DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED EXPANSION OF THE RHODES DRIFT STAFF VILLAGE WITHIN THE MAPUNGUBWE NATIONAL PARK, LIMPOPO PROVINCE

Authority Ref: Pending

Prepared For:

South African National Parks (SANParks)
Farm Rhodes Drift 22-MS, Mapungubwe National Park

For Review and Approval by:

Department of Forestry, Fisheries and the Environment
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Delron Project No: 0704
Report / Revision No: 0

OCTOBER 2022

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DOCUMENT INFORMATION

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Proponent / Applicant	South African National Parks (SANParks)	
The Competent Authority	Department of Forestry, Fisheries and the Environment (DFFE) Attention: Chief Director: Integrated Environmental Authorisations	Private Bag X447 Pretoria 0001 Environment House 473 Steve Biko Road Arcadia
Authority Reference Number	Pending	
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APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED EXPANSION OF THE RHODES DRIFT STAFF VILLAGE WITHIN THE MAPUNGUBWE NATIONAL PARK, LIMPOPO PROVINCE

DRAFT BASIC ASSESSMENT REPORT

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ABBREVIATIONS

BAR	Basic Assessment Report
BID	Background Information Document
CBA	Critical Biodiversity Area
CRR	Comments and Responses Report
DBAR	Draft Basic Assessment Report
DEIR	Draft Environmental Impact Report
DFFE	Department of Forestry, Fisheries and the Environment
DMR	Department of Mineral Resources
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
EMS	Environmental Management System
FEIR	Final Environmental Impact Report
FSR	Final Scoping Report
GA	General Authorisation
GIS	Geographical Information System
GN	Government Notice
ha	Hectare
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IWULA	Integrated Water Use License Application
MAR	Mean annual rainfall
MPRDA	Minerals & Petroleum Resources Development Act (Act 28 of 2002)
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEM:AQA	National Environmental Management Act: Air Quality Act, 2004 (Act 39 of 2004)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act 25 of 1999)
NWA	National Water Act, 1998 (Act 36 of 1998)
PoS	Plan of Study
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency

SDF	Spatial Development Framework
SIA	Social Impact Assessment
SR	Scoping Report
TIA	Traffic Impact Assessment
ToR	Terms of Reference
VIA	Visual Impact Assessment
WML	Waste Management License
WWTW	Wastewater Treatment Works

SECTION 1: INTRODUCTION

South African National Parks is proposing to expand the existing Rhodes Drift Staff Village within the Mapungubwe National Park. The proposed expansion will comprise 10 additional 2 bedroom staff housing units and associated services provision infrastructure with a collective development extent of approximately 8 500m².

In terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) (herein referred to as "NEMA"), the proposed Rhodes Drift Staff Village expansion triggers a listed activity which require authorisation from the competent environmental authority, namely the Department of Forestry, Fisheries and the Environment ("DFFE").

South African National Parks ("SANParks"), hereafter referred to as the applicant has appointed Delron Consulting (Pty) Ltd ("Delron") as the Environmental Assessment Practitioner ("EAP") to assist with undertaking the required environmental authorisation processes (including the statutory public participation), and to compile and submit the required documentation in support of the application for environmental authorisation.

REQUIREMENT FOR A BASIC ASSESSMENT ("BA") PROCESS

In terms of the EIA Regulations promulgated under Chapter 5 of the NEMA published in GN R327, R326, R325 and R324 in Government Gazette 40772, dated 7 April 2017, a Basic Assessment process is required for the proposed expansion project.

Please note that the Regulations are referred to by their 2017 gazetted numbers, which are however, noted as being amendments of the 2014 version of the EIA Regulations. Thus, for completeness please not that Listing Notice 1 in terms of GN R983 (4 December 2014), has been amended to GN R327 (7 April 2017); Listing Notice 2 of GN R984(2014) has been amended to GN R325 (2017) and Listing Notice 3 of GN R985 (2014) has been amended to GN R324.

The need for the **Basic Assessment** process is triggered by the inclusion of Activity 12 listed in GN R324 (Listing Notice 3). This activity may not commence without an environmental authorisation from DFFE.

Table 1-1 NEMA EIA Regulations, 2014 (As Amended)-Listed Activity to be Authorised

Number of the relevant Government Notice:	Activity No (s)	Listed Activity Description
GNR 985 (LN3) of 2014 (as amended by GNR 324 of 07 April 2017)	LN 1 Activity 12 (e)(ii)(iii)	*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.* *Within e. Limpopo* *ii. Within critical biodiversity areas identified in bioregional plans; or* *iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.*

PURPOSE OF THE BA PROCESS

The BA process is an interdisciplinary procedure to ensure that environmental and social considerations are included in decisions regarding projects. Simply defined, the process aims to identify the possible environmental and social effects of a proposed activity and how those impacts can be mitigated. In the context of this report, the purpose of the BA process is to inform decision-makers and the public of potential negative and positive consequences of the proposed activity. This provides the competent authority ("CA") sufficient information to make an informed decision with regards to granting or refusing the Environmental Authorisation ("EA") applied for.

The nature and extent of the proposed activity are explored in more detail in this Basic Assessment Report. This report has been compiled in accordance with the requirements of the EIA Regulations and includes details of the activity description, the site, area and property description, the public participation process, the impact assessment and the recommendations of the Environmental Assessment Practitioner.

SECTION 2: DETAILS & EXPERTISE OF THE EAP

Delron Consulting (Pty) Ltd was appointed in the role of Independent Environmental Assessment Practitioner ("EAP") to undertake the BA process for the proposed activity. The CV of the EAP is available in **Appendix G**. The table below details the relevant contact details of the EAP.

EAP:	Mr. P De Lange - Reg. EAP (EAPASA) : 2021/3751 Delron Consulting (Pty) Ltd		
Professional affiliation/registration:	• EAPASA - Environmental Assessment Practitioner Registered - Reg. EAP (EAPASA) : 2021/3751 • SACLAP: Professional Landscape Architect with the South African Council for the Landscape Architectural Profession (SACLAP): Member Number 20124. • ILASA: (Institute of Landscape Architects South Africa: Member Number 46143. • IAIAsa: (International Association for Impact Assessments) South Africa, Member Number 210.		
Contact person (if different from EAP):	Mr. Pieter De Lange		
Company:	Delron Consulting (Pty) Ltd		
Postal address:	P.O. Box 177, Woodlands		
Postal code:	0072	Cell:	082 571 5396
Telephone:	082 571 5396	Fax:	086 588 4242
E-mail:	pieter@delron.co.za		
Expertise of the EAP:	Pieter is a registered Environmental Assessment Practitioner with over 28 years consulting experience. As an EAP, Pieter has compiled over 300 environmental assessment and planning reports dealing with diverse and complex environmental and planning issues. A career highlight was when I was appointed as the Lead Environmental Consultant and Environmental Project Manager, responsible for EIAs (reporting, public and stakeholder participation, authority consultation and project administration), Exemptions Applications and EMPs for approx. 100 project's for the "Parks Empowering People" (PEP) programme,		

a poverty relief effort (R760 million) of the National Department of Environmental Affairs and Tourism (DEAT) in Kruger-, Mapungubwe-, Kgalagadi Transfrontier-, Richtersveld-, Namaqua-, Augrabies Falls-,Golden Gate-, Addo Elephant-, Agulhas- and Wilderness National Parks. As these projects were all located within national protected areas, compliance with relevant legislation and the inclusion of the views of the affected and interested public were critical to ensure the EIA processes were open, transparent and robust.

His field of expertise is integrated environmental planning and management and he has gained significant experience through his involvement in numerous projects across a wide sectoral range including, tourism and recreational development, transport infrastructure, commerce, service provision industry (water and electricity), land use and development planning, strategic environmental assessments (SEA), environmental management plans (EMP), environmental monitoring and audit, rehabilitation and end-use planning, site analysis, open space planning, and contract documentation.

STATEMENT OF INDEPENDENCE

Neither Delron nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any business, financial, personal or other interest that could be reasonably regarded as being capable of affecting their independence. Delron has no beneficial interest in the outcome of the assessment.

SECTION 3: DESCRIPTION OF THE PROPERTY

The Farm Name, 21 Digit Surveyor General Code and Coordinates are given below.

Table 2: Description of the Applicable Property

Province/s	Limpopo
District Municipality/ies	Vhembe District Municipality
Local Municipality/ies	Musina Local Municipality
Ward number/s	2
Nearest town/s	Musina
Farm name/s and number/s	Farm Rhodes Drift 22-MS
Portion number/s	n/a
Current Zoning	Mapungubwe National Park (Schedule 1, National Park)
Present Land-use	Existing Rhodes Drift Staff Village
Ownership	South African National Parks ("SANParks")
Development footprint of the proposed development & associated infrastructure (ha)	Approx. 8 500m²

Table 3: 21 Digit Surveyor General Code

Farm Rhodes Drift 22-MS (Rhodes Drift Staff Village)																				
T	0	M	S	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
1	**2**			**3**				**4**								**5**				

Table 4: Coordinates

The co-ordinates are in degrees, minutes and seconds in the WGS84 spheroid projection. Refer to **Appendix A**: Site Layout Plan.

Structure	Latitude (S):	Longitude (E):
Approx. centre point of development site	22°12'8.66"S	29°10'31.50"E

(Approx. 6 Corners of the Site) – Refer to Figure below.

Point	Latitude (S):	Longitude (E):
1	22°12'7.52"S	29°10'28.71"E
2	22°12'6.59"S	29°10'31.60"E
3	22°12'9.12"S	29°10'32.60"E
4	22°12'9.59"S	29°10'31.22"E
5	22°12'10.42"S	29°10'31.09"E
6	22°12'10.76"S	29°10'29.93"E

Figure : Approx. 6 Corners of the Site

SECTION 4: LOCALITY OF THE PROPOSED PROJECT

The Mapungubwe National Park is located on the border between South Africa, Zimbabwe and Botswana. It is located on the South African side of the confluence between the Shashe and Limpopo Rivers. The Limpopo River forms the northern boundary and the R572 and R521 Provincial tar roads form the southern and western boundaries respectively. The core stretches from the farm Rhodes Drift in the west for 35 km to the farm Riedel in the east, and from the Limpopo River in the north to the R572 tar road in the south.

The existing Rhodes Drift Staff Village and proposed expansion site is situated within the Mapungubwe National Park in the Vhembe District Municipality of the Limpopo Province. The subject site is located on the Farm Rhodes Drift 22-MS, approx. 3,8 km north-east from the R521 Intersection. The site is situated north and accessed from the Den Staat Road.

The locality of the site is shown on in Figures 1 and 2 below.

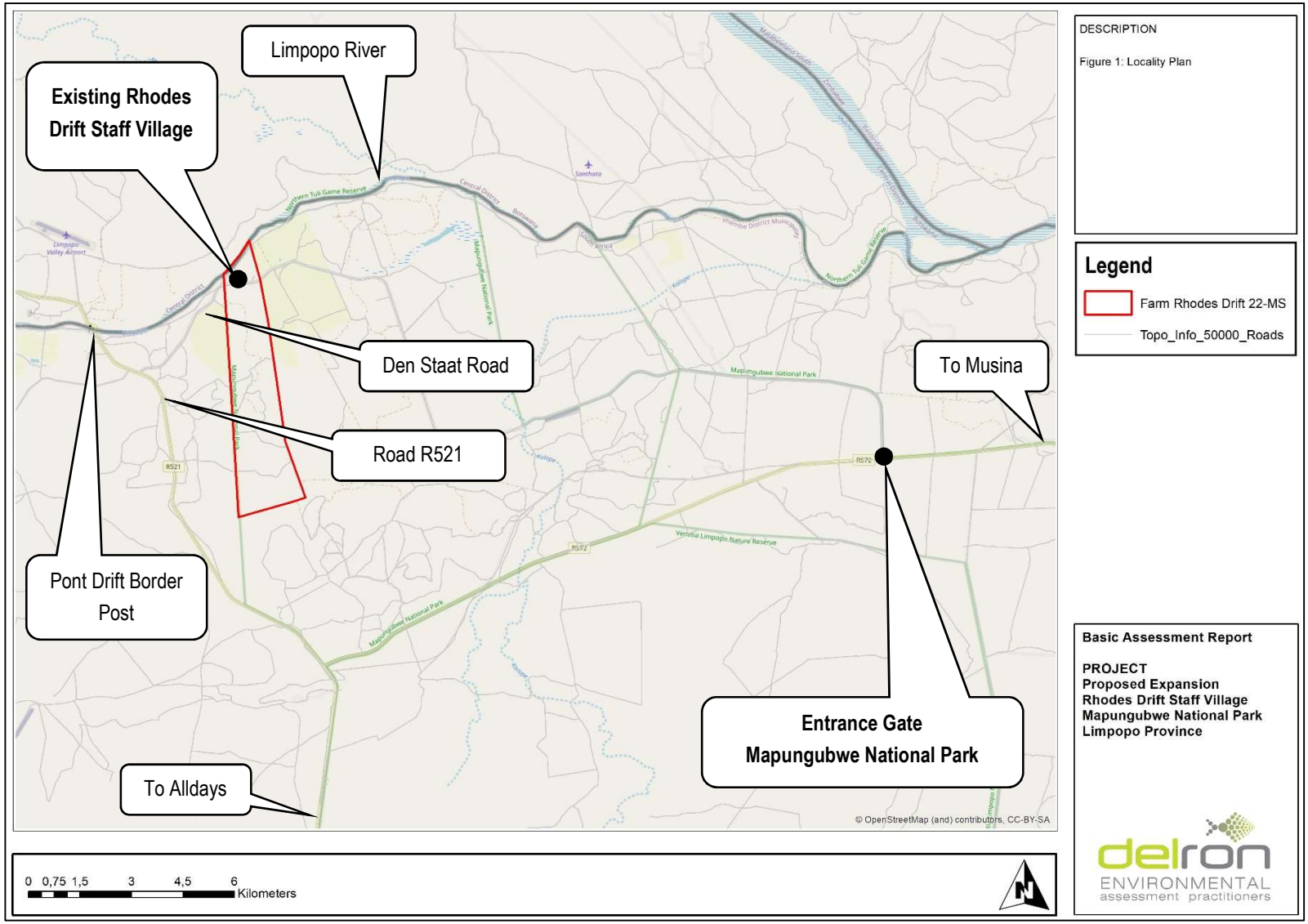


Figure 1: Locality Map

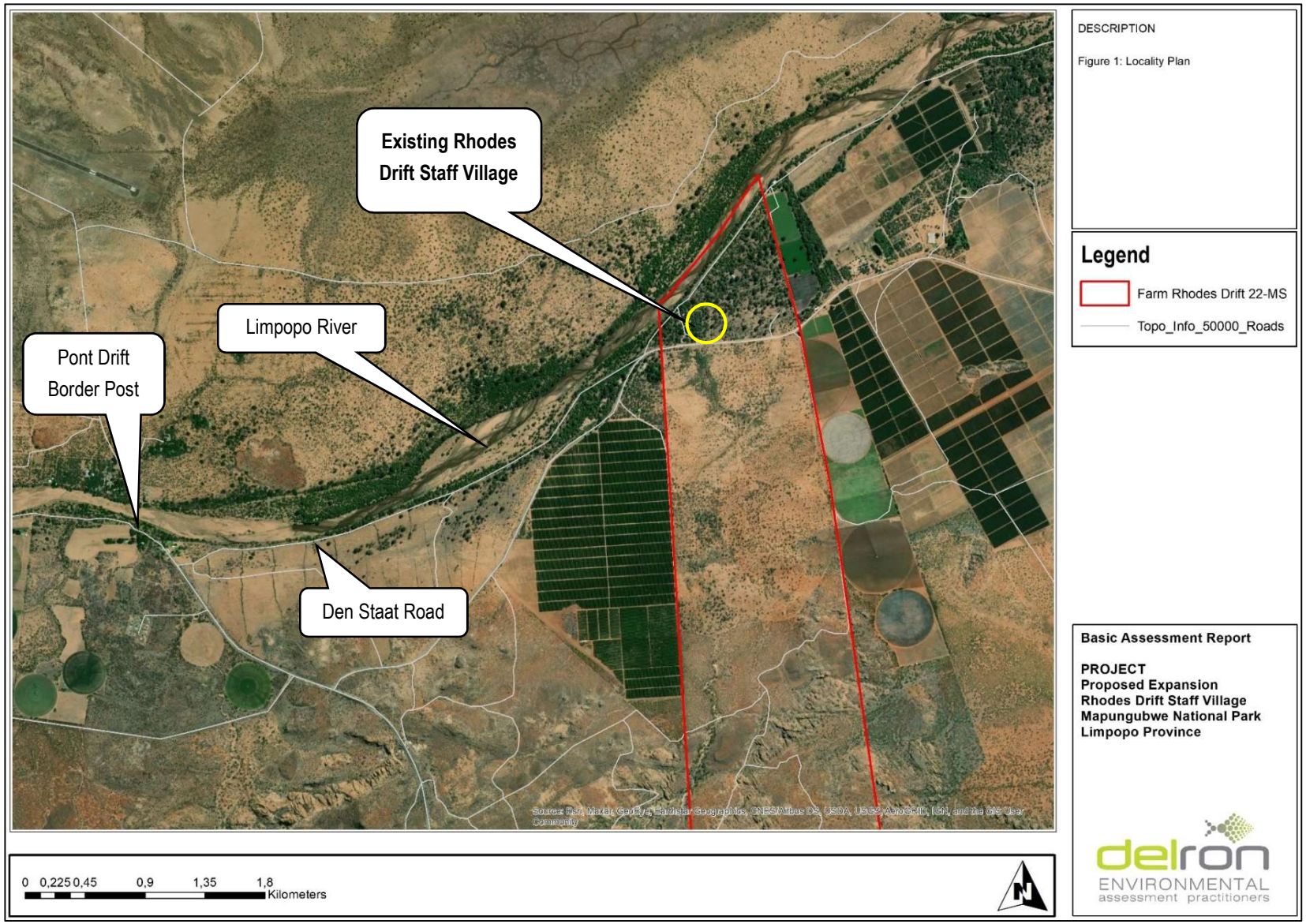


Figure 2: Locality Map (Aerial)

SECTION 5: DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

5.1 PROPOSED DEVELOPMENT & ASSOCIATED INFRASTRUCTURE

The proposed Rhodes Drift Staff Village expansion project comprises the following:

5.1.1 Staff Housing Units

- Construction of additional 10 (ten) x 2 bedroom staff housing units (floor size of each house is approx. 63m^2 and with a car port totalling approx. 70m^2 per unit).
- Total expansion footprint (structures and infrastructure) is approx. 8 500m^2.

Refer to **Figure 3** and **Appendix A: Site Layout Plan**

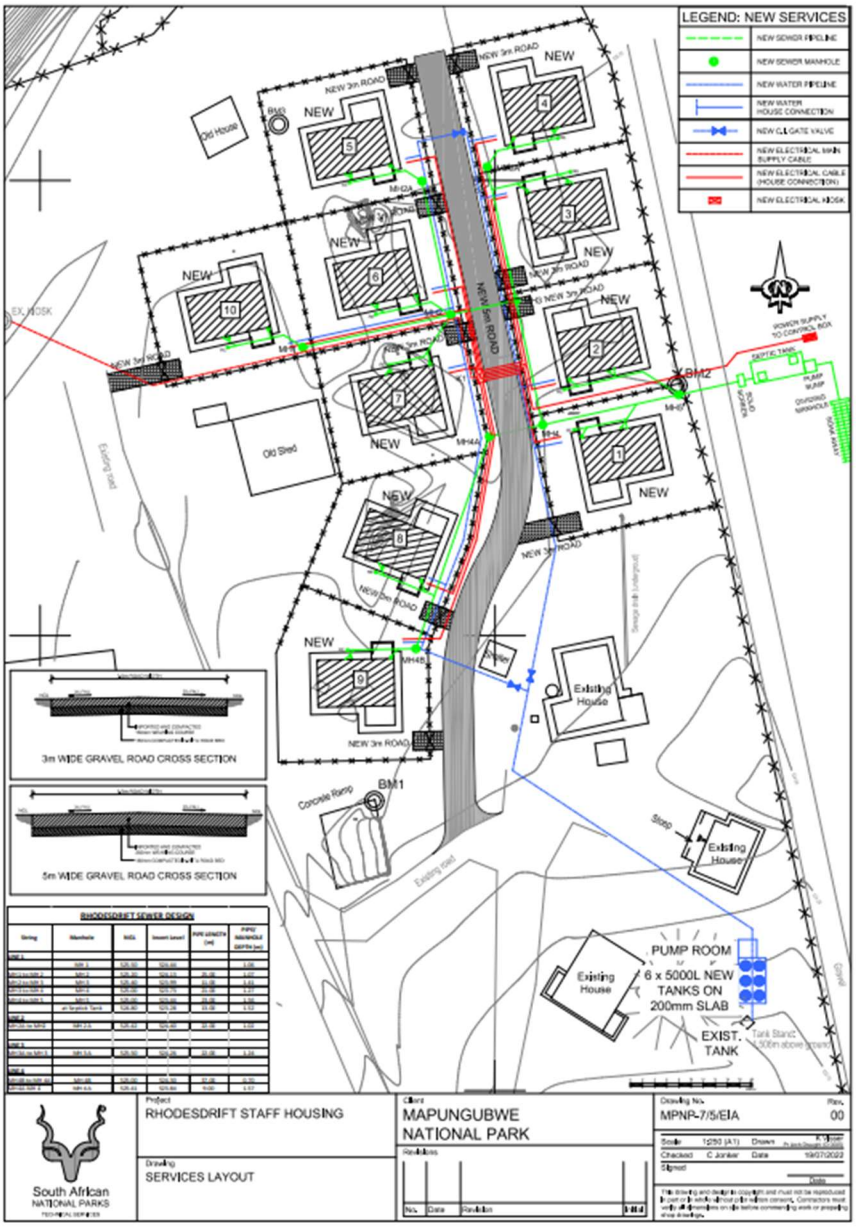


Figure 3: Site Layout Plan

5.1.2 Associated Infrastructure

- **Water**

Potable water is available on site by means of a borehole, which pump water to tanks situated on tank stands. An additional 6 tanks on a concrete slab needs be constructed next to the existing one to accommodate the additional water demand of the new units. The New and the Existing tanks will be connected to each other. From there it will go to the pump room which supply the new housing units with pressurised water.

The new water reticulation system will consist of the supply and installation of:

(i) New 6 x 5000L tanks on new concrete slab connected to the existing one tank on the tank stand.
(ii) New 3 x 3m pump station building with pressure pump set.
(iii) New 63mm Ø HDPE main pipeline from the Pump room to each unit.
(iv) New house connections with water meters at each unit.

Water Demand

- 10 houses x 5 people/house x 200L/person/day = 10 000L/day
- Additional Water storage of 30 000L will be provided.

- **Sewerage**

All sewerage and grey water effluent from the new units, will be diverted to a new septic tank with a pump-sump from there the grey water will be dispersed to a soak-away system.

The new sewage system will consist of the supply and installation of:

(i) New 110mm Ø uPVC pipeline from each building and between manholes up to the septic tanks.
(ii) Construction of new septic tank with pump-sump and soak-aways.
(iii) Installation and commissioning of sewer pumps.

Sewerage Production and Treatment

- 10 houses x 5 people/house x 200L/person/day = 10 000L/day x 85% = 8 500L/d
- Septic Tank Size = 8,6m x 2,4m x 1,5m = 30,96m^3 = 30 960L (3 days Retention)

- **Electricity**

- **Transformer** - The current Eskom power supply is 50KVA. The current load will not be adequate, thus the total power reticulation need to be upgraded. Transformer upgrade will be a pole mounted 100/150KVA Eskom distribution point.

- **Routing** - Current infrastructure will be upgraded to accommodate the ten new houses. Cables will be installed with the planned water reticulation infrastructure. Some cabling will need to be upgraded to accommodate load requirement needs.

- **Cable and trenching** - The required trenching at a cable depth of 900mm with relevant danger tape accompanying the cable at 600mm.

- **Kiosks and cabling** - The three existing kiosks require an upgrade and two new kiosks will be implemented in the proposed building construction zone. The cabling will vary with distances from 200 to 300 m intervals from point of supply to point of use kiosk distribution lengths will vary.

- **Outer lights** - Pole mounted lights will be along the road side at 30-50m intervals.

- **Roads**

The new access road to the new Housing Units will start from where the existing one ends. It will be a 5m wide gravel road, 200mm thick.

- Access Road – 140 meter staff village's access road.
- Yard Access – 85 meter internal access to each house – 10 units in total.

The current conditions can be summarised as follows:

There is currently no internal road in the development. The area is veld and the in-situ material is mostly clay. The area is free draining from stormwater.

It is proposed that the following minimum standard be implemented.

Taking in to account the following:
- Low traffic volumes;
- Weather conditions;
- In-situ clay material;
- Available road construction material; and
- Future maintenance requirements.

- **Road Structure**
  - Access road. To be constructed with a 250mm thick and 5m wide dolerite layer.
  - Yard access. To be constructed with a 150mm thick and 3m wide dolerite layer.

- **Stormwater**
  - The road surface will be free draining.
  - The total road length and land profile justify no additional stormwater systems.

The construction methodology can be listed as follows:

- Establishing road construction plant at development (excavator, grader, tip trucks watercart and roller).
- Excavation and spoil of road prism material (clay and top soil).
- Compaction of excavation floor.
- Importation of road construction material and compact.

Road construction material will be sourced from active borrow pits within the Mapungubwe NP.

5.2 APPLICABLE LISTED ACTIVITIES

In terms of Sections 24(2) and 24D of the National Environmental Management Act (Act No. 107 of 1998), as read with the Environmental Impact Assessment (EIA) Regulations promulgated under Chapter 5 of the NEMA published in GN R327, R326, R325 and R324 in Government Gazette 40772, dated 7 April 2017, a Basic Assessment process is required for the proposed expansion project.

Table 5 contains the listed activity in terms of the EIA Regulations and includes a description of those project activities which relate to the applicable listed activities.

Table 5: Description of the Listed Activities to be Undertaken

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1** of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Listing Notice 1 – Not Applicable		

Activity No(s):	Provide the relevant **Scoping and EIA Activity(ies**) as set out in **Listing Notice 2** of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Listing Notice 2 – Not Applicable		

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3** of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
Activity No: 12 (e)(i)(ii)(iii)	*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.* *Within e. Limpopo* *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; or* *iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.*	The proposed Rhodes Drift Staff Village expansion project and associated infrastructure will require clearance (approx. 0,8 ha) of vegetation where such vegetation cover constitutes indigenous vegetation. The site is also located within the Mapungubwe/Greefswald Riverine Forest, an endangered ecosystem, as listed in terms of section 52 of the NEMBA.

