetation in the river bed and surrounding areas within No-Go areas	R2 000	R10 000
8	Failure to apply herbicide to alien vegetation when required to do so.	R500	R2 000
9	Failure to adhere to designated access routes and/or the driving of vehicles through undeveloped vegetation outside of the demarcated working area or site camp.	R1 000	R5 000
10	Movement of vehicles and/or construction workers in no-go areas;	R1 000	R10 000
11	Movement of construction vehicles within the river flow without approval from the ECO and Engineer	R5 000	R15 000
12	Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, within designated "no-go" areas.	R1 000	R10 000
13	Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, outside of the areas demarcated for such parking/storage.	R500	R5 000
14	Failure to comply with the provisions relating to the management of topsoil and subsoil.	R1 000	R5 000
15	Excessive excavation of material in areas not depicted for such purpose / activity on the approved design plans.	R2 500	R10 000
16	Failure to comply with the provisions relating to waste management on site i.e. recycling of	R500	R5 000
17	Failure to comply with the provisions relating to the storage, use and management of hazardous substances and fuels on site and/or the spillage of hydrocarbons or hazardous substances on site.	R1 000	R10 000
18	Mixing cement or concrete on bare ground and/or failure to comply with any other provision regarding cement/ concrete batching	R1 000	R5 000
19	Failure to provide adequate fire-fighting equipment (in working order) on site at all times and/or failure to comply with the provisions relating to fire prevention and/or the occurrence of unattended or out of control fires.	R500	R5 000
20	Refuelling of vehicles, machinery or equipment outside of the designated refuelling area.	R500	R2 000
21	Maintenance of vehicles, machinery or equipment outside of the designated maintenance yard, except in emergencies	R500	R2 000
22	Failure to undertake refuelling or repairs over a drip tray or other impermeable bunded surface to collect spilled hydrocarbons (fuels, lubricants, oils etc.) and other hazardous substances; failure to provide drip trays under fuel burning	R500	R2 000

	equipment (including pumps and generators) where there is a risk of hydrocarbon leakage.		
23	Storing / placing fuel containing equipment (i.e. bowsers and other fuel containers) within the river bed.	R2 500	R10 000
24	Failure to produce a required method statement/s to the engineer's and ECO's satisfaction prior to undertaking the activity concerned and/or failure to adhere to an approved method statement	R1 000	R5 000

18. CONCLUSION

The recommendations and mitigation measures prescribed in this EMPr have been formulated with the intention of addressing potential pre-construction, construction and operational phase impacts on the environment. It is likely that if the conditions, requirements and recommendations of the above EMPr are implemented as described and the relevant stakeholders adhere to the various mitigation measures, then the project will be completed without unforeseen negative environmental impacts. Familiarity with the contents of this EMPr by the contractors and other individuals involved in the development project will assist in achieving "environmental best-practice", which ultimately ensures that the project arrives at a sustainable outcome.