SECTION 6: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

6.1 LEGISLATIVE CONTEXT

LEGISLATION	SUMMARY	PROJECT APPLICABILITY / IMPLICATIONS
The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	The Constitution, which is the supreme law of the Republic of South Africa, provides the legal framework for legislation regulating environmental management in general. Section 24 of the Constitution states that everyone has the right: *a) to an environment that is not harmful to their health or well-being; and* *b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that:* *i. prevent pollution and ecological degradation;* *ii. promote conservation; and* *iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.* Section 24 of the Bill of Rights therefore guarantees the people of South Africa the right to an environment that is not detrimental to human health or well-being, and specifically imposes a duty on the State to promulgate legislation and take other steps that ensure that the right is upheld and that, among other things, ecological degradation and pollution are prevented.	In support of the above rights, the environmental management objectives of the proposed project is to promote justifiable socio-economic development and to ensure a sustainable development through the effective management of bio-physical and socio-economic impacts, so that: • valuable environmental resources are safeguarded by avoiding unacceptable negative irreversible changes through implementing acceptable mitigation measures; • human health and wellbeing is protected.
The National Environmental Management Act (NEMA) (Act No. 107 of 1998)	An Application for Environmental Authorisation of Listed Activities in terms of Section 24 of the NEMA is applicable.	The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA. The developer must apply the principles of Integrated Environmental Management and consider, investigate and assess the potential impact of existing and planned activities on the environment, socio-economic conditions and the cultural heritage. This application is in process.
Environmental Impact Assessment Regulations, 2014 (as amended in 2017)	Activity 12 as listed in GNR 324 of the EIA Regulations 2017 is applicable but none that are listed in GNR. 325 and 327. A Basic Assessment process needs to be conducted in support of an Application in terms of Section 24 of NEMA.	This application is in process. This BAR forms part of that suite of documents. Specific, targeted mitigation measures must be supplied by this report for inclusion into the EMPr reporting of the Basic Assessment process.
Promotion of Access to Information Act,	The Promotion of Access to Information Act 2 of 2000 (PAIA) is legislation allowing access to any	Without access to information, a person may be unable to determine whether or not his or her right to

LEGISLATION	SUMMARY	PROJECT APPLICABILITY / IMPLICATIONS
2000 (Act No. 2 of 2000 as amended)	information held by the State, and any information held by private bodies that is required for the exercise and protection of any rights.	just administrative action (or to an environment not harmful to human health or wellbeing or, for that matter, any other Constitutional right) has been infringed. The purpose of the "PAIA" is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith. In addition to providing access to information, cognisance should be taken that PAIA also makes provision for the refusal of access to information that is deemed to be of a sensitive, confidential or classified nature. This is captured under Chapter 4 of part 2 and 3 of PAIA.
National Environmental Management Biodiversity Act (Act 10 of 2004) (NEM:BA)	The NEM:BA provide a list of sensitive ecosystems that is in need of protection (National List of Ecosystems that are Threatened and in need of Protection – GN 1002 of 2011). The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. GN. R. 898 of 2014 further lists regulations for the management of Alien and Invasive Species (AIS). AIS are classified into the following categories: • Category 1a Listed Invasive Species - species which must be combatted or eradicated; • Category 1b Listed Invasive Species - species which must be controlled; • Category 2 Listed Invasive Species - species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit; • Category 3 Listed Invasive Species - as species which are subject to exemptions	The site is located within the Mapungubwe / Greefswald Riverine Forest, an endangered ecosystem, as listed in terms of Section 52 of the NEMBA as identified by GN-R1002 of 9 December 2011. Endangered (EN) Ecosystems, being ecosystems that have undergone degradation of ecological structure, function .or composition as a result of human intervention, although they are not critically endangered ecosystems. • The proposed development must conserve endangered ecosystems and protect and promote biodiversity; • Must assess the impacts of the proposed development on endangered ecosystems; • No protected species may be removed or damaged without a permit; • The proposed site must be cleared of alien vegetation using appropriate means.
The National Forest Act (1998) (NFA)	The purpose of the NFA is to preserve trees and forests and to promote the sustainable management and development of forests for the benefit of all South Africans. The NFA provides for the protection of certain listed tree species. The NFA prohibits the destruction of indigenous trees in any natural forest without a license. It is an offense to cut, disturb, damage or destroy any indigenous tree	Requires that a permit be obtained should any protected forests or trees be removed during the construction phase of the project. An on-site investigation confirmed that there are no protected trees on the proposed development site.

LEGISLATION	SUMMARY	PROJECT APPLICABILITY / IMPLICATIONS
	in a natural forest or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree or any forest product derived from such a tree, except in terms of a license or an exemption published by the Minister in the Gazette on the advice of the Council.	
The National Environmental Management: Protected Areas Act (Act No.57 of 2003) (NEM:PAA)	The purpose of the National Environmental Management: Protected Areas Act is to provide for the conservation and protection of ecologically viable areas in South Africa that characterise the country's biological diversity and natural land and seascapes. The goal of the National Protected Areas Expansion Strategy (NPAES) is to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to climate change. It sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion. The NPAES has classified protected areas into three categories: formally protected areas, informally protected areas and focus areas.	The proposed development site is located within the Mapungubwe National Park which is recognized as a protected area in terms of the NEM:PAA. In compliance with the NEM:PAA, SANParks is required to develop a management plan for each of its protected areas. The object of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of the NEM:PAA and for the purpose for which it was declared. The proposed development is listed in the Mapungubwe National Park and World Heritage Site Integrated Park Management Plan for the period of 2019-2028 as approved by the Minister of DFFE.
The National Water Act (Act No. 36 of 1998)	The National Water Act of 1998 ensures that South Africa's water resources are protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all people. Applications for water use authorisations for water use activities may take the form of a Water Use License (WULA) or a General Authorization (GA), depending on the nature of the proposed water use and the likely impact the water use will have on water resources. Section 21 of the National Water Act (Act 36 of 1998) identifies eleven different water uses that require authorisation from the Department of Water & Sanitation (DWS). A water use must be licensed unless it (a) is listed in Schedule 1, (b) is an existing lawful use, (c) is permissible under a general authorisation (GA), or (d) if a responsible authority waives the need for a license.	A General Authorisation (GA) or Water Use Licence (WUL) for the project may be required as development activities are proposed within 100m from the edge of the Limpopo River.
National Heritage Resources Act (Act No. 25 of 1999)	Section 38 of the National Heritage Resources Act allows SAHRA to call for a Heritage Impact Assessment report for certain kinds of development including:	Section 38(3) of the National Heritage Resources Act (Act No. 25 of 1999) is applicable and therefore a Heritage Impact Assessment will be submitted to SAHRA for comment and approval.

LEGISLATION	SUMMARY	PROJECT APPLICABILITY / IMPLICATIONS
	• The construction of a road, powerline, pipeline, canal or other similar linear development or barrier exceeding 300 m in length. • Any development or other activity which will change the character of a site exceeding 5000 m² in extent.	

6.2 PROVINCIAL, MUNICIPAL & OTHER DEVELOPMENT PLANNING FRAMEWORKS & INSTRUMENTS

POLICY	SUMMARY	PROJECT APPLICABILITY
The Limpopo Conservation Plan version 2 (2013)	The Limpopo Conservation Plan version 2 (2013) is intended to help guide land-use planning, environmental assessments and authorisations; and natural resource management in order to promote sustainable development. The plans falls under the Bioregional Plan facility of the National Environmental Management: Biodiversity Act (NEMBA) (No. 10 of 2004), and assists regional decision making authorities towards land use management. It has been developed to further the awareness of the unique biodiversity in the area, the value this biodiversity represents to people and promote the management mechanisms that can ensure its protection and sustainable utilisation.	The site is classified as "Protected Area" in terms of the Limpopo Conservation Plan version 2.
Mapungubwe National Park and World Heritage Site Integrated Park Management Plan, 2019-2028	The object of a Park Management Plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of the NEM:PAA and for the purpose for which it was declared.	The proposed development is listed in the Mapungubwe National Park and World Heritage Site Integrated Park Management Plan for the period of 2019-2028 as approved by the Minister of DFFE.

6.3 REGULATIONS, PROTOCOLS, GUIDELINES, NORMS & STANDARDS

TITLE OF GUIDELINE, NORMS OR STANDARD	RELEVANCE	PROJECT APPLICABILITY
DEA (2017), Guideline on Need and Desirability	The EIA Regulations stipulates that "Need & Desirability" of a project must be considered in the EIA process. The Guideline aims to ensure that all the relevant sustainability considerations have been taken into account.	A Need & Desirability assessment according to the Guideline is incorporated into this report.
DEA (2010) IEM Guideline 7 Public Participation	The EIA Regulations stipulates that "Public Participation" must be incorporated in the EIA process. The Guideline aims to ensure that a fair Public Participation Process is followed.	A Public Participation Process according to the Guideline is incorporated into Appendix E of this report.
NEMA: Relevant Specialist protocols GN R320 & GN R 1150 (2020)	Identified protocol guidelines for specialist has been identified accordingly in GNR 320 & GNR 1150.	Specialist studies were conducted according to these Protocols.

SECTION 7: NEED AND DESIRABILITY

7.1 NEED AND DESIRABILITY IN TERMS OF THE GUIDELINE ON NEED AND DESIRABILITY, 2017

In 2017, the Department of Environmental Affairs published an Integrated Environmental Management Guideline, the Guideline on Need and Desirability. The following table indicates on how the guideline requirement were considered in this Basic Assessment Report.

Table 6: Need and Desirability of the Proposed Project

1.	**SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES**
1.1	**How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?** Ecological Integrity refers to the ability of an ecosystem to support and maintain ecological processes and a diverse community of organisms. Ecological Integrity is measured as the degree to which a diverse community of native organisms is maintained, and is used as a proxy for ecological resilience, intended as the capacity of an ecosystem to adapt in the face of a stressor. Ecological integrity considerations include threatened ecosystems, CBA's and Ecological Support Areas (ESA's), ecological drivers of the ecosystem, sensitive or stressed ecosystems, conservation targets and environmental attributes and management proposals contained in EMF's and SDF's. The site itself was historically a farmstead with associated historically agricultural operations. Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure. Due to historical development and long-term, continuous human impacts on the site, the natural vegetation was locally disturbed and degraded. Thus, the proposed expansion of the staff village within the existing disturbed footprint will have a minimal impact on the ecological integrity of the area. Since the development site has been transformed and disturbed, none of these considerations are applicable. It is highly unlikely that the ecological integrity of the site will be affected by the proposed project, as no additional detrimental environmental impacts are expected. The project entails the continuation of a current activity on site, through an enhanced and modernised way. The site has already been transformed from the original un-impacted state.
1.1.1	**Compliance with Park Management Plan** The proposed development site is located within the Mapungubwe National Park which is recognized as a protected area in terms of the NEM:PAA. In compliance with the NEM:PAA, SANParks is required to develop a management plan for each of its protected areas. The object of a management plan is to ensure the protection, conservation and management of the protected area concerned in a manner which is consistent with the objectives of the NEM:PAA and for the purpose for which it was declared. The proposed development is listed in the Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan for the period of 2019-2028 as approved by the Minister of DFFE. More specifically, *"New staff housing and upgrades at various sites"* for the Western Section are listed under *"Table 10: Proposed administrative infrastructure development in the park"*.

1.1.2	**Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).** The park was gazetted as a National heritage site in December 2001. The Mapungubwe Cultural Landscape (MCL) was listed as a World heritage site by UNESCO in July 2003. Proposed initially in the late 1990s the transfrontier conservation initiative culminated in the formal establishment of the GMTFCA in June 2006 with the signing of a memorandum of understanding by the Governments of Botswana, South Africa and Zimbabwe. The MCL also falls within the core area of the UNESCO listed Vhembe Biosphere Reserve (VBR). The status of the MPNP and MCL in terms of its National and World Heritage designation makes up an important component of international context, with the Department of Environmental Affairs and the SAHRA ensuring that the values supported by national legislation are met. This implies that an Environmental Impact Assessment would must be conducted in order to supply adequate information to the relevant authorities to make an informed decision about authorising the proposed development.
1.2	**How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?** The site has been transformed from its natural state by the establishment of a farmstead, current staff housing and associated infrastructure, clearance of indigenous vegetation, historical agricultural activities and the disturbance of natural habitats and ecosystems, which means that there are existing historical impacts on the property. It is expected that any new impacts, that are carefully mitigated, would therefore not be detrimental to the site or disturb biological diversity or ecosystems. Due to historically development and agricultural operations on the site, changes in the vegetation composition has degraded the status and conservation importance of the vegetation unit on the proposed development site. As a result of the human impacts, habitat modifications (staff accommodation, associated infrastructure, grass cutting etc.) have occurred and therefore lowering the conservation status to Low.
1.2.1	**The Impact Mitigation Hierarchy** The effectiveness of the impact assessment process depends on the implementation of the impact mitigation hierarchy. The purpose of the EIA Regulations of 2014, as amended, are to regulate the procedure on applications for Environmental Authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it cannot be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts. Please refer to Section 11 which explains how the mitigation hierarchy has been applied in detail.
1.3	**How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?** Due to historical development and long-term, continuous human impacts on the site, the natural vegetation was locally disturbed and degraded. Thus, the proposed expansion of the staff village within the existing disturbed footprint will have a minimal impact on the ecological integrity of the area.

	A construction and operational management plan will be implemented and regularly monitored to ensure effectiveness. Appropriate waste management practices will be implemented.
1.4	**What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?** General waste to be expected during construction includes the following: • Trash (waste paper, plastics, cardboard, etc.) and food waste from construction personnel; • Uncontaminated construction debris such as used wood and scrap metal; and • Uncontaminated soil and non-hazardous rubble from excavation or demolition. Building rubble and solid construction waste (such as vegetation debris, sand, gravel, concrete and spoil material) that cannot be used for filling and rehabilitation and other litter and waste (including packaging, plastics, scrap metals etc.) generated during the construction phase will be removed from the Park by the contractor. With respect to waste management during construction, an integrated waste management approach would be used, based on the principles of waste minimisation, reduction, reuse and recycling of materials. Sufficient, covered waste collection bins (scavenger and weatherproof) will be provided. No burning, burying or dumping of waste of any kind will be permitted. During operations, general waste would be collected by SANParks on a weekly basis for disposal at a recognised and registered waste disposal sites/ recycling company.
1.5	**How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?** No deposits, sites or features of heritage significance could be identified within the indicated study area. The Rhodes Drift farmhouse and associated structures are of local historical importance; however, they will not be impacted upon by the proposed development.
1.6	**How will this development use and/or impact on non-renewable natural resources?** The Rhodes Drift Staff Village development will not use and/or impact on non-renewable natural resources?
1.7	**How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part?** The existing Rhodes Drift Staff Village is proposed to be expanded. All necessary infrastructure and resources are already available. By upgrading and expanding the staff village, resources like water and electricity will be better utilised.
1.7.3	**Do the proposed location, type and scale of development promote a reduced dependency on resources? For example, can the development be located more appropriately to reduce the dependency of resources needed for service infrastructure?** The proposed expanded staff village will reduce dependency on resources such as water and electricity through modernised systems. It is proposed to expand and modernise the existing facilities to current research and

	operational standards, to reduce waste production and improve resource utilisation, and most notably to reduce electricity and water consumption at the village. The close proximity of the Rhodes Drift Staff Village to the nearby western tourism facilities and infrastructure of the Park will reduce commuting requirements.
1.8	**A RISK AVERSE AND CAUTIOUS APPROACH** **A risk averse and cautious approach (the precautionary principle) in the context of the protection of environmental rights is essentially about the assessment and management of risk. It determines how the ecological impacts resulting from this development would impact on people's environmental right.** **How were a risk-averse and cautious approach applied in terms of ecological impacts?** The site for development was chosen on the principles that it is located as far as possible from sensitive areas such as the Cultural Heritage Area and on the periphery of the park. Site is also located on already disturbed land (historical farmstead, current staff housing and associated infrastructure, clearance of indigenous vegetation, historical agricultural activities). The site has already been disturbed by current/historic agricultural activities. There are no sensitive terrestrial biodiversity present on the site, so no opportunities were identified to conserve biodiversity. The proposed staff village expansion is not expected to have an impact on aquatic biodiversity either.
1.9	**How will the ecological impacts resulting from this development impact on people's environmental right in terms following:** **1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?** There should be no lasting negative impact on people's health and well-being because of this proposed expansion. Refer to Section 11 of this report for all impacts and mitigation measures associated with this project. **1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?** **Positive impacts include:** • Various opportunities for skilled workers, semi-skilled workers and unskilled labourers would be created during the construction phase. There is thus the opportunity for locals with the necessary construction related skills to become involved. • Careful site selection was carried out to ensure minimal impacts on the receiving environment. The Rhodes Drift Staff Village is an appropriate and necessary component of the Park's management infrastructure in support of tourism and multi-disciplinary conservation.
1.10	**Considering the need for social equity and justice, is the development the best practicable environmental option for this land/site?**

	The proposed expansion of Rhodes Drift Staff Village is the best practical environmental option for the site at this time as the land is already being utilised for this purpose. It is also well aligned with the planning priorities contained within the Mapungubwe National Park's for the period of 2019-2028.
1.11	**Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?** Refer to Section 11 of this report for all impacts associated with this project.
1.12	**Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?** Refer to Section 11 of this report for all impacts associated with this project. Section 8 describes the various alternatives considered for this project.
1.13	**Cumulative Effects** This refers to the impact of an activity that may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area. **Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?** **Cumulative Environmental Impact** • The cumulative environmental impact will be negligible in this instance where an existing facility will be expanded without affecting the natural environment. The improved utilisation of natural resources (reduced water, energy usage and improved waste management) will result in a positive cumulative impact. **Cumulative Socio-Economic Impact** The proposed expansion of Rhodes Drift Staff Village will result in an improved tourism and conservation support facility. This will have a positive cumulative impact on the local economy through direct and indirect means.
2.	**PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT**
2.1	**What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?**
	2.1.1. The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area. The project would not compromise the integrity of any existing or approved IDP or SDF documents. The proposed development is allocated in the Mapungubwe National Park and World Heritage Site and is managed by South African National Parks (SANParks), and will thus not be discussed in any municipal documentation.
	2.1.2 Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.) It is not expected that the proposed development will impact upon spatial priorities and patterns.
2.3	**How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?**

	The development is not intended to address a wide variety of societal needs, but rather address tourism and conservation needs. However, it is anticipated that housing would provide a positive contribution in terms of societal needs in the surrounding community.
2.4	**Will the impact be socially and economically sustainable in the short- and long-term?** Yes. It is envisaged that the proposed Rhodes Drift Staff Village expansion will be socially and economically sustainable, even though the main purpose for the staff village is for tourism and conservation purposes. Sustainable development means designing the right mix of economic, social and environmental policies for today and for tomorrow. It is believed that this proposed development will not only support tourism and conservation development, but also promote social wellbeing and economic growth.
2.5	**In terms of location, describe how the placement of the proposed development will:** **a) Reduce the need for transport of people and goods.** The close proximity of the Rhodes Drift Staff Village to the nearby western tourism facilities and infrastructure of the Park will reduce commuting requirements. **b) Be in line with the planning for the area.** The proposed development is listed in the Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan for the period of 2019-2028 as approved by the Minister of DFFE. More specifically, *"New staff housing and upgrades at various sites"* for the Western Section are listed under *"Table 10: Proposed administrative infrastructure development in the park"*. It is well aligned with the planning priorities contained within the Mapungubwe National Park's for the period of 2019-2028. **c) Optimise the use of existing resources and infrastructure.** The proposed expansion of Rhodes Drift Staff Village is the best practical environmental option for the site at this time as the land is already being utilised for this purpose. The existing Rhodes Drift Staff Village is proposed to be expanded. All necessary infrastructure and resources are already available. By upgrading and expanding the staff village, resources like water and electricity will be better utilised. **d) Impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area.** No deposits, sites or features of heritage significance could be identified within the indicated study area. The Rhodes Drift farmhouse and associated structures are of local historical importance; however, they will not be impacted upon by the proposed development. **e) Encourage environmentally sustainable land development practices and processes.** Efficient resource usage, effective waste management and control and mitigation of environmental impacts will encourage environmentally sustainable land development. Refer to Section 11 of this report for all impacts and mitigation measures associated with this project. **f) Take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.).** Careful site selection was carried out to ensure minimal impacts on the receiving environment. The Staff Village site was informed by existing site characteristics such as: o Already disturbed land (historical farmstead); o Close proximity to Pont Drift; o Close proximity to existing infrastructure and roads, accessibility;

	○ Biophysical considerations (no presence of sensitive natural features); and ○ No visual intrusion / obstruction impacts on sense of place / scenic views.
2.7	**How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:** **2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?** There should be no lasting negative impact on people's health and well-being because of this proposed expansion. Refer to Section 11 of this report for all impacts and mitigation measures associated with this project. **2.7.2. Positive impacts.** • Various opportunities for skilled workers, semi-skilled workers and unskilled labourers would be created during the construction phase. There is thus the opportunity for locals with the necessary construction related skills to become involved. • Careful site selection was carried out to ensure minimal impacts on the receiving environment. The Rhodes Drift Staff Village is an appropriate and necessary component of the Park's management infrastructure in support of tourism and multi-disciplinary conservation.
2.8	**Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?** It is not anticipated that the development's socio-economic impacts will result in new, direct ecological impacts.
2.13	**What measures were taken to ensure the participation of all interested and affected parties?** Refer to Public Participation in Section 10 and Appendices E1 – E6. The Public Participation Report presents the detail of all Interested and Affected Parties ("I&APs") that were identified, how the I&APs were notified and involved in the process, any issues and concerns raised by the I&APs, and the final results of the Public Participation Process.
2.14	**Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?** Local labourers up to a certain skills level will be employed during the construction phase.
2.15	**What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?** All contractors, sub-contractors and workers will attend compulsory environmental awareness training and inductions. This training will highlight the dangers associated with the workplace. Procedures relating to environmental risks will also be put in place and will be regularly updated.

2.16	**Describe how the development will impact on job creation?** Construction work associated with the proposed expansion could create a number of job opportunities. The majority of these jobs will be filled by local HDIs. All recruitment will be in-line with Employment Equity Policies. The policy will also promote the employment of women to ensure that gender equality is attained as defined in the Employment Equity Act No 55 of 1998.
2.17	**What measures were taken to ensure:** **2.17.1. That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment?** **2.17.2. That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?** Refer to the Public Participation Report attached hereto as Appendix E. Other government departments are included on the list of I&APs and stakeholders and received the notifications of the proposed activity as well as notifications on the availability of the report for review. All applicable environmental legislation was considered during the assessment process.
2.19	**Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?** Mitigation measures for each of the identified impacts are described in detail in the Environmental Management Programme report. The proposed mitigation measures are realistic to protect both the bio-physical and socio-economic environment in both the short- and long-term.
2.20	**What measures were taken to ensure that he costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?** The Draft EMPr this BAR includes a section that is in line with the NEMA's "polluter pays principle", stating that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be borne by those responsible for harming the environment. In addition to the above, the NEMA and the EIA Regulations of 2014, as amended, highlights specific considerations that must be taken into account for every application, including the principles set out in Section 2 of NEMA and the general objectives of the Integrated Environmental Management set out in Section 23 of NEMA. The applicant will be responsible for the costs of any remediation of pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects.
2.21	**Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?** The alternatives for the proposed project are discussed in Section 8.

2.22	**Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?** The positive cumulative impact on the socio-economy by the providing of job opportunities.
3.	**Description of how the objectives of Integrated Environmental Management as set out in Section 23 of NEMA have been taken into account.**
	a) Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment; This BA process considers all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed EMPr. **b) Identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits and promoting compliance with the principles of environmental management set out in Section 2;** Impacts associated with the proposed project have been identified, assessed and mitigated, these are detailed in Section 11 of this BAR. **c) Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;** This BA process is being undertaken in accordance with the NEMA EIA Regulations of 2014, as amended, of which its provisions themselves consider the general objectives of Integrated Environmental Management in Section 23 of the NEMA. Please refer to the attached EMPr (**Appendix F**). **d) Ensure that adequate and appropriate opportunity for public participation in decisions that may affect the environment;** This BA process is being undertaken in accordance with the public participation requirements set out in the NEMA EIA Regulations 2014, as amended. Please refer to Section 10 of this BAR for details relating to the public participation process. **e) Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment;** This BA process considers all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to a detailed EMPr (**Appendix F**). **f) Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in Section 2.**

	This BA process considers all the general objectives of Integrated Environmental Management. The social, economic, cultural and biophysical impacts have been considered and evaluated. The impacts will be mitigated and managed according to the detailed EMPr attached (**Appendix F**).
4.	**Description of how the principles of environmental management as set out in Section 2 of NEMA have been taken into account.** Section 2 of the NEMA provides National Environmental Management Principles to serve as a framework for environmental management implementation and decision making. In line with these principles, the following have been considered: • Long-term sustainable development factors have been considered and explored as part of this BA process; • Integrated consideration was given to all environmental, biophysical, social and economic components and potential impacts associated with the proposed activity; and • Mitigation and remediation measures have been identified and recommended.

SECTION 8: CONSIDERATION OF ALTERNATIVES - MOTIVATION FOR THE PREFERRED SITE, ACTIVITY & TECHNOLOGY ALTERNATIVE

In terms of the NEMA Regulations, 2014 (as amended, 2017), the definition of alternatives is given as:

'***Alternatives***' in relation to a proposed activity, means different means of meeting the general purpose and requirement of the activity, which may include alternatives to the –

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

It is however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the applicant, planning / technical / specialist consultants and the EAP, which in some instances culminates in a single preferred project proposal.

A Preliminary Design Report, prepared by PG Consulting Engineers Pty (Ltd), revealed two possible dam sites alternatives for an irrigation dam within an unnamed tributary of the White River. The site selection took into consideration the topography, contours, catchment yield, storage capacity and ground formations, and ecological sensitivity. The following sections explore different types of alternatives in relation to the proposed activity in more detail.

Table 7: Alternatives Considered

No	Alternative Type	Description
1.	**Activity Type Alternatives**	The Preferred and Only Activity Alternative is to expand the existing Rhodes Drift Staff Village. The following specific expansions to the staff village are proposed: (Please refer to the Site Development Plan (SDP) (Appendix A) and Figure 3) • Construction of additional 10 (ten) x 2 bedroom staff housing units (floor size of each house is approx. 63m² and with a car port totalling approx. 70m² per unit); • Total expansion footprint (structures and infrastructure) approx. 8 500m²; and • Associated infrastructure. The Applicant wishes to expand the staff village as firstly the location benefits this proposal and secondly as there is a need for improved staff facilities. No reasonable or feasible activity alternatives have been identified for consideration as the Applicant wishes to upgrade and expand an existing, functioning staff village.
2.	**Property or Site Alternatives**	The preferred and only site alternative for the proposed staff village expansion is located at the existing Rhodes Drift Staff Village, which is located on the Farm Rhodes Drift 22-MS in the western section of the park. It was decided to expand the said site due to the following:

No	Alternative Type	Description
		• Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure. Due to historical development and long-term, continuous human impacts on the site, the natural vegetation was locally disturbed and degraded. Thus, the proposed expansion of the staff village within the existing disturbed footprint will have a minimal impact on the ecological integrity of the area. • The property is large enough for the activity. • The proposed development complies with the Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan for the period of 2019-2028. • Easy access to services (water, sewage, electricity, roads, storm water, and waste removal). • The site is easily accessible from the Den Staat Road. As this Application is for the expansion of an existing staff village, no other property or site locations have been considered. The preferred and only site alternative for the staff village expansion makes it possible to utilise the advantages vested in: • the existing established infrastructure at the staff village; • the presence of established access routes to the staff village; • the historically disturbed and totally transformed nature of the property; • the absence of sensitive indigenous vegetation on site; as well as the fact that • the site is surrounded by established agricultural land uses and located far away from other tourist facilities. No negative impacts are associated with the preferred site alternative for this development.
3.	**Layout Alternatives**	**Layout Alternative 1 (Proposal)** In terms of the alternative layout designs for the proposed expansion, the site is relatively small 0,85 ha and irregular shaped. Therefore, the design of the staff village and its associated infrastructure is specific to the size and shape of the site. The expansion is located within the existing Rhodes Drift Staff Village's perimeter boundaries. Please refer to the Site Development Plan (SDP) (Appendix A), Figure 3 under Section 5 of this BAR, for a drawing of the preferred and only staff village layout and proposed expansion. The layout of the existing staff village and proposed expansion has also been discussed under Point 2 above. The layout and design of the proposed staff village expansion has also been informed by the infrastructure available on the farm. <u>Positive impacts of the layout alternative:</u> • No sensitive habitats will be impacted upon by the proposed expansion.

No	Alternative Type	Description
		• No visual intrusion / obstruction impacts on sense of place / scenic views. • The presence of established access routes to the staff village from the Den Staat Road; • The historically disturbed and totally transformed nature of the property. No negative impacts related to the design or layout are envisaged.
4.	**Design Alternatives**	As per layout alternatives above.
5.	**Technology Alternatives**	Technology Alternatives (e.g. to reduce resource demand and resource use efficiency) to avoid negative impacts. Technology alternatives have not been considered at this stage. Consideration of such alternatives can only reasonably considered at the detailed design stage, at which time consideration will be given to, but will not necessarily be limited to, the following aspects: high-efficiency windows and insulation in walls, ceilings, and floors, solar water heating, solar external lighting, ultra-low flush toilets and / or dual flush toilet cisterns, energy efficient light bulbs (CFLs), rain water harvesting from roofs and stored for irrigation and energy efficient heating, ventilating and air conditioning systems. In terms of sustainability it is recommended that the applicant utilise industry energy efficient lighting sources (i.e. led lighting). It is also further recommended that additional to stand-by diesel generators for backup electricity that the inclusion of solar PV panels electricity should be considered. This could save operational costs in the long run if the current energy uncertainty facing South Africa continues.
6.	**Alternative Operational Aspects of the Activity**	The proposed development complies with the Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan for the period of 2019-2028.

SECTION 9: DESCRIPTION OF RECEIVING ENVIRONMENT

9.1 DESCRIPTION TERRESTRIAL BIODIVERSITY SENSITIVITY

The Limpopo Conservation Plan version 2 (2013) provides an assessment of the terrestrial biodiversity importance and sensitivity on a relatively detailed scale however, not in such detail that could be regarded as completely accurate. Accordingly the biodiversity assessment prioritised the biodiversity importance of the site as "*Protected Area*" (see Biodiversity Map below).

The land-use management objectives for the terrestrial biodiversity category "*Protected Area" are:*

- Maintain in a natural state with limited or no biodiversity loss.
- Rehabilitate degraded areas to a natural or near natural state, and manage for no further degradation.
- Development subject to Protected Area objectives and zoning in a NEMPAA compliant and approved management plan.

Compatible land-uses are:

- Conservation and associated activities (e.g. eco-tourism operations), and required support infrastructure.

9.1.1 Terrestrial Biodiversity Impacts

- The proposed expansion site is located within a "*Protected Area",* but due to historic agriculture and the current functioning staff village, a biodiversity priority assessment classification of "modified" would be appropriate.
- In terms of the Limpopo Conservation Plan, the proposed expansion is also regarded as a compatible land-use i.e. "*Conservation and associated activities and required support infrastructure*".
- The proposed staff village will thus pose no impact on terrestrial biodiversity conservation and the biodiversity impact is thus expected to be "LOW".

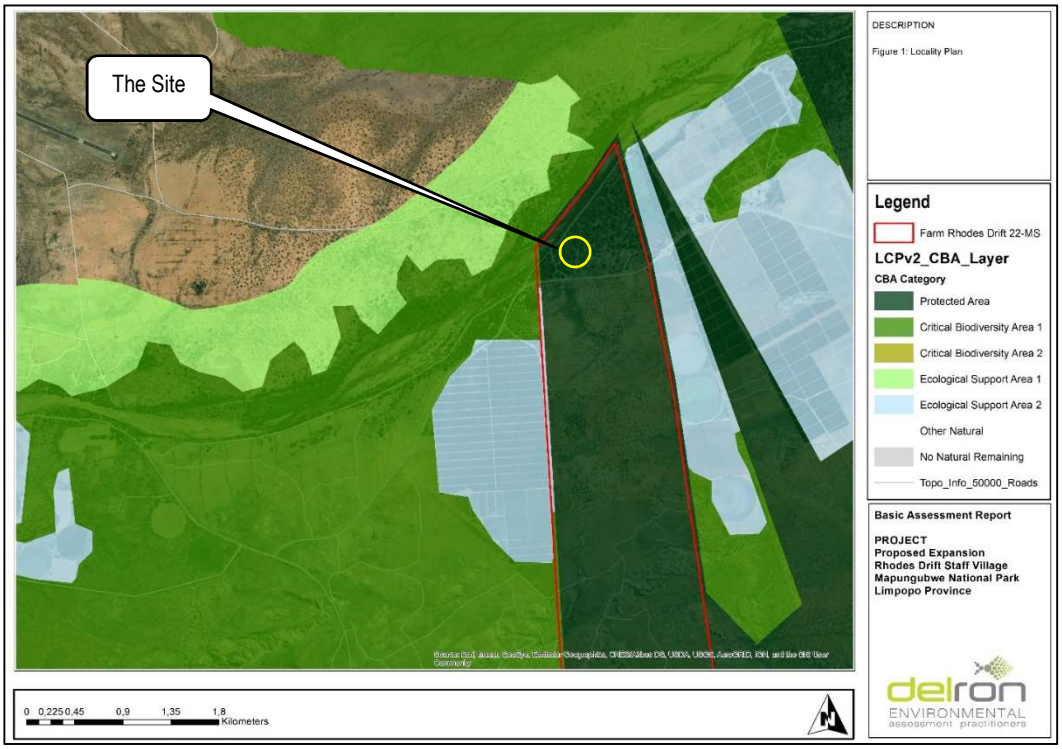


Figure 4: The Limpopo Conservation Plan version 2 (2013)

9.2 DFFE WEB-BASED ENVIRONMENTAL SCREENING TOOL

The Department of Forestry, Fisheries & Environment (DFFE) has developed the National Web-based Environmental Screening Tool in order to flag areas of potential environmental sensitivity related to a site as well as a development footprint and produces the screening report required in terms of regulation 16 (1)(v) of the EIA Regulations (2014, as amended). The Notice of the requirement to submit a report generated by the national web-based environmental screening tool in terms of section 24(5)(h) of the NEMA, 1998 (Act No 107 of 1998) and regulation 16(1)(b)(v) of the EIA regulations, 2014, as amended (GN 960 of July 2019) states that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the EIA Regulations, 2014, published under Government Notice No. R982 in Government Gazette No. 38282 of 4 December 2014, as amended, is compulsory when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the EIA Regulations, 2014 as of 04 October 2019.

The Screening Report generated by the National Web-based Environmental Screening Tool is attached as **Appendix B**.

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected.

9.2.1 Proposed Development Area Environmental Sensitivity – DFFE Web-based Environmental Screening

The following is a summary of the development site's environmental sensitivities derived from the DFFE Web-based Environmental Screening Tool. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme		X		
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X
Defence Theme	X			
Palaeontology Theme			X	
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Map of Relative Agriculture Theme Sensitivity

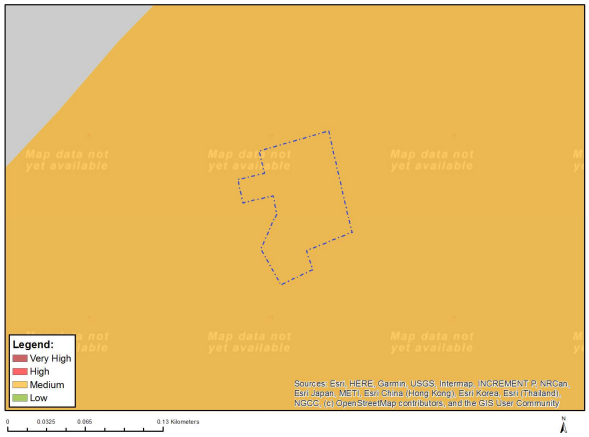


Figure 5: Agriculture Theme Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
		X	
Sensitivity	**Feature(s)**		
Medium	Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate		

Map of Relative Animal Species Theme Sensitivity

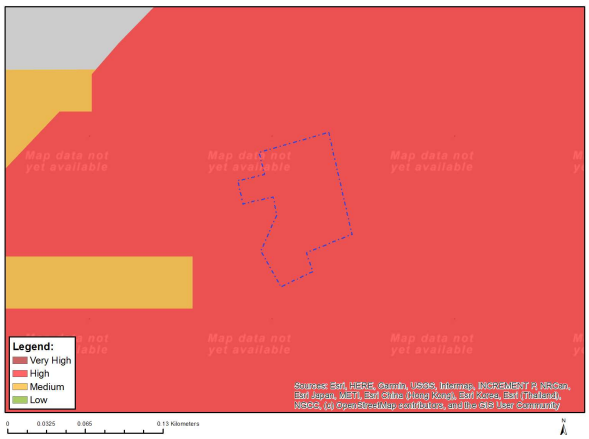


Figure 6: Animal Species Theme Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
	X		
Sensitivity	**Feature(s)**		
High	Aves-Nettapus auritus		
High	Aves-Terathopius ecaudatus		
High	Aves-Pelecanus onocrotalus		
High	Aves-Torgos tracheliotos		
High	Aves-Bucorvus leadbeateri		
High	Aves-Aquila rapax		
High	Aves-Mycteria ibis		
Medium	Sensitive species 5		
Medium	Mammalia-Lycaon pictus		
Medium	Reptilia-Crocodylus niloticus		

Map of Relative Aquatic Biodiversity Theme Sensitivity

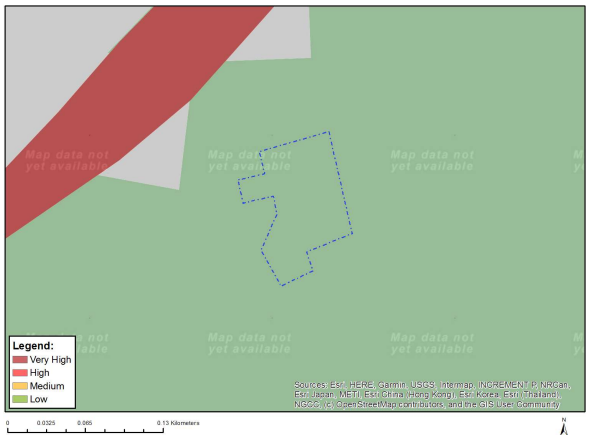


Figure 7: Aquatic Biodiversity Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
			X
Sensitivity	**Feature(s)**		
Low	Low Sensitivity		

Map of Relative Plant Species Theme Sensitivity

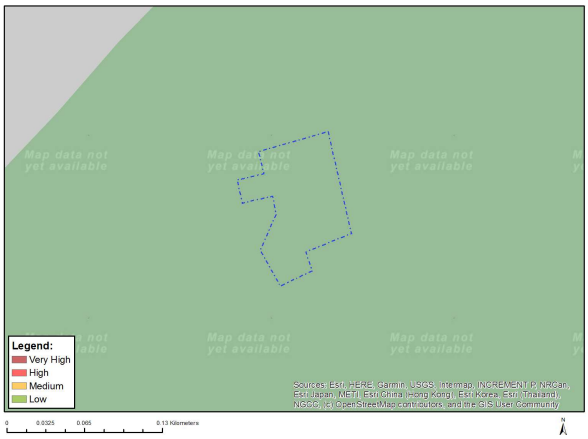


Figure 8: Plant Species Theme Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
			X
Sensitivity	**Feature(s)**		
Low	Low Sensitivity		

Map of Relative Terrestrial Biodiversity Theme Sensitivity

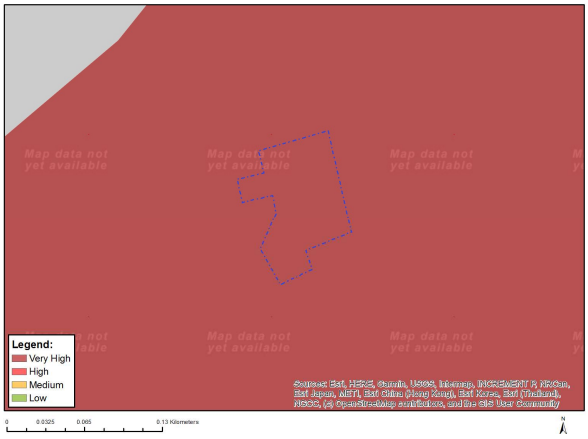


Figure 9: Terrestrial Biodiversity Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
X			
Sensitivity	**Feature(s)**		
Very High	National Forestry Inventory		
Very High	Endangered ecosystem		
Very High	Mapungubwe Cultural Landscape		

Map of Relative Archaeological and Cultural Heritage Theme Sensitivity

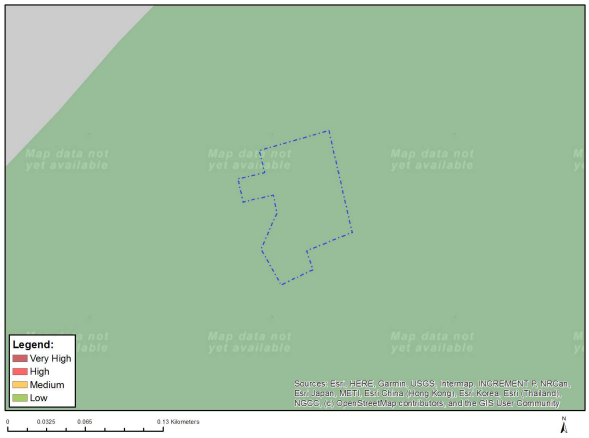


Figure 10: Archaeological and Cultural Heritage Theme Sensitivity

Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
			X
Sensitivity		**Feature(s)**	
Low		Low Sensitivity	

9.3 CONFIRMATION OF THEME SENSITIVITY

Based on the site verification, the following table confirms/disputes the sensitivities as indicated in the screening tool report (Green shading highlights the rating proposed).

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	EAP/Specialist Confirmation / Dispute of Sensitivity
Agriculture Theme			**X Disputed**	**X**	It must be substituted with a '**LOW**' sensitivity based on the following reason: • The site is within a protected area i.e. the Mapungubwe National Park. Agriculture is not allowed within a protected area. • Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure.
Animal Species Theme		**X Disputed**		**X**	It must be substituted with a '**LOW**' sensitivity based on the following reason: • The site is already disturbed. The site itself was historically a farmstead with associated historically agricultural operations. Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure.
Aquatic Biodiversity Theme				**X**	The Screening Tool Report indicated the Aquatic Biodiversity sensitivity to be "Low", and the EAP agrees with this rating. The only aquatic feature near the site is the Limpopo River. The proposed staff village expansion will not be located within 32 meters from the edge of the watercourse (regulated area) and therefore will not have a negative impact on the river.
Archaeological & Cultural Heritage Theme				**X**	The Screening Tool Report indicated the Archaeological & Cultural Heritage Theme sensitivity to be "Low", and the EAP agrees with this rating. No deposits, sites or features of heritage significance could be

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity	EAP/Specialist Confirmation / Dispute of Sensitivity
					identified within the indicated study area. The Rhodes Drift farmhouse and associated structures are of local historical importance; however, they will not be impacted upon by the proposed development.
Defence Theme	**X**				The Screening Tool Report indicated the Defence Theme sensitivity to be "Very High", and the EAP agrees with this rating.
Palaeontology Theme			**X Disputed**	**X**	It must be substituted with a '**LOW**' sensitivity based on the following reason: No deposits, sites or features of palaeontological significance could be identified within the indicated study area.
Plant Species Theme				**X**	The Screening Tool Report indicated the Plant Species / Terrestrial Biodiversity sensitivity to be "Low", and the EAP agrees with this rating. • The site is already disturbed. The site itself was historically a farmstead with associated historically agricultural operations. Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure.
Terrestrial Biodiversity Theme	**X Disputed**			**X**	

9.4 LIST OF SPECIALIST ASSESSMENTS

The Screening Tool Report (Appendix B) identified the following specialist assessments for inclusion in the assessment report. The List of Specialist Assessments and applicable protocols for inclusion in the BAR, and motivation if the specialist study was not included, can be found below.

Table 8: List of Specialist Assessments

	Specialist Assessment	Does an Assessment Protocol exist?	Motivation for Including or Not Including the Specialist Assessment in this Basic Assessment Process
1	**Landscape/Visual Impact Assessment**	No	The Visual Absorption Capacity (VAC) of the study area is considered to be High; which, will absorb the staff housing expansion completely. Due to very dense vegetation screening and tree canopy of the study area, the proposed development will not be visible to any observers. There are no nearby sensitive geographic areas, tourism facilities, and

			scenic viewpoints in the area with views onto the site. As the visual impact will be very low due to the high VAC of the study area, no further specialist Visual Impact Assessment is necessary.
2	**Archaeological and Cultural Heritage Impact Assessment**	No	A specialist Heritage Impact Assessment (HIA) was conducted by G&A Heritage Properties (Pty) Ltd. The scope of work includes the identification and assessment of archaeological, cultural, historic and built sites within the study area; interrogation of project-specific aerial imagery; archival study of existing data and information for the study area as well as site inspection and fieldwork. This site work includes communicating with local inhabitants to confirm possible locations of heritage and cultural sites. The HIA was submitted to SAHRA for approval.
3	**Palaeontology Impact Assessment**	No	Dr. John Almond has completed a field-based Palaeontological Impact Assessment (PIA) for the proposed development, and the PIA was submitted to SAHRA.
4	**Terrestrial Biodiversity Impact Assessment**	Yes	The site is already disturbed. The site itself was historically a farmstead with associated historically agricultural operations. Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm shed, a number of staff houses and associated infrastructure. The Screening Tool Report assigned a terrestrial biodiversity sensitivity of Very High due to the locality of the site i.e. within: an Endangered Ecosystem and the Mapungubwe Cultural Landscape. However, the site visit confirmed that there is no sensitive indigenous vegetation present on site, and that the site has already been disturbed, degraded and transformed. Therefore, no need for a Terrestrial Biodiversity Impact Assessment could be established for this project. The proposed development also complies with the Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan for the period of 2019-2028. Refer to Figure 11 - "Photos depicting the Site Situation" below.
5	**Aquatic Biodiversity Impact Assessment**	Yes	The Screening Tool Report indicated the Aquatic Biodiversity sensitivity to be "Low", and the EAP agrees with this rating. The only aquatic feature near the site is the Limpopo River. The proposed staff village expansion will not be located within 32 meters from the edge of the watercourse (regulated area) and therefore will not have a negative impact on the river. It is therefore not necessary to include an Aquatic Biodiversity Impact Assessment as part of the project.
6	**Socio-Economic Assessment**	No	The socio-economic impacts will mostly be positive, i.e. improvement of conservation staff housing. A Socio-economic Assessment is not required for this project.
7	**Plant Species Assessment**	Yes	Currently the site accommodates the existing Rhodes Drift Staff Village which comprises of the historical farmhouse and outbuildings, a farm

			shed, a number of staff houses and associated infrastructure. Due to historical development and long-term, continuous human impacts on the site, the natural vegetation was locally disturbed and degraded. The site visit confirmed that there is no sensitive indigenous vegetation present on site, and that the site has already been disturbed, degraded and transformed. The total footprint of vegetation, which is mostly *Panicum maximum* (White Buffalo Grass), to be cleared for the proposed expansion equals 8 500 m². It can therefore not be justified to include a Plant Species Assessment as part of this Application. Refer to Figure 11 - "Photos depicting the Site Situation" below.
8	**Animal Species Assessment**	Yes	As the site has already been disturbed by existing conservation support infrastructure (existing staff village) and historic agricultural activities within an already established village perimeter boundary, animal species will not be impacted on, and an Animal Species Assessment will not be undertaken. Refer to Figure 11 - "Photos depicting the Site Situation" below.

9.5 ON-SITE VEGETATION DESCRIPTION

Verification of biodiversity and plant species at the proposed expansion site confirms that species composition and structure of the previously occurring natural woodland was severely modified due to historic agriculture and the existing functioning staff village. The only woody species that occurred on the proposed development footprint is *Vachellia nilotica* (Scented Pod Thorn). The site is dominated by *Panicum maximum* (White Buffalo Grass) which is been cut on a regular basis to improve security visibility and to reduce fire risks. No areas containing sensitive indigenous vegetation (Species of Special Concern) are present on the site, nor any other sensitive natural areas. Refer to Figure 11 - "Photos depicting the Site Situation".

9.5.1 Impacts and Risks on Vegetation

- Historic modification occurred on the site due to historically agricultural activities, the existing functioning staff village and human actions such as grass cutting.
- These actions led to a large extent to the modification of natural vegetation species.
- As a result there is little probability that the site contain any remaining habitat value for important plant or animal species.
- The site has therefore lost its overall importance as a remaining representative ecosystem in need of protection.
- Further transformation of the currently degraded land cover by way for staff village expansion should therefore not pose any impact or risk on the potentially endangered Mapungubwe/Greefswald Riverine Forest ecosystem and would not compromise the conservation targets for the protection thereof.
- The overall modified land cover on the site thus pose a "LOW" sensitivity and the development of any of the sites will not pose an overall adverse impact on natural vegetation.

9.6 HERITAGE AND CULTURAL ENVIRONMENT

A specialist Heritage Impact Assessment (HIA) was conducted by G&A Heritage Properties (Pty) Ltd. Refer to **Appendix C**.

No deposits, sites or features of heritage significance could be identified within the indicated study area. The Rhodes Drift farmhouse and associated structures are of local historical importance; however, they will not be impacted upon by the proposed development.

Although it is unlikely that archaeological remains will be found in situ, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during development. Should such material be exposed then work must ceased in the immediate area of the finds and it must be reported to SAHRA, so that a systematic and professional investigation can be undertaken.

 Existing Staff Units	 Existing Staff Units	 Existing Staff Units
 Existing Staff Units	 Existing Staff Units	 Existing Staff Units
 Existing Perimeter Fence	 Existing Perimeter Fence	 Existing Historical Farm Stead – Currently Staff Housing
 Existing Historical Farm Stead – Currently Staff Housing	 Swimming Pool	 Existing Historically Agricultural Structures And Infrastructure
 Existing Historically Agricultural Structures And Infrastructure	 Existing Historically Agricultural Structures And Infrastructure	 Existing Historically Agricultural Structures And Infrastructure

 Existing Historically Agricultural Structures And Infrastructure	 SANParks Nursery	 Proposed Site for Staff Village Expansion
 Existing Historically Agricultural Structures And Infrastructure	 Existing Roads	 Existing Parking Area
 Proposed Site for Staff Village Expansion	 Proposed Site for Staff Village Expansion	 Proposed Site for Staff Village Expansion
 Proposed Site for Staff Village Expansion	 Proposed Site for Staff Village Expansion	 Proposed Site for Staff Village Expansion

Figure 11: Photos depicting the Site Situation

SECTION 10: DETAILS OF THE PUBLIC PARTICIPATION

The public participation process is being undertaken in accordance with the NEMA EIA Regulations of 2014, as amended. Detail of the process is provided below. All public participation material can be referred to in **Appendix E**.

10.1 PURPOSE OF THE PUBLIC PARTICIPATION PROCESS (PPP)

The purpose of the public participation process includes:

- Provide Interested and Affected Parties (I&APs) with an opportunity to obtain information with regards to the project;
- Allowing I&APs to express their views, issues and concerns with the proposed project;
- Granting I&APs and opportunity to recommend measures to avoid or decrease negative impacts and enhance positive impacts that are associated with the proposed project; and
- Lastly, to enable the project team to incorporate the needs, concerns and recommendation that are made by the I&APs about the proposed project, where feasible.

10.2 LEGISLATION AND GUIDELINES FOLLOWED FOR THE PPP

The public participation process for this project was conducted by Delron Consulting in terms of:

- The procedures and provisions in terms of the NEMA;
- Chapter 6 of the 2014 EIA Regulations (as amended);
- Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.; and
- Other relevant legislation such as the Promotion of Access to Information Act (PAIA), 2000.

10.3 PUBLIC PARTICIPATION PROCESS FOLLOWED

The following three categories of variables were taken into account when deciding the required level of public participation:

- The scale of anticipated impacts.
- The sensitivity of the affected environment and the degree of controversy of the project.
- The characteristics of the potentially affected parties.

Since the scale of anticipated impacts is low, the low environmental sensitivity of the site and the fact that no conflict was foreseen between potentially affected parties, no additional public participation mechanisms were considered at this stage of the process.

The following actions were taken:

10.3.1 Newspaper Advertisement

Newspaper advertisements were published in the:

- Limpopo Mirror (regional newspaper) on Friday, 2 September 2022 (refer to **Appendix E1**).
- Beeld (regional newspaper) on Wednesday, 31 August 2022 (refer to **Appendix E1**);

notifying the public of the Application for Environmental Authorisation and requesting Interested and Affected Parties (I&APs) to register with, and submit their comments to Delron Consulting. I&APs were given a 30-day registration / comment opportunity.

10.3.2 Site Notices

Site Notices, providing information on the application, were erected on site on 23 August 2022, inviting members of public to register as an Interested and Affected Party (I&AP). Photographic evidence of the site notices is included in **Appendix E2**.

10.3.3 Direct Notification of Identified I&APs

Over and above the placement of general notices on site or in the media inviting I&APs to participate in the application process, certain stakeholders (Mapungubwe National Park's local stakeholder database) are specifically approached.

The abovementioned I&AP's are automatically regarded as I&AP's and were directly informed of the proposed development. The Written Notices are attached as **Appendix E3**. For a complete list of stakeholders see **Appendix E4**. The consultees included:

- Limpopo Department of Economic Development, Environment & Tourism
- Department of Water and Sanitation (DWS)
- South African Heritage Resources Agency (SAHRA)
- Vhembe District Municipality
- Musina Local Municipality

10.3.4 Opportunity to Comment on the DBAR

I&APs are given the opportunity to review and comment on the DBAR for a period of 30 days.

10.3.5 Comments and Response - Issues Raised by IAPs

All concerns, comments, viewpoints and questions (collectively referred to as 'issues') received during the comment period will be documented and responded to adequately in a Comment and Response Report (CRR) to be included in Final BAR. The CRR records the following:

- Record of who raised the issues;
- List of all issues raised; and
- Response to the issues.

Table 9-1 summarises the comments received from I&APs to date. The full wording and original correspondence is included in **Appendix E6**: Comments and Response Report.

Table 9-1: Summary of Comments Received

Name of Contact Person	Company / Entity	Date / Method of Comment	Issue raised	Response
			Note: As this is the first announcement of the project, no comments have been received to date. Any comments received from I&APs on the DBAR will be included in the Final Basic Assessment Report.	

SECTION 11: IMPACT ASSESSMENT

The assessment of impacts adhere to the minimum requirements in the EIA Regulations, 2014 (as amended), and take applicable official guidelines into account.

11.1 ASSESSMENT METHODOLOGY OF IMPACTS

The impact assessment process is broken down as follows:

1) Identification of proposed activities including their nature and duration: Impacts were identified through various methods including a desktop analysis; specialist studies and the public participation process;
2) Screening of activities likely to result in impacts or risks;
3) Utilisation of significance ratings and ranking methodology to assess and score preliminary impacts and risks identified. Refer to Section 10.2 below for the full methodology used;
4) Inclusion of I&AP comments received through the public participation process regarding impact identification and assessment; and
5) Finalisation of impact identification and scoring.

11.2 METHODOLOGY TO DETERMINE THE SIGNIFICANCE RATINGS OF POTENTIAL ENVIRONMENTAL IMPACTS

The potential impacts were assessed and rated based on the methodology and rating criteria outlined in this section.

11.2.1 Definition of Terms

Construction Phase	All construction or related activities, from occupation by the contractor, until the contractor leaves the site.
Operational Phase	All activities related to and including the operation and maintenance of the proposed development.
Nature	The type of effect the specific activity will have on the environment.
Extent	Spatial scale of the impact.
Duration	Lifetime of the impact.
Magnitude/ Intensity	Degree/severity of impact.
Probability	Degree of certainty of impacts.
Significant Impact	Means an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

11.2.2 Methodology

Nature of Potential Impact	Rating or Category	Ranking	Description of Impact on the Environment
Period	**Planning**	-	Project planning and decision-making phase.
	Construction	-	Construction phase
	Operational	-	Operational phase
Extent	**Site Specific**	1	The impact is limited to the development site (development footprint) or part thereof.
	Site	2	Within the development property boundary.
	Local	3	The impacted area includes the whole or a measurable portion of the site, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area.
	Regional	4	The impact would affect the broader region (e.g. neighbouring towns) beyond the boundaries of the adjacent properties.
	Province / National	5	The impact would affect the whole province / country (if applicable).
Duration	**Temporary**	0	The impact will be limited to part of the construction phase or less than one month.
	Short term	1	The impact will continue for the duration of the construction phase, or less than one year.
	Medium term	2	The impact will continue for part the operational phase
	Long term	3	The impact will continue for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	4	This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.
Consequence Intensity / Severity	Very Low / No significance	0	None or limited damage to a small area. Natural, cultural or social functions or processes are not affected/negligible.
	Low	1	Marginal damage. Natural, cultural or social functions or processes can / will be only marginally affected.
	Medium	2	Moderate damage. Natural, cultural or social functions or processes can / will be notably altered but can continue although in a modified way /state.
	High	3	Severe damage. Natural, cultural or social functions or processes can / will be altered to the extent that they temporarily cease.
	Very High	4	Irreparable damage. Natural, cultural or social functions or processes can / will be altered in such a way that they will permanently cease.
Probability of Occurrence	Improbable	1	The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
	Probable	2	There is a possibility that the impact will occur to the extent that provisions must therefore be made.
	Highly probable	3	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences.
	Definite	4	The impact will take place regardless of any prevention plans.
Degree to which the impact may	No loss of resource	1	The impact will not result in the loss of any resources.

cause irreplaceable loss of resources	Marginal	2	The impact will result in marginal loss of resources.
	Significant	3	The impact will result in significant loss of resources.
	Complete	4	The impact will result in a complete loss of all resources.
Significance	See significance ratings in Table below.	-	Significance rating without applying mitigation measures.
Mitigation Potential	See mitigation measures in Table below.	-1/-5	Mitigation measures and objectives and ranking in the table below.

11.2.3 Criteria for Determining Impact Significance

	Rating or Category	Ranking	Description of Impact on the Environment
Significance	Neutral	0	The impact will be mitigated to the point where it is regarded to be insubstantial.
	Low	0-5	The impact is likely to be very low and mitigation is not required. Impacts have little real effect/ mitigation is easily achieved.
	Medium	6-10	Moderate impact and mitigation is both feasible and fairly easily possible but may influence the decision if not mitigated / or modification of the project design or alternative action may be required.
	High	11-15	Mitigation is essential to reduce to an acceptable level, mitigation is difficult, time-consuming and/expensive and may affect the decision to continue or approve.
	Very High	16-20	Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and, taken within the overall context of the project, is considered to be a fatal flaw in the project proposal.
Status of the impact	Positive or Negative		Status of the impact (positive (benefits) or negative (costs).

11.2.4 Ranking Model: Mitigation Actions That Are Aimed At Reducing Unacceptable Impacts

Mitigation Objective	Ranking		The degree to which negative impacts can be mitigated
Avoidance / Prevention	AP	-5	Measures are taken to anticipate and prevent adverse environmental impacts before actions or decisions are taken that could lead to such impacts. This approach is most effective when applied in the earliest stages of project planning. Project alternatives can also form part of avoidance mitigation measures with the aim of identifying the best environmental option and incorporating the selected alternatives in the early planning stages of the proposed development.
Minimise / Reduce	MI	-4	Measures are taken to reduce the duration, intensity, extent and significance of environmental impacts cannot be completely avoided. This can be achieved by scaling down, relocating, or redesigning elements of a project.
Rehabilitate	RE	-3	Measures are taken to repair/restore the degradation or damage to specific environmental features and ecosystem services of concern following project impacts that cannot be completely avoided and/or minimized.

Compensate	CO	-2	Measurable conservation outcomes resulting from actions designed to remedy the negative impacts of development which remain after measures to avoid, minimize and rehabilitate have been taken into account. Creation, enhancement, or protection of the same type of resource at another suitable and acceptable location, compensating for lost resources.
Preservation	PS	-1	Preventing any future actions that might adversely affect an environmental resource. This is typically achieved by extending legal protection to selected resources beyond the immediate needs of the project.

Mitigation rating: -4= Most favourable / -1=Least Favourable

11.3 ASSESSMENT OF EACH IMPACT AND RISK IDENTIFIED FOR EACH ALTERNATIVE

11.3.1 Vegetation Clearance

Receiving Environment	Ecology and Biodiversity (Flora and Fauna)
Key Considerations / Potential Impacts / Risks of the Development	(i) **Degradation, destruction or elimination of ecosystems** - Ecosystems will be permanently lost where structures and associated infrastructure consume land. Ecosystems may be disturbed or destroyed during construction. Many of the areas disturbed during construction, such as road verges and sidewalks, open space, cuttings and embankments, and construction camps will be rehabilitated after construction, but impacts will remain until rehabilitation has been implemented successfully. Even after rehabilitation, species diversity and ecosystem dynamics may not be the same as prior to the disturbance. (ii) **Ecosystem fragmentation**: A development may result in the fragmentation of an ecosystem, dividing it into smaller parts. Fragmentation may affect the integrity and stability of the ecosystem. Smaller habitats are more vulnerable and their ability to support the original number and diversity of species may be compromised. Detached / isolated units created by developments are often not able to support their original species composition. (iii) **Impacts on migration routes of wildlife** - In some instances, developments with their road networks, perimeter walls and fences, paved areas and other structures may create a barrier to movement of faunal species. When a development intersects or blocks the migration routes through which species travel to or from waterholes, feeding, breeding and birthing grounds and seasonal ranges, it may result in cessation of use of the migration route and increased mortalities. (iv) **Creation of habitats**: Gardens and landscaped areas often provide habitats for a variety of faunal species that would not have occurred in the area prior to the establishment of the development. Some species are attracted to commercial for various reasons, including protection from predators, good hunting conditions, good nesting sites, and ample food supplies at waste disposal sites, kitchens, fruit and vegetable gardens, bird feeding tables, etc. (v) **Impacts of pollution on fauna and flora -** Dust generated on unsurfaced roads and air pollution due to biomass burning may settle on nearby flora. Contaminated runoff from the development may reach aquatic ecosystems after entering watercourses. Water may be contaminated due to the use of herbicides, pesticides and fertilisers, and other hazardous chemicals; erosion and elevated silt loads; and inappropriate waste management and sanitation services. If the accumulation of pollutants is significant, it may become a problem for certain floral species if it interferes with pollination and photosynthesis, hormonal balances and nutrient uptake. It may also result in death of plant tissues. Consumption of these plants may impact on faunal species, especially those on the top of the food chain. (vi) **Introduction of species** - The seed bank contained in top layer of soil often contains dormant seeds of invasive species. The growth of these may be stimulated if the soil is disturbed or if the natural vegetation cover is damaged or removed. Invasive species, particularly those that specialise in colonising recently disturbed areas, may be introduced to an area during construction or may gain an advantage due to removal of naturally occurring species. Non-endemic vegetation species may be used for landscaping and stabilisation of cuttings and embankments. The introduction of new species may result in competition for resources, often to the detriment of naturally occurring species.

	(vii) **Firewood collection and poaching** can have a major impact on local floral and faunal populations. This may result in gradual habitat degradation, deforestation and depletion of fauna populations well beyond the immediate surroundings of the development.	
Alternative:	**Proposal**	**No-Go (Current staff village operations continue)**
Description of Impact on the Environment	**Impact Prediction - Ranking**	**Impact Prediction - Ranking**
Period	Planning & Construction & Operation	No Impact
Extent	Site Specific (1)	No Impact
Duration	Long Term (3)	No Impact
Consequence / Intensity / Severity	Low (1)	No Impact
Probability	Highly Probable (3)	No Impact
Irreplaceable loss of resources:	Marginal (2)	No Impact
Significance rating of impact prior to mitigation	**Medium (10)**	No Impact
Degree to impact mitigation	CO (-5)	No Impact
Significance rating of impact after mitigation	**Low (5)**	No Impact
Environmental Management Objective and Mitigation Measures	**Prevention** (i) Planning must be consistent with Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan (2019-2028). (ii) Planning must be consistent with Limpopo Conservation Plan version 2 (2013). **Minimisation** (i) Ensure compliance with applicable legislation, such as the National Environmental Management Act, the National Environmental Management: Biodiversity Act, the National Environmental Management Protected Areas Act, the National Water Act, the National Forest Act, the Conservation of Agricultural Resources Act and the National Veld and Forest Fire Act. (ii) Indigenous vegetation which does not interfere with the safe construction and operation of the staff village shall be left undisturbed. (iii) Protected or endangered species may occur near the construction site. Special care should be taken not to damage such species. (iv) Limit vegetation clearing to development footprint. (v) Limit removal of indigenous tree species to a minimum. (vi) Debris through vegetation clearing shall not be burned under any circumstances. (vii) Landscaping with naturally occurring species to maintain ecosystem integrity. (viii) Avoid the establishment of invasive species. (ix) Control poaching and firewood collection.	

	(x) Trees, shrubs, grass, natural features and topsoil which are not removed during vegetation clearance shall be protected from damage during operation of the staff village. **Compensation** (i) Conservation, rehabilitation or creation of ecosystems to 'replace' damaged or destroyed ecosystems in the case of unavoidable loss of highly sensitive ecosystems. **Monitoring** (i) Integrity of vegetation cover. (ii) Presence of invasive species. **Enhancement** (i) Eradicate existing exotic species. (ii) Rehabilitate previously disturbed ecosystems and creation of alternative habitats.

11.3.2 Heritage Resources

Receiving Environment	**Heritage Resources (Cultural, Historical and Pre-Historical)**	
Key Considerations / Potential Impacts / Risks of the Development	This impact relates to potential effects construction activities may have on existing archaeological artefacts (if any). Impact on structures and sites of architectural heritage and value (buildings, bridges etc.). Impact on structures and sites of cultural heritage (stonewalls, kraals etc.). Impact on structures and sites of historic heritage (battlefields etc.). Impact on sites of archaeological or palaeontological importance (prehistoric, Iron-age etc.). Impact on sites used in traditional rituals or events. Impact on sites or areas of religious or spiritual significance (holy places, graveyards etc.). Impact on integrity of cultural resources. Impact on level of disturbance due to improved access (destruction, vandalism, collectors etc.).	
Alternative:	**Proposal**	**No-Go (Current staff village operations continue)**
Description of Impact on the Environment	**Impact Prediction - Ranking**	**Impact Prediction - Ranking**
Period	Planning & Construction & Operation	No Impact
Extent	Site Specific (1)	No Impact
Duration	Long Term (3)	No Impact
Consequence / Intensity / Severity	Low (1)	No Impact
Probability	Improbable (1)	No Impact
Irreplaceable loss of resources:	No loss of resource (1)	No Impact

Significance rating of impact prior to mitigation	**Medium (7)**	No Impact
Degree to impact mitigation	CO (-5)	No Impact
Significance rating of impact after mitigation	**Low (2)**	No Impact
Environmental Management Objective and Mitigation Measures	**Prevention** (i) Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the HIA. (ii) Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance. (iii) All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material before construction recommences.	

11.3.3 Decommissioning Impacts

The development represents the establishment of conservation and eco-tourism support infrastructure within the Mapungubwe National Park, as such no decommissioning phase is envisaged with the foreseeable future.

Since no decommissioning phase is envisaged, the impacts of such a phase is not assessed in this Basic Assessment Report. Should certain of the project components be decommissioned in future, the environmental and other relevant legislation applicable to those activities at that time will need to be complied with.

However, given the nature of the proposed development, decommissioning or closure of the proposed development:

- Would produce benign solid waste from structures and services infrastructure that could potentially be re-used or be disposed of at a licensed landfill site;
- Would not produce toxic or hazardous waste for disposal, or leave any such waste on site;
- Would not sterilise the site for future use after decommissioning; and
- Would not result in irreversible or irreplaceable loss of natural resources.

Therefore, no high significant negative impacts associated with decommissioning of the proposed development are anticipated.

11.4 SUMMARY OF THE FINDINGS & PROPOSED MITIGATION MEASURES BY SPECIALISTS

Specialist Studies

1. Heritage Impact Assessment (HIA)

A specialist Heritage Impact Assessment (HIA) was conducted by G&A Heritage Properties (Pty) Ltd. A summary is presented here and the complete report may be found in **Appendix C**.

Rhodes Drift Staff Housing

No deposits, sites or features of heritage significance could be identified within the indicated study area. The Rhodes Drift farmhouse and associated structures are of local historical importance; however, they will not be impacted upon by the proposed development.

Although all due care was taken to determine if the heavy local alluvial deposits might be obscuring lower lying sub-surface deposits (trowel tests) there is still a slight possibility (due to the overall rich heritage of the area) that these might still be encountered during earthmoving activities. It is therefore recommended that a suitably qualified heritage practitioner monitors any such activity.

Conclusion and Recommendations:

This study looked at the development of several new structures within the Mapungubwe National Park and World Heritage Site and surrounds. Two of the proposed developments – the Staff Houses at Rhodes Drift and the Ablution Block at Mazhou Campsite – will have minimal impacts and small footprints. No archaeological deposits were noted here and are also not likely to occur sub-surface. Due to the heritage importance of The Park, monitoring during the construction phase is however recommended.

11.5 ENVIRONMENTAL STATEMENT

The project (proposed Rhodes Drift Staff Village expansion) should not result in any significant negative ecological, socio-economic and / or heritage or cultural impacts during the construction or operational phases. In fact, the impact is expected to be of a prevailing positive nature due to the contribution to conservation and eco-tourism support infrastructure benefits.

Any potential negative impacts during construction and operation can be mitigated by adhering to the EMPr. Albeit that the no-go alternative will not change the status quo, the option of not implementing the activity is not considered appropriate (reasonable) and is not supported since the opportunity to modernise and expand the existing staff village will be lost.

11.5.1 Summary of the Positive & Negative Impacts & Risks

In general, the expected environmental impacts from the expansion and operation of the Rhodes Drift Staff Village do not indicate that the proposed activity would have irreversible significant detrimental effects on the receiving environment. The significance of impacts during the construction and operation phases are summarised below:

Table 10: Summary and Conclusion on Impacts Identified

Potential Impact	Significance Before Mitigation	Significance After Mitigation
PLANNING, CONSTRUCTION & OPERATIONAL PHASES		
Physical Alteration: Vegetation Clearance & Earthworks	Medium (10)	**Low (5)(-)**
Heritage Resources (Cultural, Historical and Pre-Historical)	Medium (7)	**Low (2)(-)**
Contribution to conservation and eco-tourism support infrastructure benefits		**Medium (Positive)**

SUMMARY OF KEY FINDINGS

A summary of the key findings of the environmental impact assessment as undertaken in this BAR is outlined below:

Majority of the impacts had a medium rating prior to mitigations, which were then decreased to low- negative once mitigations are implemented.

- The proposed expansion of the existing Rhodes Drift Staff Village within the Mapungubwe National Park has the potential to impact negatively on the endangered Mapungubwe/Greefswald Riverine Forest ecosystem. However, impact assessments conducted by the EAP and specialists concluded that the foreseeable impacts can be mitigated through the implementation of the proposed mitigation measures.
- Further transformation of the currently degraded land cover by way for staff village expansion should therefore not pose any impact or risk on the potentially endangered Mapungubwe/Greefswald Riverine Forest ecosystem and would not compromise the conservation targets for the protection thereof.
- The proposed project is consistent with Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan (2019-2028) as well as the Limpopo Conservation Plan version 2 (2013).
- The HIA did not identify any heritage resources within the study area, however, heritage chance finds are possible during clearing and excavation. Impacts can be mitigated through the implementation of the proposed Heritage Chance Find Procedure.
- The vegetation and ecology of the expansion areas has been disturbed for a long time and therefore, terrestrial biodiversity of the project areas is very low. It was concluded that the proposed project would have an overall all low negative impact and is seen as acceptable from an ecological perspective. No species of conservation concern were identified in the project area.

Key findings for the socio-economic environment

- It is expected that the prosed development will contribute to conservation and eco-tourism support infrastructure benefits within the Mapungubwe National Park.

The following conclusions can be drawn from the impact assessment findings as shown in the impact tables above for the construction phase:

- The proposed Rhodes Drift Staff Village expansion is expected to result in **NO** significant environmental impacts, during the construction phase, to the physical, social and biological environment.

11.6 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE

11.6.1 Gaps in Knowledge

The experience and competency of the EAP, the thorough public participation process being undertaken, together with the input from the specialists, should ensure that there are no significant gaps in knowledge regarding the completion of this BA process.

11.6.2 Underlying Assumptions

The following assumptions apply:

- It has been assumed that the information provided by the Applicant and specialists is accurate and unbiased.
- The assessment is based on the assumption that the Applicant will comply with the outcome of the assessment, particularly in terms of implementation of the mitigation measures to limit any adverse impacts.
- It is also assumed that the Applicant will comply with the need for continual monitoring and judicious management of the site in terms of the EMPr for the project.
- The conditions stipulated in the EA can only be effective if the Applicant continually monitors and enforces compliance.

11.6.3 Uncertainties

Due in part to a rigorous public participation process being undertaken, it is the opinion of the EAP that there were no uncertainties in terms of the compilation of this report, or regarding the identification and assessment of impacts.

11.6.4 Adequacy of the Assessment Methods

The determination of the significance of impacts in this study were drawn from the site visits and photographs of the site, the expertise of the project team and from the public participation process. In addition, the following must be noted:

- The guideline documents produced by the DFFE were referred to, to inform the assessment of impacts;
- A comprehensive public participation process is being undertaken (in terms of the DFFE Guideline on Public Participation), with opportunities being provided to I&APs and the broader public to provide verbal and written comment on all the documents that have been made available; and
- The significance of the identified impacts was assessed in a rational, defensible way, and the reasons for the judgements made are documented. In terms of the above description, it is the opinion of the EAP that the assessment methods used were adequate.

SECTION 12: REASONED OPINION & CONDITIONS OF AUTHORISATION

It is the opinion of the EAP that the proposed development should be authorised in order to obtain the positive aspects that the new expanded staff village will have. Conditions that should be included in the authorisation:

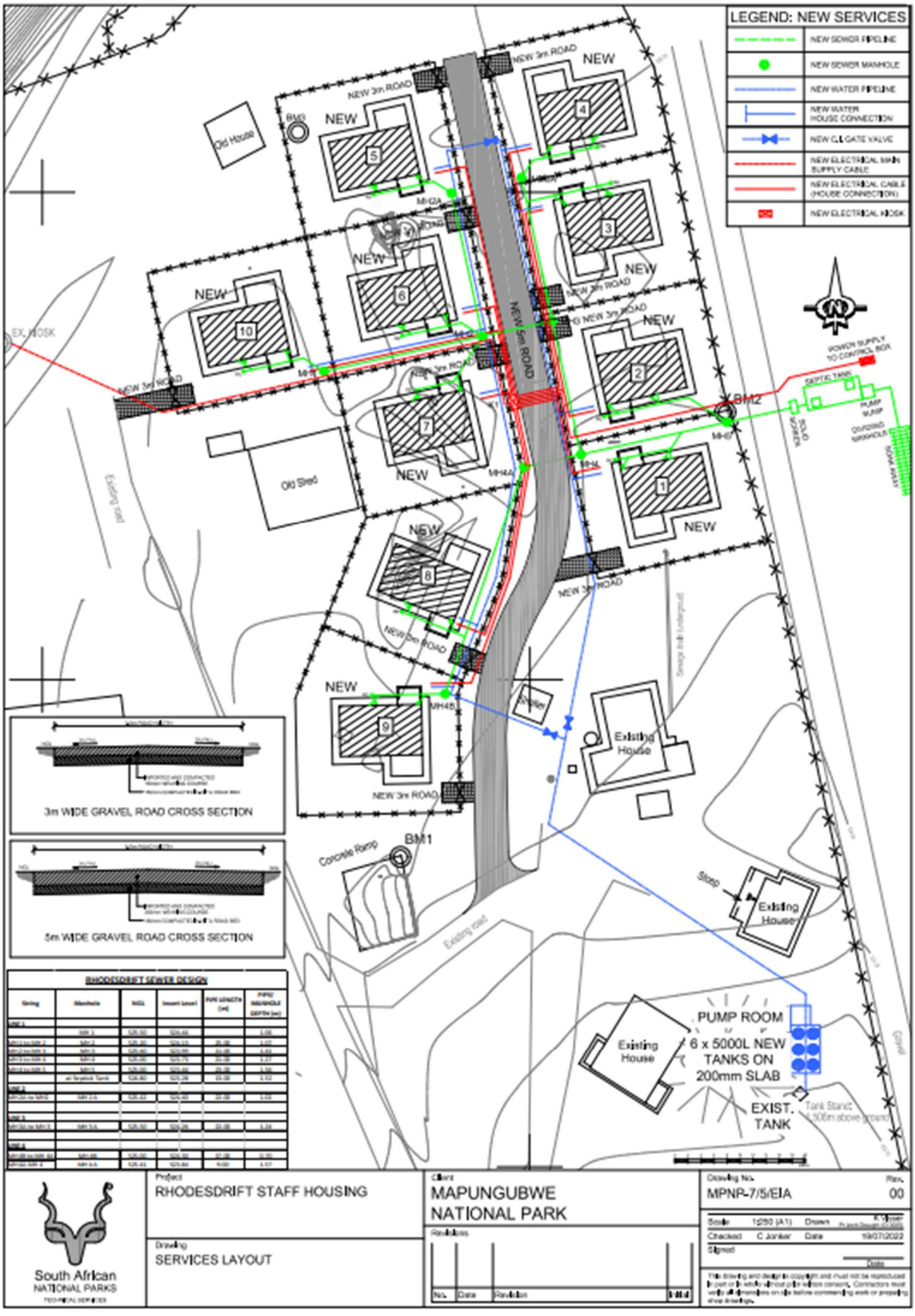
- All mitigation measures identified in this BAR must be implemented.
- An Environmental Management Plan Programme (EMPr) must be implemented for the construction phase of the development.
- A suitably trained Environmental Control Officer should be appointed by the Applicant to monitor compliance with the approved EMPr during the construction phase.

Given the nature of the project and selected site, the EAP concludes that the potential impacts associated with the proposed project are of a nature and extent that can be reduced, limited, and eliminated by the introduction of appropriate mitigation measures.

SECTION 13: THE PERIOD FOR WHICH THE EA IS REQUIRED

i. the period within which commencement must occur.	10 years
ii. the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects.	Not applicable the EA includes operational aspects.
iii. the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted	10 years
iv. the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	30 Years

APPENDIX A: SITE LAYOUT PLAN



APPENDIX B: SCREENING TOOL REPORT

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: DEL0704

Project name: Proposed Expansion of the Rhodes Drift Staff Village

Project title: Application for Environmental Authorisation for the Proposed Expansion of the Rhodes Drift Staff Village within the Mapungubwe National Park, Limpopo Province

Date screening report generated: 03/08/2022 11:13:45

Applicant: South African National Parks (SANParks

Compiler: Delron Consulting (Pty) Ltd

Compiler signature:

……

Application Category: Transformation of land|Indigenous vegetation

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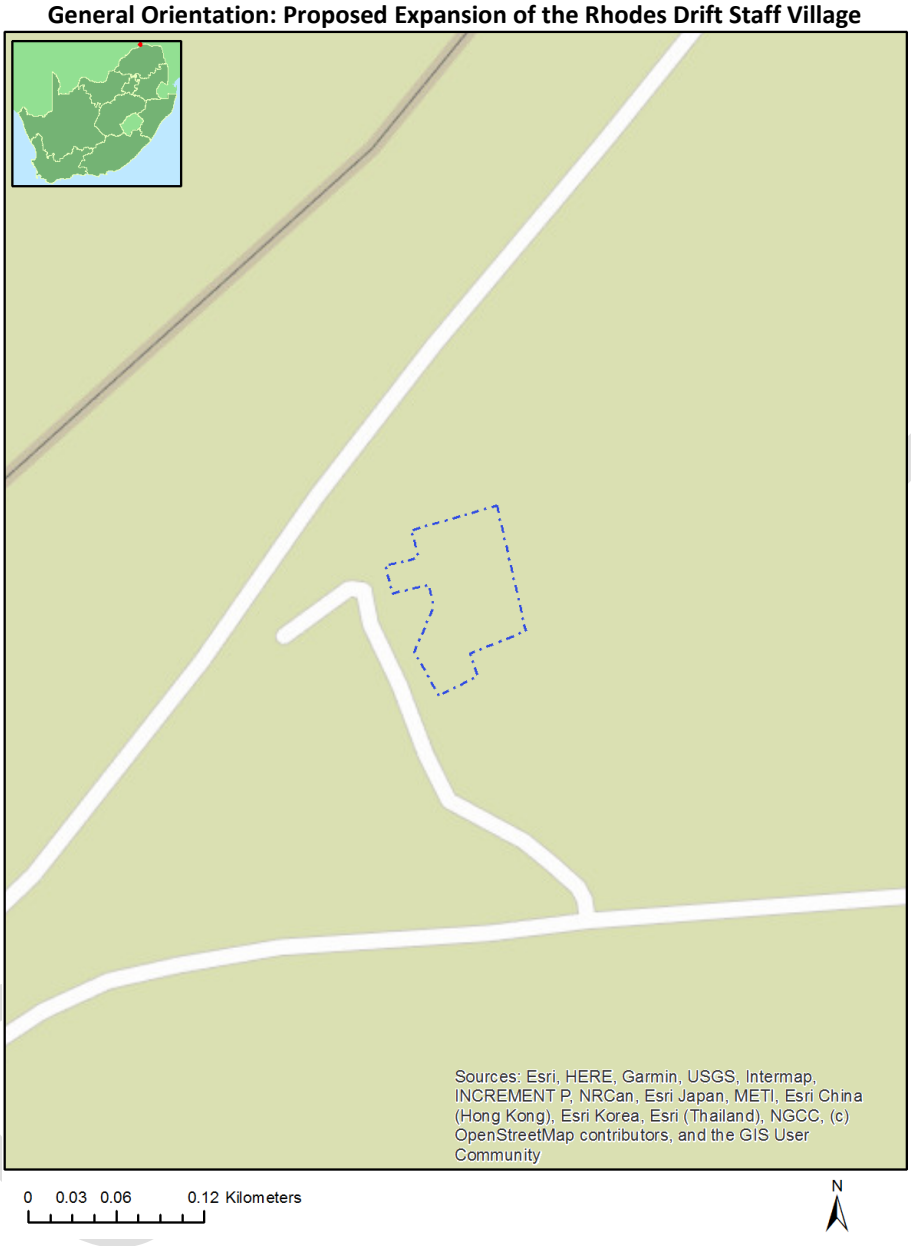
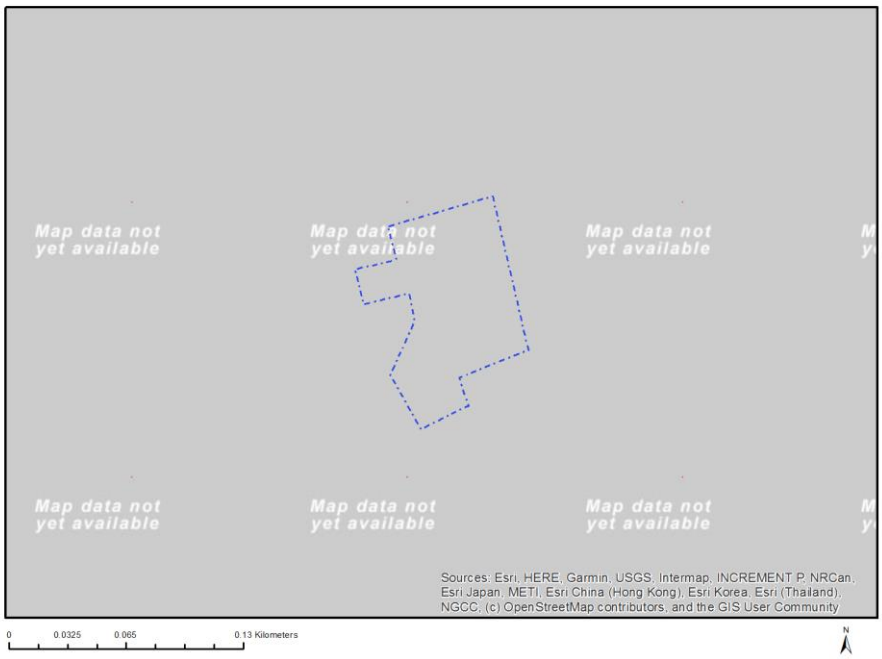
Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	RHODES DRIFT	22	0	22°13'53.24S	29°10'53.97E	Farm
2	RHODES DRIFT	22	0	22°13'53.24S	29°10'53.97E	Farm Portion
3	RHODES DRIFT	22	0	22°13'53.24S	29°10'53.97E	Farm Portion

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Transformation of land|Indigenous vegetation**.

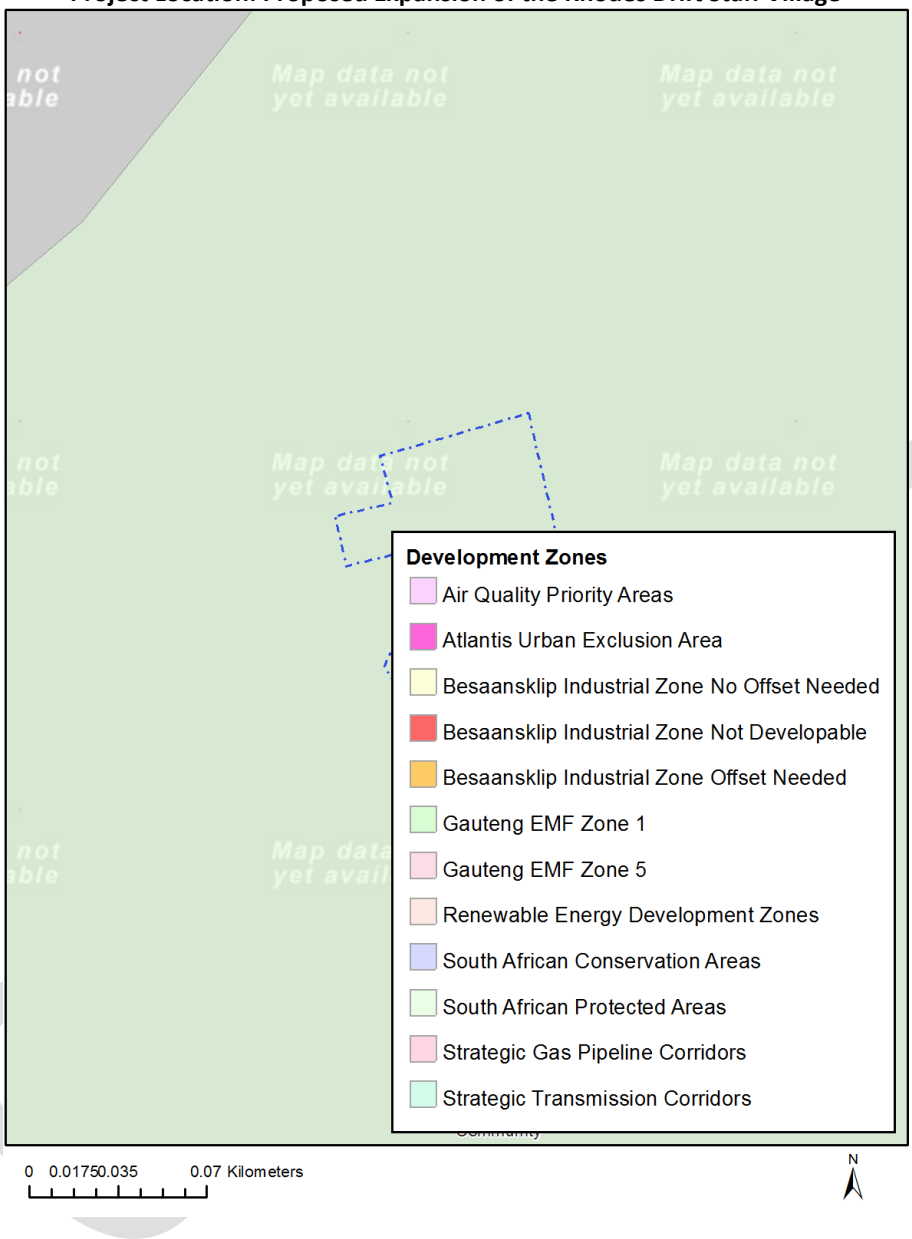
Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
South African Protected Areas	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/SAPAD_OR_2021_Q4_Metadata.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones

Project Location: Proposed Expansion of the Rhodes Drift Staff Village



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme		X		

Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme				X
Defence Theme	X			
Paleontology Theme			X	
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

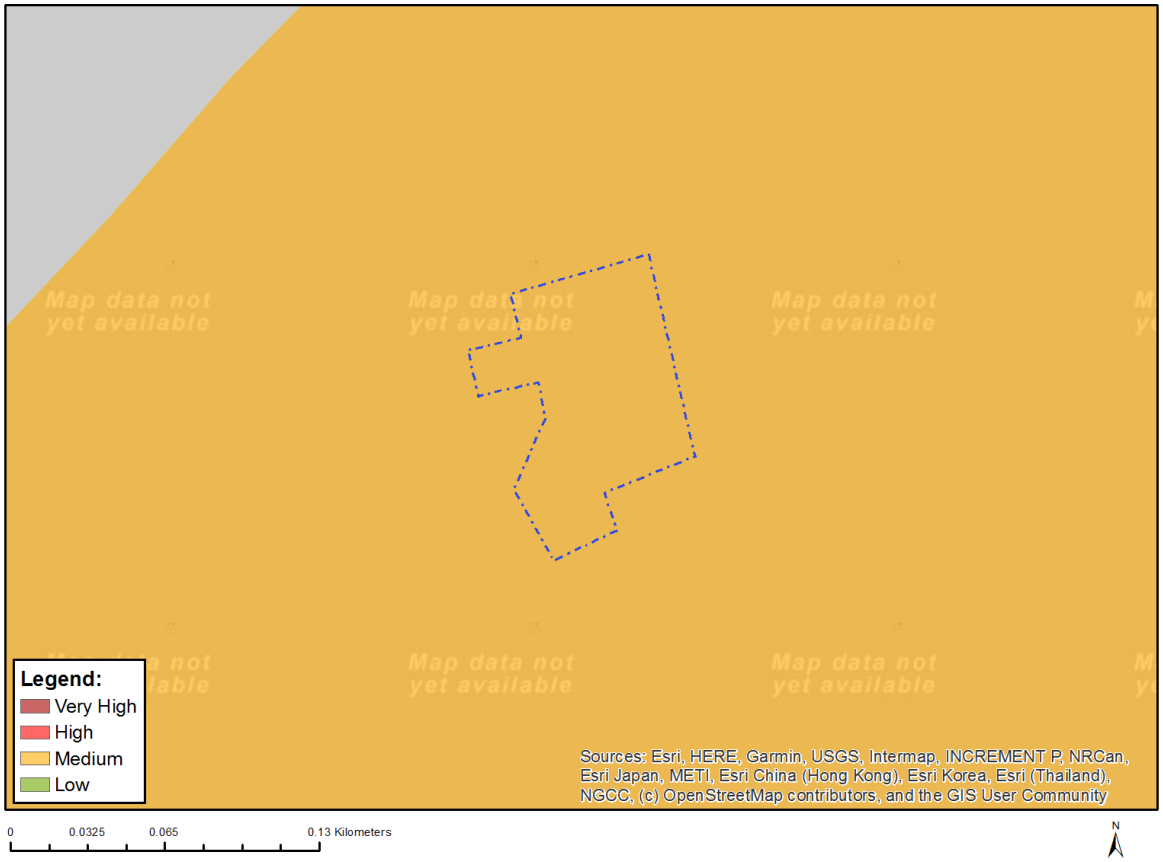
No	Specialist assessment	Assessment Protocol
1	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
7	Plant Species	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols

	Assessment	/Gazetted_Plant_Species_Assessment_Protocols.pdf
8	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

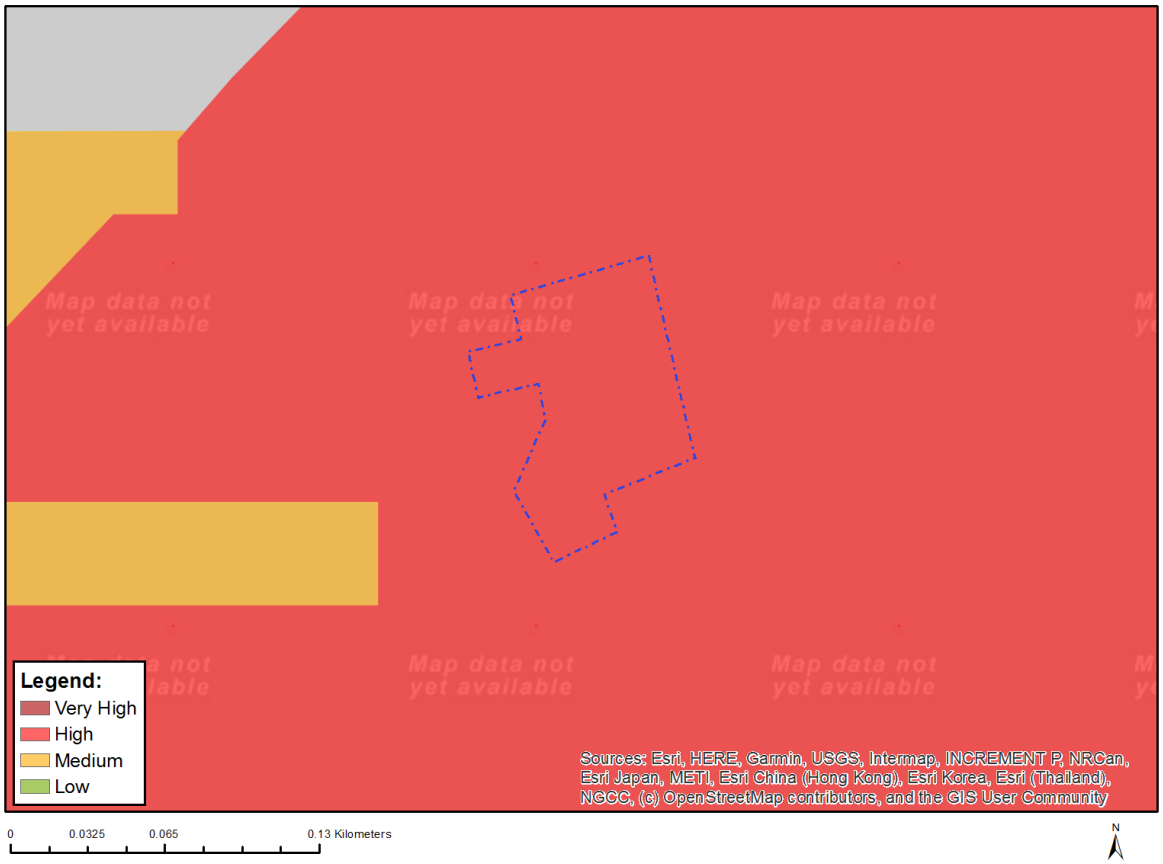


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



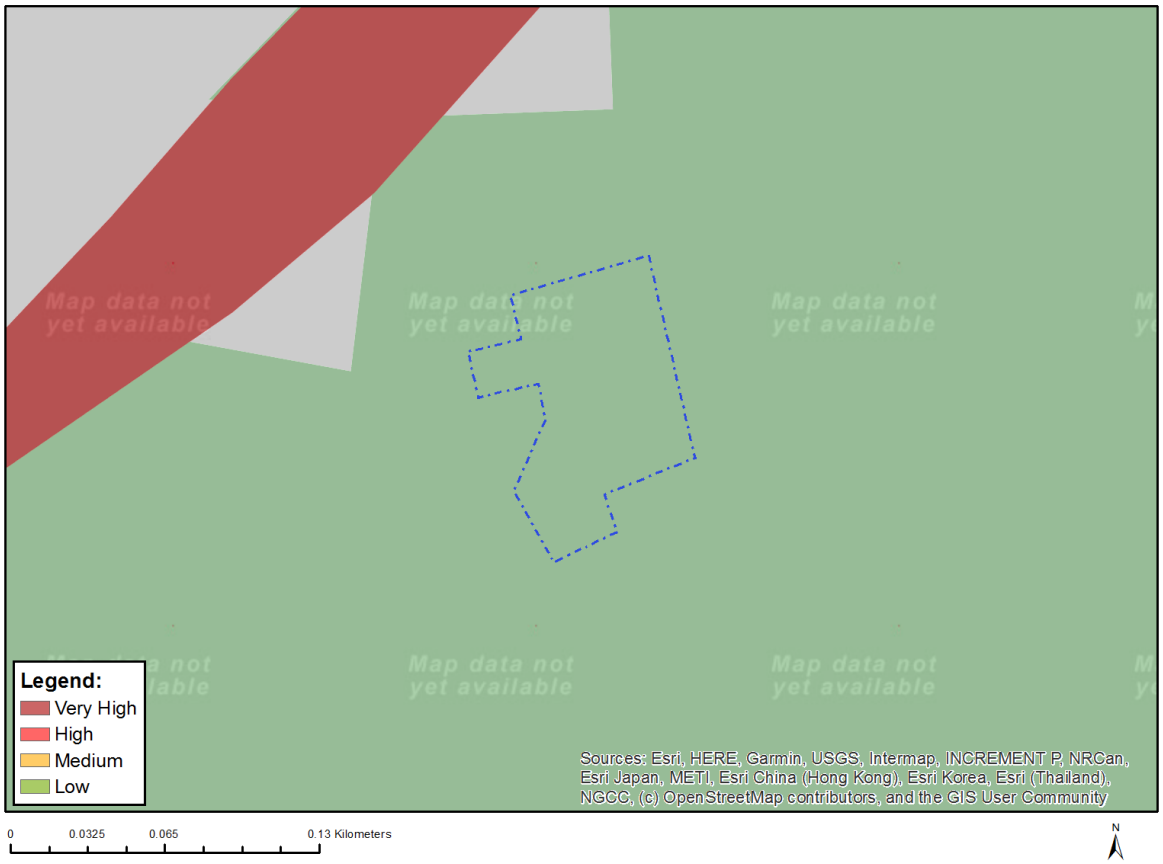
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Nettapus auritus
High	Aves-Terathopius ecaudatus
High	Aves-Pelecanus onocrotalus
High	Aves-Torgos tracheliotos
High	Aves-Bucorvus leadbeateri
High	Aves-Aquila rapax
High	Aves-Mycteria ibis
Medium	Sensitive species 5
Medium	Mammalia-Lycaon pictus
Medium	Reptilia-Crocodylus niloticus

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

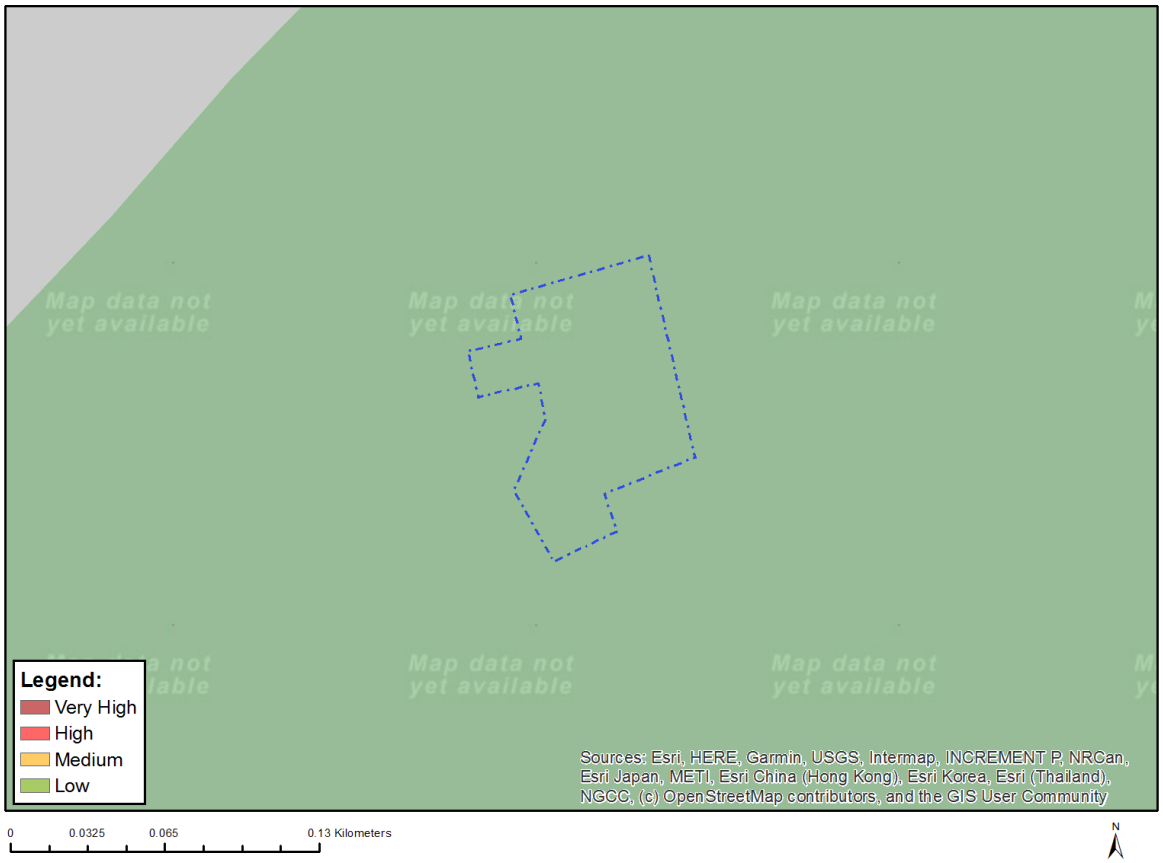


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

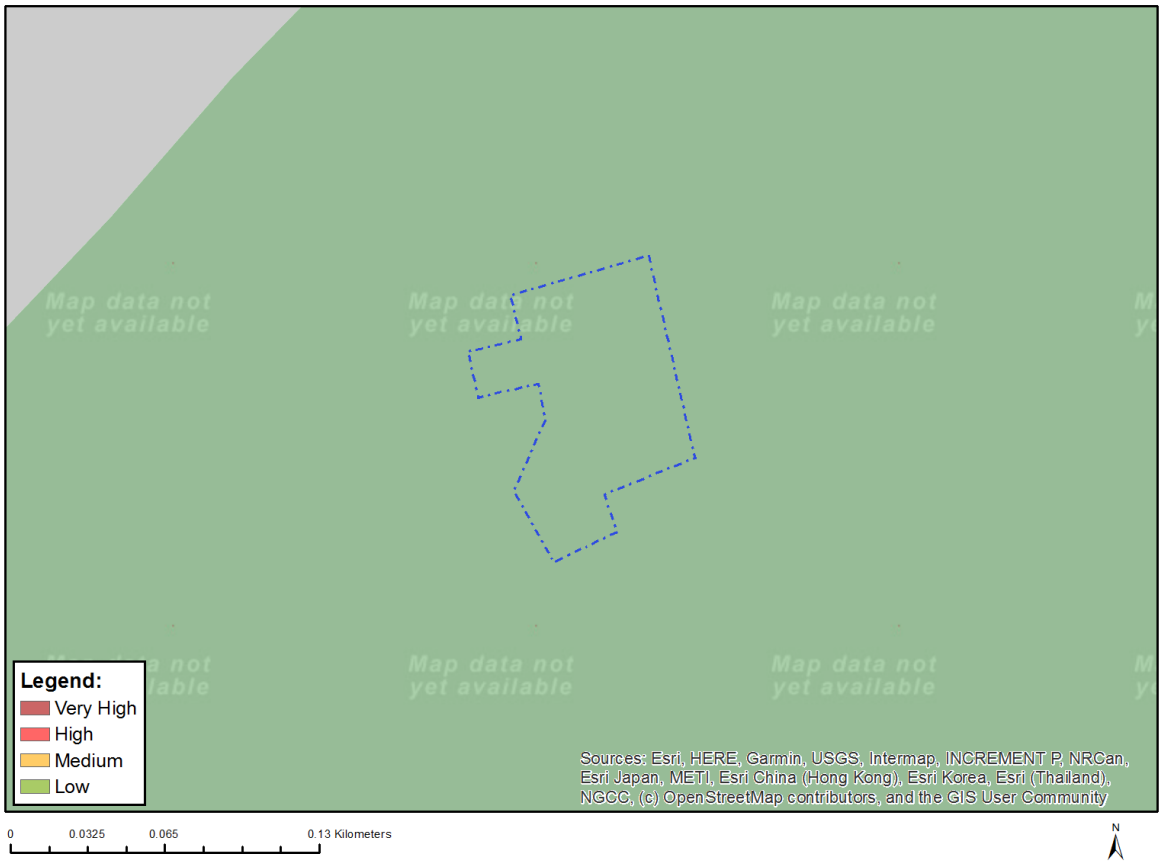


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

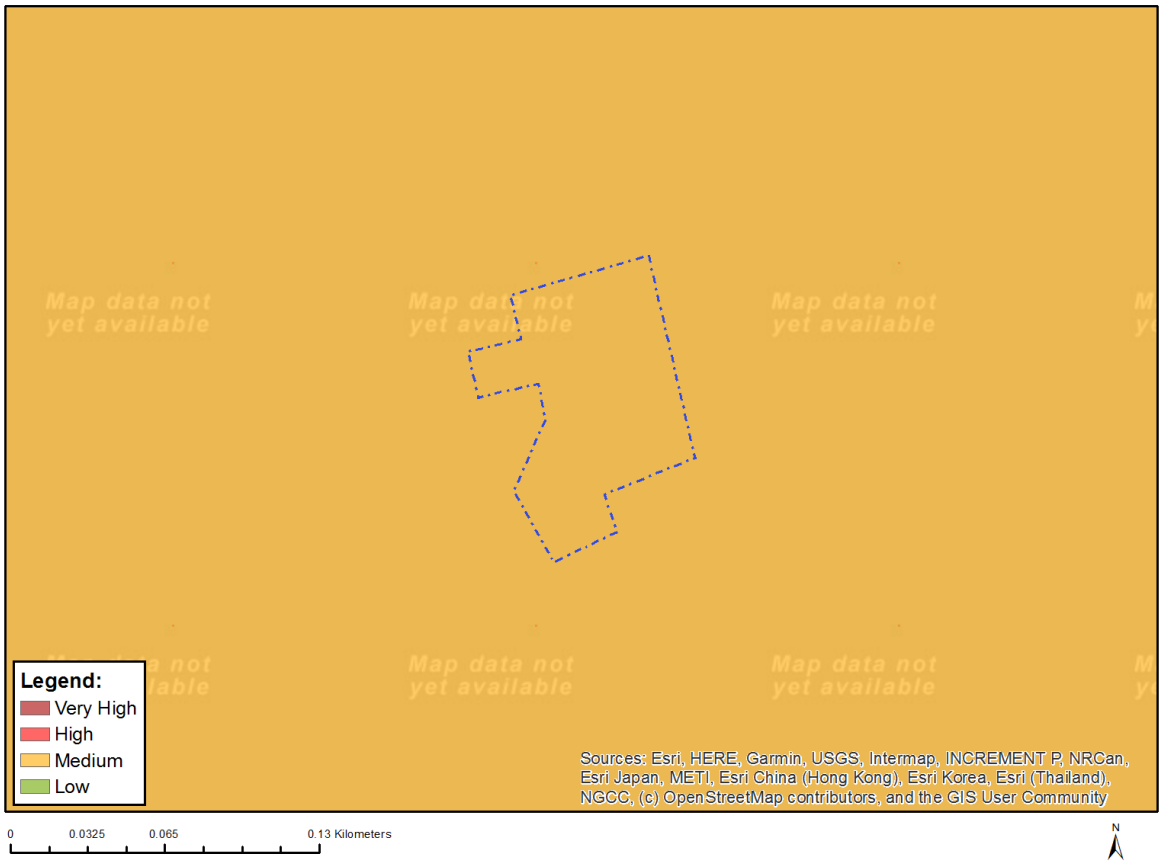
MAP OF RELATIVE DEFENCE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Military and Defence Site

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

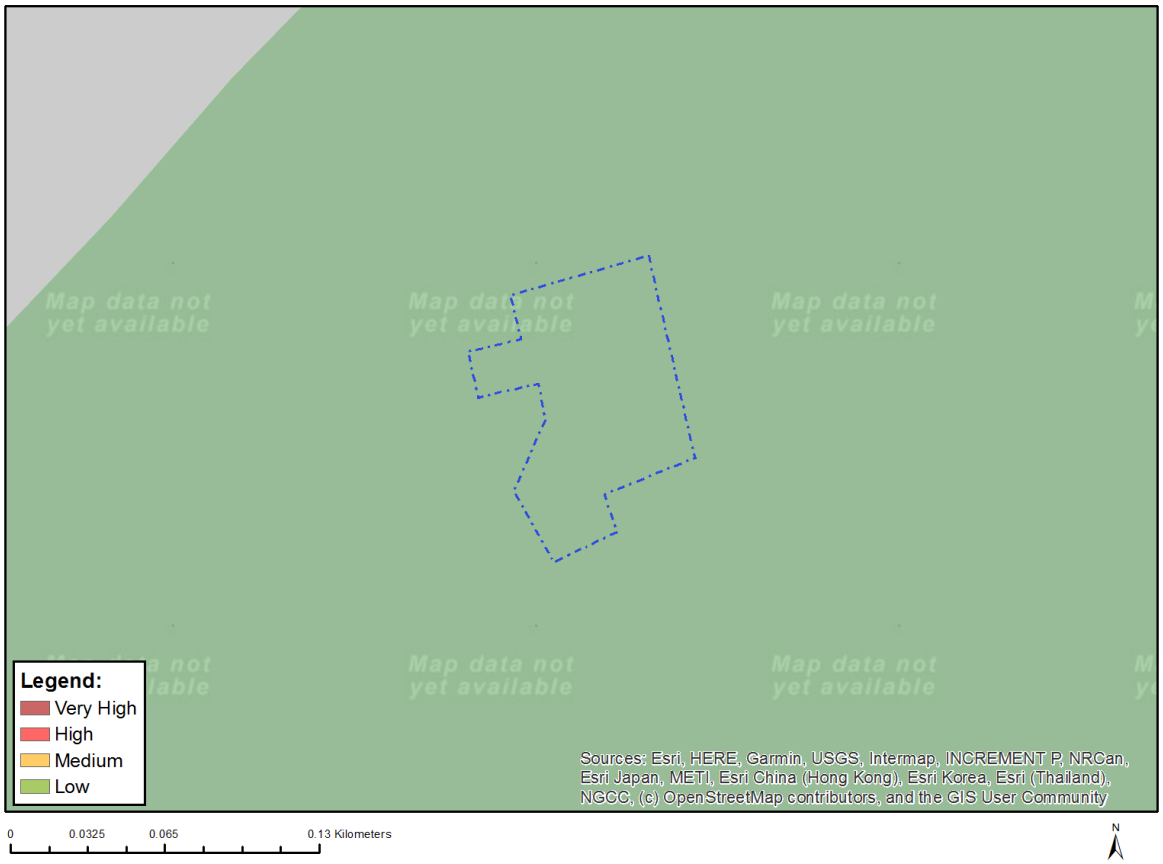


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



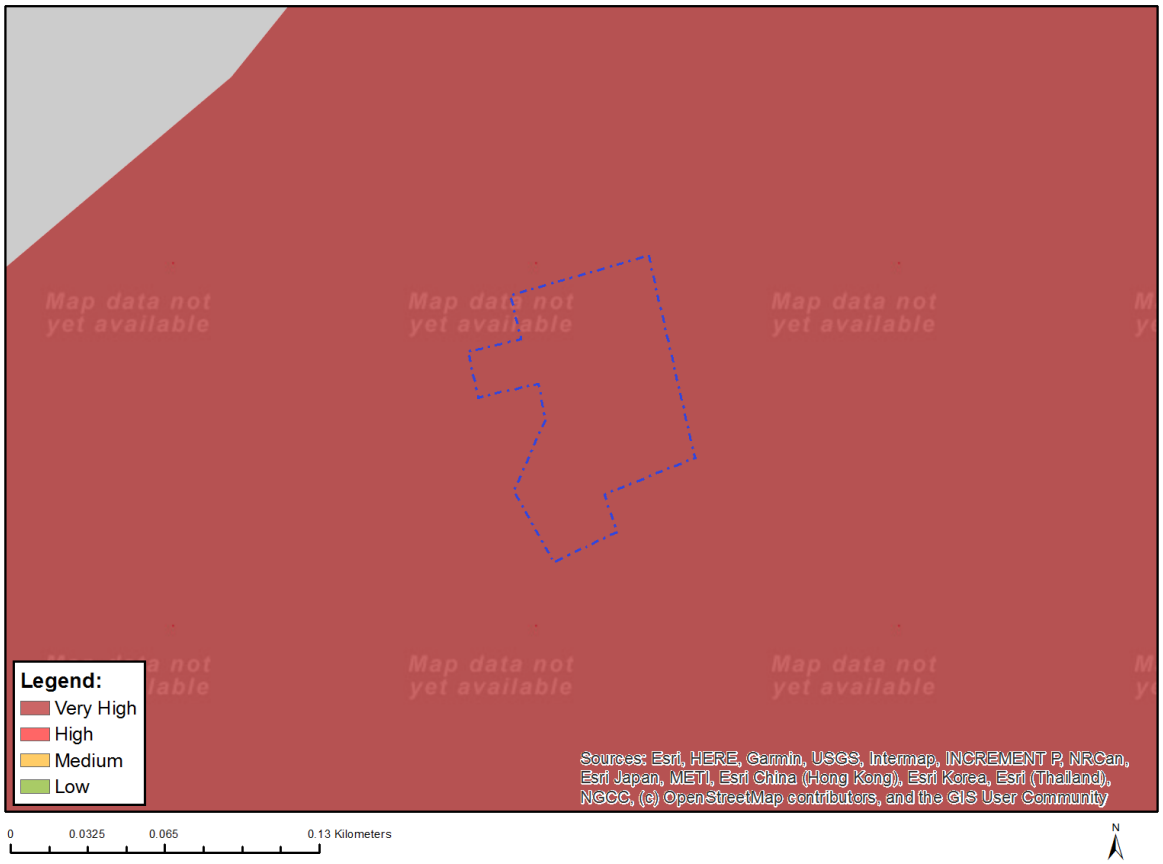
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	National Forestry Inventory
Very High	Endangered ecosystem
Very High	Mapungubwe Cultural Landscape

APPENDIX C: HIA

Note: The Heritage Impact Assessment, including all Appendices, is too large to attach to this email. The complete report will be made available via a "WeTransfer" electronic link, on request.

APPENDIX D:

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APPENDIX E1: NEWSPAPER ADVERTISEMENT

Controversial defeat for Muleba

By Victor Mukwevho

Local boxer Rollen Muleba controversially lost her match against the reigning champion, Razell Mohammed, on Sunday. The fight, to determine the South African Female Cruiser Weight Champ, took place at Nangoza Jebe Hall in Gqeberha.

From the start of the match, Muleba forced Mohammed backwards time and again with one left jab after another. The only round Mohammed won comfortably was the seventh, where she made Muleba stagger twice with a left hook and a right to the rib cage.

As soon as the fight ended, Muleba's trainer, John Nemakonde, raised her right hand in anticipation of a victory, while Mohammed waited silently in front of her managers, looking beaten already, as they waited for the result to be announced.

To the amazement of everyone, Mohammed won the match with four points. Boxing fans were stunned by the similar margins dished out by the three judges after the match.

Muleba immediately told the ring announcer that she would like a rematch. When the ring announcer asked if she was prepared to come to Gqeberha again, she replied: "Yes, I can fight her again anywhere."

At the time of our going to press, the date for the rematch had not been made known yet.

Rollen Muleba's trainer, John Nemakonde, raises her hand in anticipation of a victory before the result of her match with Razell Mohammed was announced. ***Photo: supplied.***

Maungani too strong for Dzwerani

By Frank Mavhungu

Dzwerani United Brothers will not take part in the next round of the Mpho Mathoho Electrical KO Competition. They were booted out by Maungani FC, who brutally walloped them 3-0 at the Tshisaulu Magenge Grounds on Saturday.

The game started about an hour later than the scheduled 15:00 kick-off time as the officials were still arguing over the registration of some of the players.

When they realised that matching the opposition would be hard, Maungani decided to frustrate United Brothers by playing aerial balls from behind. Pfano Mushoma of United Brothers was taken off the pitch temporarily to receive medical treatment after he sustained an injury to the back in the 14th minute. Maungani capitalised on the setback and scored their opening goal in the 17th minute. Their playmaker, Thabiso Randitsheni, went loose from the left corner before beating the Brothers' keeper, Khumbelo Mphadi, with a ground cutter.

United Brothers did not lose their original fighting spirit after Maungani's first goal. They continued to play entertaining football, but their strikers seemed to have forgotten their scoring boots at home.

The wheel of fortune turned against United Brothers when Maungani increased the lead via Itani "Mushavhi" Malange towards the end of the first half. Maungani effected two changes when they introduced Nndanganeni Tshiruma and Wamashudu Mudau at the expense of Itani Malange and Wavhudi Matidze respectively. United Brothers responded by replacing Ampfarisaho Khangale with Mutshidzi Tshishonga.

The players of Maungani nearly spoiled the game when they started to demonstrate their rough skills. The referee, Mr Thabelo Nengwekhulu, flashed three yellow cards within a short space of time in a bid to normalise the situation.

Maungani scored the third through Rilwele Ramangwele later in the game.

Rolivhuwa Mphadi of United Brothers hinders Matsego Mutsinda of Maungani from reaching the ball. ***Photo: Frank Mavhungu.***

Victory for Muduluni Rising Stars

By Kaizer Nengovhela

Muduluni Rising Stars beat Muduluni Young Chiefs 1-0 in a Makhado Local Football League match played at the Muduluni Grounds.

The game was a balanced affair for the first 15 minutes, but Chiefs created more scoring opportunities. Stars started to demonstrate their rough skills in the middle of the first half. The referee calmed the situation by reprimanding Ngeletshedzo Ndou with a card after he had brutally tackled Edward Mathegu from behind.

The keeper of Stars, John Matumba, made his presence felt in the 19th minute. Chiefs were awarded a free kick just outside the box. Given Makgotho unleashed from the set piece, but the keeper, Matumba, impressed even his opponents when he executed a brilliant save.

Stars took 30 minutes to score the all-important goal. Their all-rounder, Murendeni Makhumisane, was on target, following a neat pass from Lefty Sebola. Stars were superior regarding ball possession, but their strikers seemed to be shy when they approached their opponents' danger area.

Lesley Kutama of Chiefs won a loose ball from the left corner in the 68th minute. He ran a few steps towards the goals before beating the keeper. He caused an upset, however, when his shot hit the woodwork and landed outside the field of play for a goal kick.

Goal scorer: Murendeni Makhumisane of Stars. ***Photo: supplied.***

NOTICE

Notice of Environmental Authorization application, on behalf of **Future Cast Trading 1068 CC.** Notice is hereby given in terms of EIA Regulation41(2)(c) of the regulations, under the environmental management act,1998(act no.107 of 1998). This is also a notice of acceptance for an application of mining permit in terms of section 27 of the mineral and petroleum resource development act 28 of 2002(MPRDA).

Future Cast Trading 1068 CC applied for a mining permit to mine **Aggregate** in terms of the section 27 of the MPRDA, the application covers **Portion 13 of the Farm Verzameling Van Waters 31 LT.**

LP30/5/1/3/2/11870MP (DMR REF)

Located in the magisterial district of Collins Chabane. You can be involved in the public participation process by sending, email or fax with your name and contact details, stating your concern/questions relating the proposed project. you can also provide us with names of additional people that can be contacted. All correspondence which is received which is received within 30 days from the day of notice will be submitted to (DMR). All issues raised within the public participation process will be responded too in writing to the interested and affected parties. This include all parties who will be affected by the project and interested in the mining project.

All correspondence may be directed to:
Yadah Consulting (Pty) Ltd (Ms T.J Magagula)
Yadah.consult@gmail.com
073 875 0228 / 013 001 2901

YADAH CONSULTING

Ad designed by Zoutnet Publishers

NOTICE

Notice of Environmental Authorization application, on behalf of **Vuyeni Investments (Pty) Ltd.** Notice is hereby given in terms of EIA Regulation41(2)(c) of the regulations, under the environmental management act,1998(act no.107 of 1998). This is also a notice of acceptance for an application of mining permit in terms of section 27 of the mineral and petroleum resource development act 28 of 2002(MPRDA).

Vuyeni Investments (Pty)Ltd applied for a mining permit to mine **Aggregate** in terms of the section 27 of the MPRDA ,the application covers the Farm **Molenje 20 LT.**

LP30/5/1/3/2/11867MP (DMR REF)

Located in the magisterial district of Collins Chabane. You can be involved in the public participation process by sending, email or fax with your name and contact details, stating your concern/questions relating the proposed project. you can also provide us with names of additional people that can be contacted. All correspondence which is received which is received within 30 days from the day of notice will be submitted to (DMR). All issues raised within the public participation process will be responded too in writing to the interested and affected parties. This include all parties who will be affected by the project and interested in the mining project.

All correspondence may be directed to:
Yadah Consulting (Pty) Ltd (Ms T.J Magagula)
Yadah.consult@gmail.com
073 875 0228 / 013 001 2901

YADAH CONSULTING

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NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT & WATER USE LICENCE APPLICATION

PROPOSED EXPANSION OF THE RHODES DRIFT STAFF VILLAGE WITHIN THE MAPUNGUBWE NATIONAL PARK, LIMPOPO PROVINCE

Notice is hereby given of a Public Participation Process in terms of 1) the National Environmental Management Act ("NEMA"), 1998 (No. 107 of 1998), read with Chapter 6 of the EIA Regulations 2014 (as amended) as well as 2) Section 40 of the National Water Act ("NWA") (Act 36 of 1998).

PROPOSED DEVELOPMENT: The applicant, South African National Parks ("SANParks") is proposing to expand the existing Rhodes Drift Staff Village within the Mapungubwe National Park. The proposed expansion comprise 10 additional 2 bedroom staff housing units and associated services provision infrastructure.

PROPERTY: Rhodes Drift Staff Village, Mapungubwe National Park, Limpopo Province

LISTED ACTIVITIES / WATER USES:
a. Listed activities applied for in terms of the NEMA 2014 EIA Regulations (as amended):
- **Activities 12 & 14:** GNR. 985 (Listing Notice 3) of 2014 (as amended by GNR. 324 of 07 April 2017)

b. Water Uses in terms of the NWA:
- Section **21 (c),(g) & (i)**

ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP"): Delron Consulting (Pty) Ltd has been appointed as the independent EAP to undertake the Environmental Impact Assessment ("EIA") and Water Use Licence Application ("WULA") processes.

INVITATION TO PARTICIPATE: Should you wish to be registered as an Interested and Affected Party or comment on the above-mentioned project and application processes, please submit your name, contact information and interest in the matter, in writing, to the contact person indicated below, by no later than **6 October 2022** *(WULA – 7 November 2022).*

CONTACT: Mr. P De Lange: Reg. EAP (EAPASA) : 2021/3751
Delron Consulting (Pty) Ltd
P.O. Box 177 Woodlands, 0072
Phone: 082 571 5396, E-mail: pieter@delron.co.za

delron ENVIRONMENTAL

Ad designed by Zoutnet Publishers

VHEMBE District Municipality

Private Bag X5006 • Thohoyandou • 0950 • Tel: 015 960 2000

PUBLIC NOTICE

REGISTRATION OF STAKEHOLDERS TO BE MEMBER OF IDP REPRESENTATIVE FORUM: 2022/23 FINANCIAL YEAR

Notice is hereby given in terms of Local Government Municipal Systems Act, No. 32 of 2000, Chapter 4 Section 16, that Vhembe District, Makhado, Musina, Thulamela and Collins Chabane Municipalities invite Organized Structures/Organizations (Community Based Organizations, Non-Governmental Organizations and Business Organizations) to formally register with the municipalities to be member of IDP Representative Forum.

Send a written submission to the relevant office of the Municipal Manager from the list below starting from the **29th of August 2022** until the **23rd of September 2022**.

Municipality	Postal Address/ Physical Address	Municipal Manager	Enquiries
Vhembe District Municipality	P/Bag X5006, Thohoyandou,0950 or Vhembe District, Old Parliamentary Building, Thohoyandou	Ndou TS mmoffice@vhembe.gov.za	Matloga SR 0159602000
Thulamela Local Municipality	P/Bag X5066, Thohoyandou,0950 or Public Participation Office, Old Agriven Building ,Thohoyandou	Makumule M.T mm@thulamela.gov.za	Madi NN 0159627500
Makhado local Municipality	P/Bag X2596, Makhado, 0920 or Civic Centre, 83 Krogh street, Louis Trichardt, 0920	Nemaname K M municipal.manager@makhado.gov.za	Sidimela P 0155193237
Musina Local Municipality	P/Bag X611, Musina,0900 or Musina Civic Centre, Irwin Street,0900	Acting Municipal manager : Nephawe T mimieb@musina.gov.za	Ncube T 0155346100
Collins Chabane local Municipality	P/Bag X9271, Malamulele, 0982 or Old DCO Building, Hospital Road, Malamulele, 0982	Shilenge RR nyeleti.manganye@collinschabane.gov.za	Nxumalo NC 0158510110

MUNICIPAL MANAGER - Ms NDOU T.S

20 Sake — Beeld | My wêreld | Woensdag 31 Augustus 2022

delron ENVIRONMENTAL

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT & WATER USE LICENCE APPLICATION - PROPOSED EXPANSION OF THE RHODES DRIFT STAFF VILLAGE WITHIN THE MAPUNGUBWE NATIONAL PARK, LIMPOPO PROVINCE

Notice is hereby given of a Public Participation Process in terms of 1) the National Environmental Management Act ("NEMA"), 1998 (No. 107 of 1998), read with Chapter 6 of the EIA Regulations 2014 (as amended) as well as 2) Section 40 of the National Water Act ("NWA") (Act 36 of 1998).

PROPOSED DEVELOPMENT: The applicant, South African National Parks ("SANParks") is proposing to expand the existing Rhodes Drift Staff Village within the Mapungubwe National Park. The proposed expansion comprises 18 additional 2 bedroom staff housing units and associated services provision infrastructure.

PROPERTY: Rhodes Drift Staff Village, Mapungubwe National Park, Limpopo Province

LISTED ACTIVITIES/WATER USES:

a. Listed activities applied for in terms of the NEMA 2014 EIA Regulations (as amended):

- Activities 12 & 14: GNR. 985 (Listing Notice 3) of 2014 (as amended by GNR. 324 of 07 April 2017)

b. Water Uses in terms of the NWA:

- Section 21 (c) (a) & (i)

ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP") Delron Consulting (Pty) Ltd has been appointed as the independent EAP to undertake the Environmental Impact Assessment ("EIA") and Water Use Licence Application ("WULA") processes.

INVITATION TO PARTICIPATE: Should you wish to be registered as an Interested and Affected Party or comment on the above-mentioned project and application processes, please submit your name, contact information and interest in the matter, in writing, to the contact person indicated below, by no later than 6 October 2022 (WULA - 7 November 2022). CONTACT: Mr. P De Lange Reg. EAP (EAPASA): 2021/3751

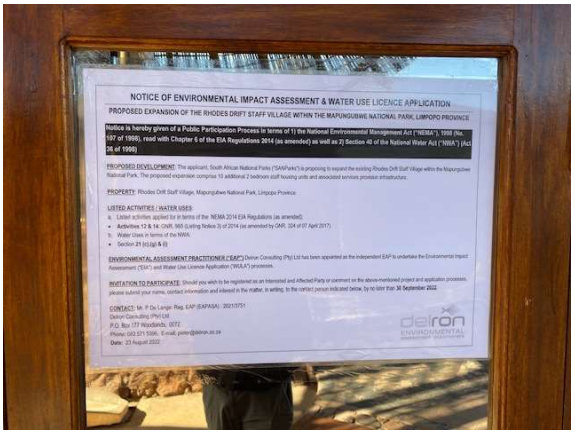
Delron Consulting (Pty) Ltd P.O. Box 177 Woodlands, 0072, Phone: 082 571 5396, E-mail: pieter@delron.co.za

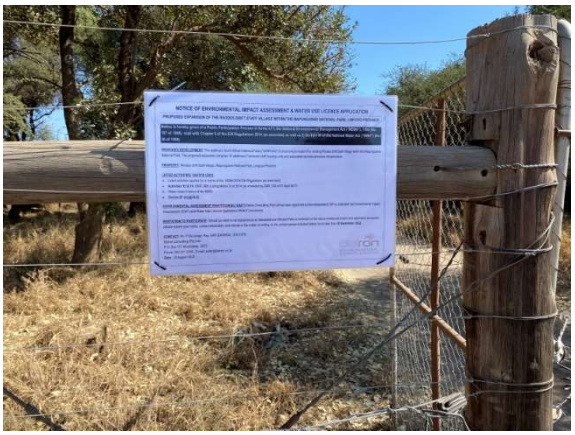
MAPUNGUBWE NATIONAL PARK

AUG 31(DE)4048

APPENDIX E2: SITE NOTICES

Reception - Mapungubwe National Park





APPENDIX E3: WRITTEN NOTICES

Please note that in an effort to protect the personal information of the Registered I&AP's copies of the notification proof will not be made publicly available. Should you require access to this document for the purposes of fulfilling your obligations under the NEMA EIA Regulations or other lawful right, please feel free to contact Delron Consulting at 082 571 5396 or pieter@delron.co.za.

APPENDIX E4: LIST OF REGISTERED I&AP'S

Please note that in an effort to protect the personal information of the Registered I&AP's copies of the notification proof will not be made publicly available. Should you require access to this document for the purposes of fulfilling your obligations under the NEMA EIA Regulations or other lawful right, please feel free to contact Delron Consulting at 082 571 5396 or pieter@delron.co.za.

APPENDIX E5: COMMENTS RECEIVED

Note: As this is the first announcement of the project, no comments have been received to date. Any comments received from I&APs on the DBAR will be included in the Final Basic Assessment Report.

APPENDIX E6: COMMENTS AND RESPONSE REPORT

Name of Contact Person	Company / Entity	Date / Method of Comment	Issue raised	Response
			Note: As this is the first announcement of the project, no comments have been received to date. Any comments received from I&APs on the DBAR will be included in the Final Basic Assessment Report.	

APPENDIX F: EMPR

ENVIRONMENTAL IMPACT ASSESSMENT

EXPANSION OF THE RHODES DRIFT STAFF VILLAGE WITHIN THE MAPUNGUBWE NATIONAL PARK, LIMPOPO PROVINCE

Authority Ref: Pending

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Prepared on behalf of:

SOUTH AFRICAN NATIONAL PARKS (SANParks)
Farm Rhodes Drift 22-MS, Mapungubwe National Park

For Review and Approval by:

DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT
The Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001
Phone: (012) 426 5126
Fax: (012) 426 5446

OCTOBER 2022

A Report Compiled by:

DELRON CONSULTING (Pty) Ltd
Mr. P De Lange BL (UP) Pr Larch, Reg. EAP (EAPASA) : 2021/3751
Delron Project No: 0704
Report / Revision No: 0

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ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

1. PURPOSE

The National Environmental Management Act 107 of 1998 (NEMA) requires that an **Environmental Management Programme** (EMPr) be submitted where an environmental impact assessment must be utilised as the basis for a decision on an application for environmental authorisation.

There is a reliance on the EMPr to ensure that a project's actual environmental impacts are consistent with those evaluated in the (EIA) process. The EMPr is therefore fundamental to the EIA process and should ensure that commitments given at a project's planning and assessment stage are carried through the construction and/ or operation stage.

The EMPr, as contemplated in Chapter 5 Section 24 N (1A) of NEMA, plays a vital role in the implementation of consistent and continued environmental management for the duration of a project life cycle.

2. SCOPE

The EMPr contains a **1) General Environmental Specifications Section** which contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with development.

The EMPr also contains a **2) Project Specific Environmental Specifications Section** which describes mitigation measures and environmental control requirements specific to the particular project. These requirements are based on the findings from the BA/EIA and any conditions attached to Environmental Authorisation (EA).

The project specific section of the EMPr identifies where project specific information from the EIA or BA will need to be included in to the EMPr. This includes:

- Environmental sensitivity mapping including "No Go" areas
- Final project footprint
- Project information including landowner details and specific access requirements.

The overall objectives of the EMPr are to realise the following:

- Ensure that impact avoidance and mitigation measures associated with construction are identified and that practical recommendations are provided to implement and monitor these actions.
- Ensure environmental protection.

3. LEGAL REQUIREMENTS

3.1 KEY ENVIRONMENTAL LEGISLATION AND POLICIES

In terms of legal requirements, a crucial objective of the EMPr is to satisfy the requirements of Section 24N of the NEMA Regulations and Regulation 19 of the NEMA EIA Regulation of 2014. These regulations regulate and prescribe the content of the EMPr and specify the type of supporting information that must accompany the submission of the report to the authorities.

In addition to satisfying these requirements, the content of the EMPr has been compiled in accordance with the requirements of legislation of other authorising authorities responsible for providing approvals, general authorisations or letters of no objections for projects. The following additional legislation was considered in this regard:

- General Authorisation of water use in terms of the amended GN 1199 of the National Water Act (No. 36 of 1998);
- National Heritage Resource Act (No. 25 of 1999.

The Contractor shall identify and comply with all South African environmental legislation, including associated regulations and all local by-laws relevant to the project. Key legislation at the time of this EMPr being in effect applicable to the construction and implementation phases of the project must be complied with. The list of applicable legislation provided below is intended to serve as a guideline only and is not exhaustive:

- **General**
  - The Constitution of South Africa Act of 1996 (Act No. 108 of 1996);
  - National Environmental Management Act of 1998 (Act No. 107 of 1998);
  - Environment Conservation Act of 1989 (Act No. 73 of 1989) and the Environmental Impact Assessment Regulations, 2014.

- **Land, Soil and Plants**
  - The Conservation of Agricultural Resources Act of 1983 (Act No. 43 of 1983);
  - National Forests Act of 1998 (Act No. 84 of 1998);
  - National Environmental Management Biodiversity Act of 2004 (Act No. 10 of 2004);
  - National Veld and Forest Fire Act of 1998 (Act No. 101 of 1998).

- **Protected Areas**
  - National Environmental Management: Protected Areas Act of 2003 (Act No. 57 of 2003);
  - The Protected Areas Amendment Act of 2004 (Act 31 of 2004).

- **Inland Water Resources**
  - National Water Act of 1998 (Act No. 36 of 1998);
  - Water Service Act of 1997 (Act No. 108 of 1997).

- **Cultural Resources**
  - Natural Heritage Resources Act of 1999 (Act No. 25 of 1999).

- **Animals and Wildlife**
  - Animals Protection Act of 1962 (Act No. 71 of 1962);
  - Game Theft Act of 1991 (Act No. 105 of 1991);
  - The National Environmental Management: Biodiversity Act of 2004 (Act No. 10 of 2004) and the regulations and lists regarding threatened and protected species

- **Pollution Control and Waste Management**
  - National Environmental Management: Waste Act, 2008;
  - Environment Conservation Act of 1989 (Act No. 73 of 1989);
  - National Environmental Management: Waste Act 2008 (Act Bo. 58 of 2008);
  - Minimum requirements for waste disposal by landfill, Department of Water Affairs and Forestry, 2nd addition, 1998.

- **Hazardous and Toxic Substances**
  - Hazardous Substances Act of 1973 (Act No. 15 of 1973);

- Minimum requirements for the handling, classification and disposal of hazardous waste (Department of Water Affairs and Sanitation);
- Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1947 (Act No. 36 of 1947).

- **Air Pollution**
  - Atmospheric Pollution Prevention Act of 1965 (Act No. 45 of 1965);
  - National Environmental Management: Air Quality Act of 2004 (Act No. 39 of 2004).

- **Minerals, Energy and Mining**
  - Mineral & Petroleum Resources Development Act of 2002 (Act No. 28 of 2002)
  - Minerals and Petroleum Resources Development Act 28 of 2002

- **Other**
  - Road Traffic Act of 1989 (Act No. 29 of 1989)
  - Explosives Act of 2003 (Act No. 15 of 2003)
  - Advertising on Roads and Ribbon Development Act of 1940 (Act No. 21 of 1940)
  - Depending on the location of the project, applicable provincial legislation will also apply.

WORKING AREA

Construction activities shall be limited to the area for which EA is applied for/issued. Any area outside the development envelope required to facilitate access, construction activities, construction camps or material storage areas, shall be negotiated with the affected Landowner and written agreements shall be obtained. Location of construction camps must be carefully considered and approved by the ECOs and this involves determining whether any further approvals would be required in terms of the relevant environmental and health legislation.

All construction areas shall be cleared in accordance with the requirements of this EMPr. Any extra space to be cleared outside the development envelope shall be negotiated with the relevant Landowner and approved by the ECOs. All areas marked as "No Go" areas shall be treated with the utmost care and responsibility and in accordance with the requirements of the EMPr.

Should water be required from sources other than from those provided by the developer's supply, a written agreement shall be reached between the Contractor and the Landowner. Should the Contractor be required to use water from a water resource, the Contractor shall supply a method statement to that effect and first obtain the required licences from DWS. Strict control shall be maintained and the ECOs shall regularly inspect the abstraction point and methods used.

4. DEFINITIONS AND TERMINOLOGY

For the purposes of this EMPr, the following definitions shall apply:

Assembly Area	Means any area used for the assembly of infrastructure prior to its erection. Such assembly areas may be within the construction camp or elsewhere within the Working Area.
Biophysical Aspects	Are the naturally occurring objects and processes of an area on the assumption that all naturally occurring things can be classified as being either living (i.e. biotic) or non-living (physical or abiotic).
Botanical Specialist	Should be Pr.Sci.Nat registered.

Clearing	Means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified.
Construction Camp	Is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management.
Contaminated Water	Means water contaminated by the Contractor's activities, e.g. concrete water and runoff from equipment, camp sites, ablution facilities and personnel wash areas.
ECO	Means an Environmental Control Officer (ECO) appointed full time by the Employer to monitor compliance by the Contractor and his staff with the environmental requirements of the environmental authorisation and EMPr.
Endemic	Is the natural distribution of an organism (plant or animal) restricted to the local environmental conditions within an area.
Environment	Means the surroundings within which humans exist. It comprises: i) The land, water and atmosphere of the earth; ii) Micro-organisms, plant and animal life; iii) Any part or combination of i) and ii) and the interrelationships among and between them; and iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being (i.e. the social environment). This is a definition that encompasses many different facets, including biological, physical, social, economic, cultural, historical and political components.
Heritage Resource	As per the provisions of the National Heritage Resources Act (No 25 of 1999), means all those heritage resources that are of cultural significance or other special value for present and future generations, and which are accordingly considered part of the National Estate. In this regard, the National Estate includes those items identified in terms of Section 2 of National Heritage Resources Act No. 25 of 1999.
Heritage Specialist	For the purposes of this EMPr, means a specialist suitably qualified to deal with the type of heritage resource discovered. For example where the resource is an archaeological artefact or site, the heritage specialist would be an archaeologist and where it is a fossil the specialist would be a palaeontologist.
Maintenance Period	Means the period after the establishment period up to and until the end of the defects liability period, during which the contractor shall be responsible for maintaining the vegetation.
Method Statement	Means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The Method Statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification. The Method Statement shall cover applicable details with regard to: i) Construction procedures;

	ii) Plant, materials and equipment to be used; iii) Transporting the equipment to and from site; iv) How the plant/ material/ equipment will be moved while on site; v) How and where the plant/ material/ equipment will be stored; vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur; vii) Timing and location of activities; viii) Compliance/ non-compliance; and ix) Any other information deemed necessary by the Project Manager.
Indigenous Vegetation	Means all existing species of trees, shrubs, groundcover, grasses and all other plants native to the site.
Pollution Incident	Means any incident that may cause or has caused damage to or the contamination of the natural environment.
Hazardous Substances	Is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995.
Sensitive Area	means any area that is denoted as sensitive by the BA/EIA, Environmental Authorisation, and EMPr, ECO or Project Manager due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (e.g. archaeological artefacts or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of steep slopes (in excess of 1:4) etc.
Slope	Means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units.
Solid Waste	Means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).
Spoil	Means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works.
Topsoil	Means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil.
Watercourse	Means any river, stream and natural drainage channel whether carrying water or not.
Water body	Means a body containing water and includes dams and wetlands, whether ephemeral or permanent.
Wetland	Means any area that is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the area is covered by shallow water. Specifically, an area is classified as a "wetland" if it meets at least one of the following criteria: i) The area predominantly supports hydrophytes, at least periodically; ii) The substrate(soil) is predominantly undrained hydric soil; and/ or iii) The substrate is non-soil, and is saturated with water or covered by shallow water at some time during the growing season.
Works	Means the Works to be executed in terms of the Contract.
Working Area	Means the land and any other place on, under, over, in or through which the Works are to be executed or carried out, and any other land or place made available by the Employer in

	connection with the Works. The Working Area shall include the site office, construction camp, stockpile and laydown areas, assembly areas, batching areas, the construction corridor, all access routes and any additional areas to which the Project Manager permits access.

5. ROLES & RESPONSIBILITIES

The effective implementation of the EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr identifies the various environmental roles and reporting lines and defines responsibilities for each role. This institutional structure will be maintained throughout the construction phase until such time as the final construction phase Environmental Audit Report has been prepared and accepted.

The Environmental Responsibilities and Reporting Structure are represented below:

Function	Role and Responsibilities
Environmental Assessment Practitioner (EAP)	**Responsibility** • The EAP is to be appointed by the Developer or Environmental Authorisation Holder (EAH). The responsibility of the EAP is to supplement the pre-approved generic EMPr requirements with project specific information and requirements from the authorised Basic Assessment or Environmental Impact Assessment Report. • Details of the EAP including the Curriculum Vitae of the EAP shall be included in the EMPr.
Environmental Authorisation Holder (EAH)	**Role** The Environmental Authorisation Holder is accountable for ensuring compliance with the EMPr and any conditions of approval from the Competent Authority (CA). Where required, an Environmental Control Officer (ECO) must be contracted by the EAH to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The EAH is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. **Responsibilities** • Be fully conversant with the conditions of the EA. • Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s). • Issuing of site instructions to the Contractor for corrective actions required. • Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation. • Ensure that periodic environmental performance audits are undertaken on the project implementation; and • Ensure all permits, authorisations and licences are obtained, monitored and adhered to.
Environmental Control Office (ECO)	**Role and Qualifications** The ECO should be employed by the EAH for the duration of the project. The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the Environmental Control Officer is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend

Function	Role and Responsibilities
	regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the Contractor. The ECO provides feedback to the EAH and Project Manager regarding all environmental matters. The Contractor/s are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the Environmental Authorisation and EMPr. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the Environmental Authorisation, report to the Government Authorising Department as and when required. **Responsibilities** The responsibilities of the ECO will include the following: • Be aware of the findings and conclusions of the Environmental Impact Assessment and Water Use Licensing process (where applicable) and the conditions stated within the environmental licenses. • Be familiar with the recommendations and mitigation measures of this EMPr. • Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them. • Undertake regular and comprehensive site inspections / audits of the construction site according to the EMPr and applicable licenses in order to monitor compliance with the EMPr. • Educate the construction team about the management measures contained in the EMPr and environmental licenses. • Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective. • Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements. • In consultation with the Project Manager order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses. • Liaison between the Project Manager, Contractors, authorities and other lead stakeholders on all environmental concerns. • Issuing of site instructions to the Contractor for corrective actions required. • Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr. • Validating the regular site inspection reports, which are to be prepared by the contractor. • Checking the contractor's record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken. • Checking the contractor's public complaints register in which all complaints are recorded, as well as action taken. • Assisting in the resolution of conflicts.

Function	Role and Responsibilities
	• Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor and/or sub-contractors. • In case of non-compliances, the ECO must first communicate this to the Project Manager and Contractor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance. • Maintenance, update and review of the EMPr; and • Communication of all modifications to the EMPr to the relevant stakeholders. Further note, the ECO function is not limited to the construction phase alone, but is also an active role during the operational and later phases of the project.
Contractor (C)	**Role** The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. **Responsibilities** • Implementation and compliance with recommendations and conditions of the EA and EMPr, including providing the Contractor's Environmental Protection Policy and the specific Method Statements for the project. • Appoints dedicated and qualified contractor's Environmental Officer (cEO) to work with the ECO; and • Ensure all site staff are trained and kept updated in terms of the EA, EMPr and other legal requirements.

6. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms shall be in place for all projects as a minimum requirement. This section of the report details each of these and how they shall be used throughout the project EMPr.

6.1 DOCUMENT CONTROL/FILING SYSTEM

The approved filing system shall be established at the outset of the construction phase and shall be maintained throughout the lifespan of the project. The ECOs are solely responsible for the upkeep and management of the EMPr file. At a minimum, all documentation detailed below will be stored in the EMPr file. A hardcopy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the Developer's Site Supervisor (where applicable). This duplicate file will be the responsibility of the ECOs and must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the Competent Authority (in terms of NEMA) or other relevant authorities. The EMPr file will form part of any Environmental Audits undertaken.

6.2 DOCUMENTATION TO BE AVAILABLE

At the outset of the project the following documents shall be placed in the filing system and be accessible at all times:

1) Full copy of the signed Environmental Authorisation from the Competent Authority in terms of NEMA granting approval for the activity.
2) Records of acknowledgement and acceptance of the EMPr from the Competent Authority in terms of NEMA.
3) Complete copy of the EMPr.
4) All signed copies of the Contractor's Environmental Agreement.
5) All the Contractor's Method Statements.
6) Completed Weekly Environmental Checklists.
7) Copies of the accepted Monthly Environmental Reports.
8) Minutes and attendance register of Environmental Site meetings.
9) An up-to-date Environmental Incident Log.
10) A copy of all non-compliances issued; and
11) A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record.

6.3 WEEKLY ENVIRONMENTAL CHECKLISTS

The ECOs are required to complete a Weekly Environmental Checklist which meets the requirements of the EMPr. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the Contractor on a weekly basis.

The checklists will form the basis for the Monthly Environmental Monitoring Reports. Copies of all competed checklists will be attached as Annexures to the Final Environmental Audit Report. The ECOs will report on the week's "highs and lows" to the Contractor on a weekly basis.

6.4 ENVIRONMENTAL AUDIT REPORTS

The ECOs shall prepare a monthly Environmental Audit Report. The Report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the environmental authorisation, the ECOs shall submit the monthly reports to the Competent Authority in terms of NEMA. At a minimum the Monthly Monitoring Report is to cover the following:

1) Weekly Environmental Checklists.
2) Deviations and non-compliances with the checklists.
3) Non-compliances issued.
4) Completed and reported corrective actions.
5) Environmental Monitoring.
6) General environmental findings and actions; and
7) Minutes of the Bi-monthly Environmental Site Meetings.

6.5 ENVIRONMENTAL SITE MEETINGS

An Environmental Site Meeting will take place at least bi-monthly (i.e. every two weeks). The meeting will be chaired by the Project Manager or ECO. The contractor will be required to attend. All environmental issues shall be tabled at the meeting for discussion and resolution.

Minutes of the Environmental Site Meetings shall be kept. The Minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of Minutes must clearly record Matters for Attention that will be reviewed at the next meeting.

6.6 REQUIRED METHOD STATEMENTS

A Method Statement is a written submission by the contractor to the Project Manager or ECO in response to the EMPr, setting out the plant, materials, labour and method the contractor proposes using to carry out an activity. The Method Statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The Method Statement shall cover applicable details with regard to:

1) Construction procedures.
2) Materials and equipment to be used.
3) Getting the equipment to and from site.
4) How the equipment/ material will be moved while on site.
5) How and where material will be stored.
6) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur.
7) Timing and location of activities.
8) Compliance/ non-compliance with the EMPr; and
9) Any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following Method Statements to the Project Manager no less than 14 days prior to the programmed Commencement Date of the subject Works or activity:

1) Site establishment – camps, lay-down or storage areas, satellite camps, infrastructure.
2) Batch plants.
3) Workshop or plant servicing.
4) Handling, transport and storage of Hazardous Chemical Substance's.
5) Vegetation management – protected, clearing, aliens, felling.
6) Access management – roads, gates, crossings etc.
7) Fire plan.
8) Waste management – transport, storage, segregation, classification, disposal (all waste streams).
9) Social interaction – complaints management, compensation claims, access to properties etc.
10) Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation.
11) Emergency preparedness – Spills, training, other environmental emergencies.
12) Dust and noise.
13) Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially in a national park; and
14) Heritage and palaeontology management.

The ECOs shall ensure that the contractors perform in accordance with these Method Statements. Completed and authorised Method Statements shall be captured in **Appendix B**.

6.7 ENVIRONMENTAL INCIDENT LOG (DIARY)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary).

The Environmental Incident Log is a means to record all environmental incidents for which a non-compliance notice would not be issued. An environmental incident is defined as:

1) Any deviation from the listed environmental mitigation measures (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
2) Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
3) General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

1) The date and time of the incident.
2) Description of the incident.
3) The name of the Contractor responsible.
4) The incident must be listed as significant or minor.
5) If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log.
6) Remedial or corrective action taken to mitigate the incident; and
7) Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the Environmental Audit Report.

6.8 NON-COMPLIANCE

A non-compliance notice will be issued to the responsible contractor by the ECOs via the Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

1) Time and date of the non-compliance.
2) Name of the contractor responsible.
3) Nature and description of the non-compliance.
4) Recommended / required corrective action; and
5) Date by which the corrective action to be completed.

The Contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant authority (DAFF, DFFE, DWS) for them to deal with the transgression, as it deems fit. The Contractor is deemed not to have complied with the EMPr if, inter alia:

1) Deviates from the environmental conditions and requirements as set out in the EMPr that has, or may cause, an environmental impact; OR
2) Contravenes environmental legislation; OR
3) Results in an unforeseen environmental impact. This may be caused by direct or indirect actions or activities on site. Significance will be determined by the ECOs, but will be informed by geographic extent, duration, lasting effects of the impact and extent of remediation to rectify the impact.

6.9 CORRECTIVE ACTION RECORDS

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the ECO, the Contractor will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the Contractor is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report signed off by the ECOs.

6.10 CONTRACTOR ENVIRONMENTAL AGREEMENTS

Each contractor working on site is required to sign the Contractor Environmental Agreement. This agreement provides for:

- Signed acknowledgement by the Contractor of the EMPr and the environmental controls and stipulations therein;

The signed copies of the Contractor Environmental Agreements are to be filed in the EMPr file. No contractor will be allowed to start work without having signed the Contractor Environmental Agreement.

6.11 PHOTOGRAPHIC RECORD

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1) Allow the ECOs access to take photographs of all areas, activities and actions.

2) The ECOs shall keep an electronic database of photographic records which will include:

    1. Pictures of all areas designated as work areas, camp areas, construction sites and storage areas taken before these areas are set up.
    2. All bunding and fencing.
    3. Road conditions and road verges.
    4. Condition of all fences.
    5. Topsoil storage areas.
    6. Waste management sites.
    7. Ablution facilities (inside and out).
    8. Any non-conformances deemed to be “significant”.
    9. All completed corrective actions for non-compliances.
    10. All required signage; and
    11. All areas before, during and post rehabilitation.

3) Include relevant photographs in the Final Environmental Audit Report

6.12 COMPLAINTS REGISTER

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant.
2. Record the time and date of the complaint.
3. Contain a detailed description of the complaint.
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described below.

6.13 CLAIMS FOR DAMAGES

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in (6.12) above.
2. The ECOs will evaluate the claim and associated damage and submit the evaluation to the Project Manager for approval.
3. Following consideration by the Developer's Project Manager, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification and/or payment will be recorded in the EMPr file.

6.14 INTERACTION WITH AFFECTED PARTIES

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts. The Contractor shall ensure that:

1. All negotiations with affected parties are done with the affected parties, Project Manager and ECO present.
2. No oral agreements between the above parties shall be entered into. All agreements will be recorded in writing, signed by all parties and filed in the EMPr file.
3. Affected parties will be informed of any changes to the construction programme.
4. The Contractor's contact telephone numbers are made available to all I&APs.
5. Contact with all affected parties will be courteous at all times; and

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt with immediately.
2. Ensure that any or all negotiations take place with the affected parties, Project Manager and Contractor present.
3. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file.
4. Ensure that his/her contact telephone numbers are made available to all landowners and affected parties.
5. Ensure that a current and up-to-date list of affected parties and their contact details are available at all times in the EMPr file.
6. Ensure that contact with affected parties is courteous at all times; and
7. Attach all documented agreements, settlements and claims to the Final Environmental Audit Report.

6.15 ENVIRONMENTAL AUDITS

Environmental Audits of the construction phase and implementation of the EMPr will be undertaken by the ECO and are a legal requirement in terms of NEMA once an EA is issued and as long as the EMPr is valid. The findings and outcomes of these audits will be recorded in the EMPr file. The environmental audits and associated reports must be conducted and submitted to the Competent Authority at intervals as indicated in the environmental authorisation.

6.16 FINAL ENVIRONMENTAL AUDIT REPORT

On final completion of the Construction Phase, the ECOs are required to prepare a Final Environmental Audit Reports. The Report is to be submitted to the Competent Authority for acceptance and approval. The Environmental Report shall contain the following in accordance with Appendix 7 of National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental impact Assessment Regulations, 2014.

1) Details of the independent person who prepared the report;
2) Details of the expertise of independent person that compiled the report;
3) A declaration that the independent auditor is independent in a form as may be specified by the Competent Authority;
4) An indication of the scope of, and the purpose for which, the environmental audit report was prepared;
5) A description of the methodology adopted in preparing the environmental audit report;
6) An indication of the ability of the EMPr, and where applicable, the closure plan to –
    - Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;
    - Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and
    - Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan;
7) A description of any assumptions made, and any uncertainties or gaps in knowledge;
8) A description of any consultation process that was undertaken during the course of carrying out the environmental audit report;
9) A summary and copies of any comments that were received during any consultation process; and
10) Any other information requested by the Competent Authority.
11) Acceptance and approval of the Final Environmental Audit Report by the Competent Authority will end the construction phase EMPr as successful and completed.

PART 1: GENERAL ENVIRONMENTAL SPECIFICATIONS

7. OVERVIEW OF THE GENERAL ENVIRONMENTAL SPECIFICATIONS

7.1 PURPOSE

This procedure describes the minimum standards for environmental management to which Contractors and sub-contractors on a construction site must comply. It is a generic standard for use across all construction works executed by the Environmental Authorisation Holder (EAH).

There may be project specific environmental standards in addition to the standards in this document, or that exceed the standards prescribed here. These project specific environmental standards will be described in the Project Environmental Specification (PES) that will be issued separately for each project (where relevant).

This document must be read in conjunction with the Environmental Authorisation Holder`s (EAH) Environmental Management Programme (EMPr).

7.2 SCOPE

This standard applies to Contractors that work on site under the authority of the Environmental Authorisation Holder (EAH).

7.3 STANDARDS FOR ENVIRONMENTAL MANAGEMENT

The Contractor shall identify the potential environmental impacts that may occur as a result of his/her activities and accordingly prepare separate Method Statements describing how each of these impacts will be prevented or managed so that the standards set out in this document are achieved. These Method Statements will be prepared in accordance with the requirements set out in the EMPr.

The Contractor will comply with the standards described below.

7.3.1 Site Planning and Establishment

1) The Contractor shall establish his construction camps, offices, workshops, staff accommodation and any other facilities on the site in a manner that does not adversely affect the environment. These facilities must not be sited close proximity to sensitive areas.

7.3.1.1 Site Plan

1) Before the onset of construction, the Contractor shall submit to the ECO for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

2) The Site Plan must as a minimum include but not be limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas.
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluents.

- Proposed areas for the stockpiling of topsoil and excavated spoil material.
- Demarcation of the construction footprint including areas not to be disturbed by the development.
- Location of sewage and sanitary facilities at the site offices and staff accommodation and all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of the ECO.
- The site offices should not be cited in close proximity to steep areas. It is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpile be located as far away as possible from any watercourse as possible.

7.3.1.2 Identification and Establishment of Suitable Access Routes/Roads

1) Existing access routes to the construction/works area must be used as far as possible. The building of access roads must be restricted to within the development footprint to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimise erosion and dust generation.

7.3.1.3 Demarcation of Site Limits

1) Prior to the commencement of construction, the actual site to be developed must be clearly demarcated by means of highly visible barriers such as fences and orange snow netting. Vegetation within the demarcated zone may be cleared. Disturbance of vegetation outside of the demarcated development footprint is not permitted.

2) All plant, material and equipment required for construction must be located within the designated areas. Laydown areas must be clearly demarcated within the site limits. No activities are allowed outside of the demarcated development footprint.

7.3.1.4 Eating Areas

1) The Contractor is responsible for providing temporary shade areas within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bags must be provided at all established eating areas.

7.3.1.5 Effluent Management

1) All effluent water from site shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water courses (streams, rivers, pans, dams, etc.) Only domestic type wastewater shall be allowed to enter the designated system.

7.3.2 Sewage and Sanitation

1) The Contractor is responsible for providing adequate sanitary facilities to all workers on site and for enforcing the proper use of these facilities. Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as “enviro loos”, or the use of chemical toilets which are supplied and maintained by a suitably qualified sub-contractor. The type of sewage treatment will depend on the location of the site and the surrounding land uses, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 100 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis.

2) Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of open area (i.e. the veldt) shall not, under any circumstances, be allowed.

3) Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding and high winds. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the ECO.

4) The Contractor shall ensure that there are separate toilet facilities for male and females on site at a ratio of one facility for every 10 employees.

7.3.3 Waste Management

1) Waste is grouped into "general" or "hazardous", depending on its characteristics. The classification determines handling methods and the ultimate disposal of the material.

2) General waste to be expected during construction includes the following;

- Trash (waste paper, plastics, cardboard, etc.) and food from construction personnel.
- Uncontaminated construction debris such as used wood and scrap metal.
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.

3) Hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to its inherent physical, chemical characteristics, such as toxic, ignitable, corrosive, carcinogenic other properties or toxicological characteristics of that waste have a detrimental impact on health and the environment.

4) The Contractor shall classify all wastes expected to be generated during the construction period.

5) Examples of typical construction waste which could be expected on the site and how they should be classified are indicated in the following table:

Table 1: Example of Construction Waste Classification.

WASTE	CLASSIFICATION	
	HAZARDOUS	GENERAL
Aerosol containers	X	
Batteries, light bulbs, circuit boards, etc.	X	X
Clean soil		X
Construction debris contaminated by oil or organic compounds	X	
Domestic waste		X
Empty drums (depends on prior use)	X	X
Empty paint and coating containers		X
Explosive waste	X	
PCB waste	X	
Rubble (not contaminated by oil or organic compounds)		X
Waste cable		X
Waste plastic		X
Waste paint and/or solvent	X	
Waste oil	X	
Waste concrete		X
Waste containing fibrous asbestos	X	

Waste timber		X
Sewerage sludge	X	
Scrap metal		X
Chemically-derived sanitary waste	X	

6) A hierarchical control approach to waste management is encouraged. Waste should preferably be managed in the following order of preference:

   1. **Avoidance:** using goods in a manner that minimises their waste components.
   2. **Reduction:** reduction of the quantity and toxicity of waste generated during construction.
   3. **Re-use:** removing an article from a waste stream for use in a similar or different purpose without changing its form or properties.
   4. **Recycling:** separating articles from a waste stream and processing them as products or raw materials.
   5. **Recovery:** reclaiming particular components or materials, or using the waste as a fuel.
   6. **Treatment:** processing of waste by changing its form or properties in order to reduce toxicity and quantity.
   7. **Disposal:** burial, deposit, discharge, abandoning or release of waste.

7) The Contractor is responsible for the removal of all waste from site generated through the Contractor`s activities. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: www.sawic.org.za).

8) The Contractor shall manage **HAZARDOUS WASTE** anticipated to be generated by his operations as follows:

   1. Characterise the waste to determine if it is general or hazardous.
   2. Obtain and provide an acceptable container with correct classification label.
   3. Place hazardous waste material in allocated container.
   4. Inspect the container on a regular basis as prescribed by the Contractor's waste management plan.
   5. Track the accumulation time for the waste.
   6. Haul the full container to the disposal site.
   7. Provide documentary evidence of proper disposal of the waste.

9) The Contractor`s Environmental Officer will work in conjunction with the Contractor`s construction safety and industrial hygiene personnel to create a Hazardous Materials Management Program. This program will establish the necessary protocol for proper handling and removal of hazardous materials on the site.

10) Information on each hazardous substance will be available to all persons on site in the form of Material Safety Data Sheets (MSDS). Training and education about the proper use, handling, and disposal of the material will be provided to all workers handling the material.

11) The Contractor`s Environmental Officer must be informed of all activities that involve the use of hazardous substances to facilitate prompt response in the event of a spill or release.

12) The Contractor shall manage **GENERAL WASTE** that is anticipated to be generated by operations as follows:

   1. Determine if waste is non-hazardous and obtain containers for waste storage.
   2. Notify waste hauler when container is full so that it can be removed and replaced with an empty.
   3. No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor.
   4. Provide documentary evidence of proper disposal of waste.

13) The Contractor shall recycle **GENERAL WASTE** (as far as practically possible) that is anticipated to be generated by its operations as follows:

1. Obtain and label recycling containers for the following (whichever relevant) and locate within temporary office building and trailers:
- Office Waste;
- Aluminium;
- Steel;
- Glass;
- Ferrous Metals; Non Ferrous Metals; and
- Waste Timber

2. Establish recycled material collection schedule.
3. Arrange for full bins to be hauled away.

14) Spent batteries, circuit boards, and bulbs, while non-hazardous, require separate storage, special collection and handling.

15) **No burning, burying or dumping of waste of any kind will be permitted**.

16) The Contractor shall quantify all waste disposed of, whether general or hazardous (including waste disposed of by any sub-contractors) and keep record of these quantities on site.

7.3.4 Workshops, equipment maintenance and storage

1) Al vehicles and equipment must be kept in good working order to maximize efficiency and minimise pollution. Maintenance, including washing and refuelling of plant on site must be done at designated locations at workshop areas. These designated areas must be agreed with the ECO. The Contractor must ensure that no contamination of soil or vegetation occurs around workshops and plant maintenance facilities. All machinery servicing areas must be bunded. Drip trays should be used to collect used oil, lubricants and other during maintenance. Drip trays must be provided for all stationary plant. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided.

7.3.5 Vehicle and Equipment Refuelling

7.3.5.1 Stationary/Designated Refuelling

1) No vehicles or machines shall be serviced or refuelled on site except at designated servicing or refuelling locations. No oil or lubricant changes shall be made except at designated locations, or in case of breakdown or emergency repair.

2) The Contractor shall store fuel and oil at a secure area, which shall be bunded to contain 110% of the total volume within the bund and designed with an impervious layer or liner or paved surface to prevent spillage from entering the ground.

3) The Contractor shall provide details of its proposed fuel storage and fuelling facility to the ECO for approval. The design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction – and Hazardous Chemical Substances Regulations.

7.3.5.2 Mobile Refuelling

1) In certain circumstances, the refuelling of vehicles or equipment in a designated area is not a viable/practicable option and refuelling has to be done from a tank, truck or container moved around on site. In such circumstances, the Contractor may request approval from the ECO to conduct mobile refuelling subject to the following control measures:

    1. Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be split during transfer.
    2. Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
    3. Mobile refuelling units are to be operated by a designated competent person.
    4. The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refuelling equipment on vehicles may only be filled to 90% carrying capacity.
    5. Mobile fuelling tanks must be stored in an area where they are not susceptible to collisions. The fuel storage area must be located away from drainage channels.
    6. Mobile refuelling operations shall not take place within 15 meter of any residential buildings, or 7.5 meter from other structures, property lines, public ways or combustible storage.
    7. All mobile refuelling tanks are to be properly labelled and fire extinguishers shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

7.3.6 Spill Response

1) The Contractor shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to sensitive environmental attributes.

2) The Contractor shall provide details for approval by the ECO of its spill response plan in the event of any spills of fuel, oils, solvents, paints or other hazardous materials. The plan will show measures to be taken in removing contaminated material from site and demonstrate complete removal of contamination.

3) The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

    1. Immediately repair all leaks of hydrocarbons or chemicals.
    2. Take all reasonable means to prevent spills or leaks.
    3. Do not allow sumps receiving oil or oily water to overflow.
    4. Prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals.
    5. Do not discharge oil or contaminants into storm water or sewer systems.

4) If a spill occurs on land, the Contractor must:

    1. Immediately stop or reduce the spill.
    2. Contain the spill.
    3. Recover the spilled product.
    4. Remediate the site.
    5. Implement actions necessary to prevent the spill from contaminating groundwater or off-site surface water.
    6. Dispose of contaminated material to a location designated thereto.

5) Any spill to water has the potential to disperse quickly; therefore, the spill must be contained immediately using appropriate containment equipment.

6) If a spill to water occurs, the Contractor must:

    1. Take immediate action to stop or reduce the spill and contain it.
    2. Notify the appropriate on-site authorities.
    3. Implement actions necessary to prevent the spread of the contamination by deploying booms and/or absorbent material.
    4. Recover the spilled product.
    5. Properly dispose of spilled material.

7.3.7 Spray Painting and Sandblasting

1) Spray painting and sandblasting should be kept to a minimum. All painting should, as far as practicable, be done before equipment and material is brought on site. Touch-up painting is to be done by hand painting or by an approved procedure. A Method Statement shall be submitted to the ECO for approval.

2) The relevant Contractor will inform the ECO of when and where spray painting or sandblasting is to be carried out prior to commencement of work. The Environmental Officer will monitor these activities to ensure that adequate measures are taken to prevent contamination of the soil.

3) If the area is in confined or high (elevated) area, a protection plan must be issued for approval.

7.3.8 Dust Management

1) Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the bin of the vehicle shall be covered with a tarpaulin to prevent dust.

2) Dust is to be controlled on unpaved access roads and site roads using sprayed water. Contractors are responsible for managing dust generated as a result of their activities.

3) Some dust control measures which are normally applied during construction are presented in this section for inclusion by the Contractor in his Dust Control Method Statement:

    1. Operate vehicles within speed limits, where no speed limit has been specified the limit shall be 20 km/h.
    2. Wash paved surfaces within the construction area twice a week.
    3. Minimise haulage distances.
    4. Apply water to gravel roads with a spraying truck when required.
    5. Environmentally friendly soil stabilisers may be used as additional measures to control duct on gravel roads and construction areas.
    6. Dust suppression measures will also apply to inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more).
    7. Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation.
    8. Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, runoff, and air-borne dust.
    9. Implement as system of reporting excessive dust conditions by construction personnel (as instructed through Environmental Awareness Training).

4) Water for dust control shall only be taken from approved sources.

7.3.9 Storm Water and Dewatering Management

1) The Contractor shall be aware that, apart from runoff from overburden emplacements and stock piles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and that contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertiliser from rehabilitated areas, etc.

2) The Contractor shall take note that discharges to controlled waters such as the sea, rivers, and groundwater or to sewerage systems are controlled under South African Water Legislation.

3) The following specific measures are required:

    1. Temporary drainage must be established on site during the construction period until permanent drainage is in place. Contractors are responsible for maintaining the temporary drainage in their areas. Contractors must provide secondary drainage that prevents erosion.
    2. Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.
    3. The Contractor shall clear stagnant water.
    4. The Contractor shall ensure that no contaminated surface water flows off-site as a result of Contractor operations. Silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where slit traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project.
    5. If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities. The dewatering water shall be contained within the site boundaries by sequentially pumping or routing water to and from sub-area within the site as the construction activities precede. No discharge/dewatering to off-site land or surface water bodies will be allowed.
    6. On-site drainage shall be accomplished through gravity flow. The surface drainage system shall consist of mild overland slopes, ditches, and culverts. The graded areas adjacent to buildings shall be sloped away with a 5 %. Other areas shall have a minimum slope of 0.2% or as otherwise indicated.
    7. Ditches shall be designed to carry a 25-year storm event with velocities in accordance to minimise erosion. Erosion protection shall consist of suitable stabilising surfaces in all ditches.
    8. Culverts shall be designed to ensure passage of the 50-year storm peak runoff flow.

7.3.10 Erosion Control

1) Both structural and non-structural (vegetative) erosion control measures will be designed, implemented, and properly maintained in accordance with best management practices which will include the following:

    1. Scheduling of activities to minimise the amount of disturbed area at any one time.
    2. Implementation of re-vegetation as early as feasible.
    3. Limiting construction traffic and/or avoidance thereof on access roads and areas to be graded to the extent feasible at drainage ditches.
    4. Compacting loose soil as soon as possible after excavation, grading, or filling.
    5. Using slit fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins, and gravelled roads to minimise transport of sediment.
    6. Implementing the erosion and sedimentation control plan and ensuring that construction personnel are familiar with and adhere to it.
    7. Managing runoff during construction.
    8. The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

7.3.11 Rehabilitation

1) Contractors shall rehabilitate the entire site upon completion of work. A rehabilitation plan will be submitted to the Construction Manager for approval at least six weeks before completion. The following are critical issues to be included in the rehabilitation plan:

    1. Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use.
    2. A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified botanist should be sought in developing this list.
    3. Procedures for watering the planted areas (frequency of watering, methodology proposed, etc.)
    4. An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful).
    5. Procedures for the prevention of the establishment and spread of alien invasive species.

7.3.12 Noise Management

1) Keep all equipment in good working order.
2) Operate equipment within its specification and capacity and don`t overload machines.
3) Apply regular maintenance, particularly with regards to lubrication.
4) Operate equipment with appropriate noise abatement accessories, such as sound hoods.
5) Sensitive social receptors shall be notified of any excessive noise-generating activities that could affect them.
6) Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004, so that it will not produce excessive or undesirable noise when released.
7) All the Contractor`s equipment shall be fitted with effective exhaust silencers and shall comply South African Bureau of Standards recommended code of practice, SANS 10103:2004, for construction plant noise generation.
8) All the Contractor`s vehicles shall be fitted with effective exhaust silencers and shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road.
9) If on-site noise control is not effective, protect the victims of noise (e.g. ear-plugs) by ensuring that all noise-related occupational health provisions are met (Occupational Health and Safety Act, (Act 85 of 1993)).

7.3.13 Protection of heritage resources

7.3.13.1 Archaeological Sites

1) If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery inform the engineer of such a discovery. The South African Heritage Resources Agency (SAHRA) is to be contacted and will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist.

7.3.13.2 Graves and middens

2) If a grave or midden is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the graves/middens shall be stopped and the EAH`s Construction Manager informed of the discovery. The South African Heritage Resources Agency (SAHRA) should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

7.3.14 Fire Prevention

1) Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites. All conditions incorporated in the requirements of the Occupational Health and Safety Act shall be implemented.

7.3.15 Water Protection and Management

1) No water shall be abstracted form any water resource (stream, river, or dam) without the express permission of the ECO. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has been obtained from the Department of Water Affairs in accordance with the requirements of the National Water Act (Act 36 of 1998).

2) Water for human consumption shall be available at the site offices and at other convenient locations on site. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site.

3) The Contractor shall keep record of the quantities of water used during construction (including use by sub-contractors), irrespective of the purpose of use.

7.3.16 Protection of Fauna and the collection of firewood

1) On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction works.

2) On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the creature from site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

3) The Contractor shall provide adequate facilities for all his staff so that they are not encouraged their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

7.3.17 Environmental Awareness Training

1) An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

2) Objectives of environmental awareness training are:

    1. Environmental Management – protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.
    2. Regulatory compliance – complying with requirements contained in project-specific permit conditions, also complying with requirements in regional and local regulations.
    3. Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the proper person for solution.

4. Liability control – non-compliance with regulatory requirements can lead to personal and corporate liability.

3) All individuals on the Project construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health and Environmental Sections and the least for the manual personnel.

4) The Contractor shall present environmental awareness programmes on a weekly/bi-monthly basis and keep record of all the environmental related training of the personnel.

7.3.18 Handling and Batching of Concrete and Cement

1) Concrete batching shall only be conducted in demarcated areas which have been approved by the ECO.

2) Such areas shall be fitted with a containment facility for the collection of cement-laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination. Drainage of the collection facility will be separated from any infrastructure that contains clean surface runoff.

3) The batching facility will not be placed in areas prone to floods or the generation of stagnant water. Access to the facility will be controlled so as to minimise potential environmental impacts.

4) Hand mixing of cement and concrete shall be done on mortarboards and/or within the bunded area with impermeable surface or concrete slab.

5) Bulk and bagged cement and concrete additives will be stored in an appropriate facility at least 10m away from any watercourse, gullies and drains.

6) Waste water collected in the containment facility shall be left to evaporate. The Contractor shall monitor water levels to prevent overflows from the facility. Water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste.

7) All concrete washing equipment, such shovels, mixer drums, concrete chutes, etc. shall be done within the washout facility. Water used for washing shall be restricted as afar as practically possible.

8) Ready-mix concrete trucks are not allowed to wash out anywhere other than in an area designated for this purpose.

9) The Contractor shall periodically clean out hardened concrete from the wash-out facility or concrete mixer, which can either be reused or disposed of as per accepted waste management procedures.

10) Empty cement and bags, if temporarily stored on site, must be collected and stored in weatherproof containers. Used cement bags may not be used for any other purpose and must be disposed of on a regular basis in accordance with the Contractor`s solid waste management system.

11) Sand and Aggregates containing cement will be kept damp to prevent the generation of dust.

12) Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a registered disposal facility. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained.

7.3.19 Clearance of Vegetation, Stockpiling and Soil Management

1) The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated.

2) The detail of vegetation clearing shall be subject to the ECO`s approval.

3) Before site clearance takes place, vegetation surveys will be conducted and protected species identified.

4) No protected plant species shall be removed without written consent from the relevant authorities.

5) Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works.

6) Vegetation clearance shall occur in a planned manner, and cleared areas shall be stabilised as soon as possible.

7) No vegetation located outside the construction site shall be destroyed or damaged.

8) The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site.

9) Stockpiling may only take place in designated areas indicated on the approved site layout plan. Sensitive areas shall be avoided in this regard.

10) Any area to be used for stockpiling or material laydown shall be stripped of all topsoil.

11) Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials.

12) Stockpiled soil shall be protected by adequate erosion-control measures.

13) Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation.

14) Topsoil shall be stockpiled separately from other materials and kept moist.

15) Excavated subsoil, where not contaminated, must be used for backfilling and topsoil for landscaping and rehabilitation of disturbed areas.

16) Where topsoil has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor.

17) Stockpiles (excluding ballast stockpiles) shall not exceed 2m in height unless otherwise permitted by the ECO.

18) As far as is reasonably practicable, existing roads must be used for access to site and right of way.

19) The development of new embankments or fill areas must be undertaken in consultation with the ECO.

20) No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

7.3.20 Traffic Management

1) Vehicles are not permitted to leave access roads.

2) Turning of vehicles should only take place within a clearly demarcated “turn area” located within the approved construction footprint.

3) The Contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any on time and that side-tracks are not created on the site.

4) Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

7.3.21 Transportation of Materials

1) The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of the CEMP and this Specification. Material must be appropriately secured to ensure safe passage between destinations during transportation. Loads must have appropriate cover to prevent spillage from the vehicles. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

7.3.22 Borrow Pits and Quarries

1) The Contractor shall make use of commercial suppliers for all rock and sand raw materials.

2) The Contractor shall ensure that any supplier is in possession of the required permit/license and keep record of the quantity of material supplied.

3) The Contractor will not make direct use of any borrow pits and quarries unless he has obtained written approval from the Construction Manager and Method Statement has been submitted.

4) The abovementioned Method Statement will provide the detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, safety and noise levels).

7.3.23 Social and Labour Issues

1) The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by SANParks in appointing the Contractor. The Contractor shall keep records of the identity of all staff.

2) Under no circumstances shall the Contractors engage in formal discussions with landowners without prior consent.

3) No activity on private property shall be allowed without written consent by the relevant landowner.

4) Any damage to private property caused by the Contractor during the construction period shall be repaired to the satisfaction of the Construction Manager.

5) The Contractor shall keep record of any complaint raised during the construction period relating to the Contractor`s activities.

6) No job-seekers shall be allowed on site.

7.3.24 Energy Management

1) The Contractor shall measure and keep updated records of the following:

    1. Electricity consumption (to be measured in Watt Hours)
    2. Fuel consumption (to be measured in litres)

7.3.25 Handling, Storage and Management of Hazardous Substances

1) All hazardous materials/substances shall be stored in a second, designated area that is fenced and has restricted entry.

2) All storage shall take place using suitable containers to the approval of the ECO.

3) All hazardous liquids shall be located in a secure, demarcated area and an adequate bund wall (110% of the total volume stored) shall be provided. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked liquids into the soil.

4) No possible spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area.

5) Hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure.

6) Weighbills of hazardous substances shall be sources from suppliers and kept on site for inspection by the ECO.

7) The Contractor must provide a method statement detailing the hazardous substances that are to be used during construction, as well as the storage, handling and disposal procedures for each substance. Emergency procedures in the event of misuse or spillage that might negatively affect the environment must be specified.

PART 2: PROJECT SPECIFIC ENVIRONMENTAL MANAGEMENT PROGRAMME

8. PROJECT SPECIFIC ENVIRONMENTAL SPECIFICATIONS

8.1 PROJECT INFORMATION

8.2 DESCRIPTION OF THE PROPERTY

The Farm Name, 21 Digit Surveyor General Code and Coordinates are given below.

Table 1: Description of the Applicable Property

Province/s	Limpopo
District Municipality/ies	Vhembe District Municipality
Local Municipality/ies	Musina Local Municipality
Ward number/s	2
Nearest town/s	Musina
Farm name/s and number/s	Farm Rhodes Drift 22-MS
Portion number/s	n/a
Current Zoning	Mapungubwe National Park (Schedule 1, National Park)
Present Land-use	Existing Rhodes Drift Staff Village
Ownership	South African National Parks ("SANParks")
Development footprint of the proposed development & associated infrastructure (ha)	Approx. 8 500m²

Table 2: 21 Digit Surveyor General Code

Farm Rhodes Drift 22-MS (Rhodes Drift Staff Village)																				
T	0	M	S	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
1	**2**			**3**				**4**								**5**				

Table 3: Coordinates

The co-ordinates are in degrees, minutes and seconds in the WGS84 spheroid projection.

Structure	Latitude (S):	Longitude (E):
Approx. centre point of development site	22°12'8.66"S	29°10'31.50"E

(Approx. 6 Corners of the Site) – Refer to Figure below.

Point	Latitude (S):	Longitude (E):
1	22°12'7.52"S	29°10'28.71"E
2	22°12'6.59"S	29°10'31.60"E

3	22°12'9.12"S	29°10'32.60"E
4	22°12'9.59"S	29°10'31.22"E
5	22°12'10.42"S	29°10'31.09"E
6	22°12'10.76"S	29°10'29.93"E

Figure : Approx. 6 Corners of the Site

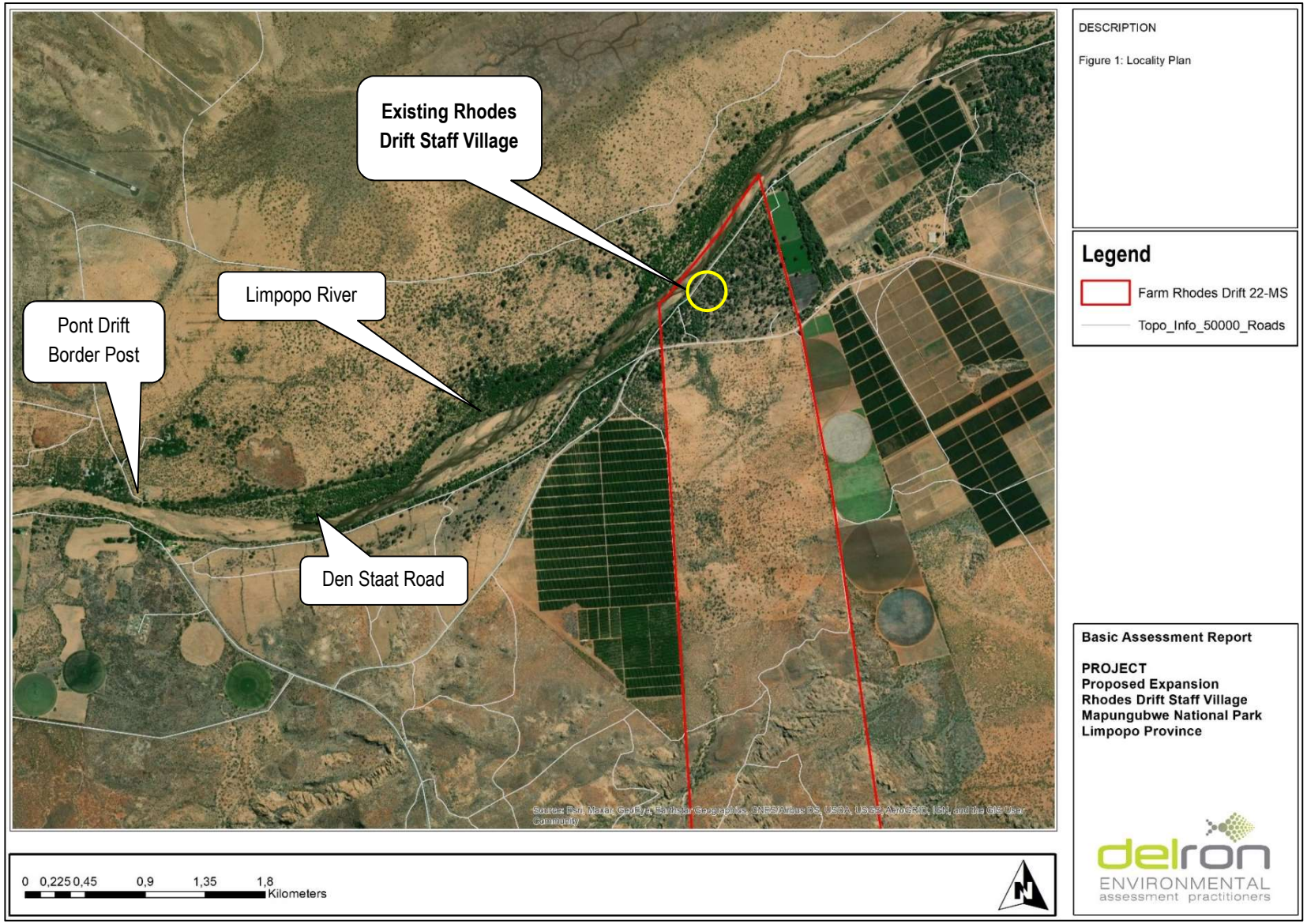
8.3 LOCALITY OF THE PROJECT

The Mapungubwe National Park is located on the border between South Africa, Zimbabwe and Botswana. It is located on the South African side of the confluence between the Shashe and Limpopo Rivers. The Limpopo River forms the northern boundary and the R572 and R521 Provincial tar roads form the southern and western boundaries respectively. The core stretches from the farm Rhodes Drift in the west for 35 km to the farm Riedel in the east, and from the Limpopo River in the north to the R572 tar road in the south.

The existing Rhodes Drift Staff Village and proposed expansion site is situated within the Mapungubwe National Park in the Vhembe District Municipality of the Limpopo Province. The subject site is located on the Farm Rhodes Drift 22-MS, approx. 3,8 km north-east from the R521 Intersection. The site is situated north and accessed from the Den Staat Road.

The locality of the site is shown on in Figure 1.

Figure 1: Locality Map



8.4 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

The proposed Rhodes Drift Staff Village expansion project comprises the following:

Staff Housing Units

- Construction of additional 10 (ten) x 2 bedroom staff housing units (floor size of each house is approx. 63m^2 and with a car port totalling approx. 70m^2 per unit).
- Total expansion footprint (structures and infrastructure) is approx. 8 500m^2.

Refer to **Figure 2: Site Layout Plan**

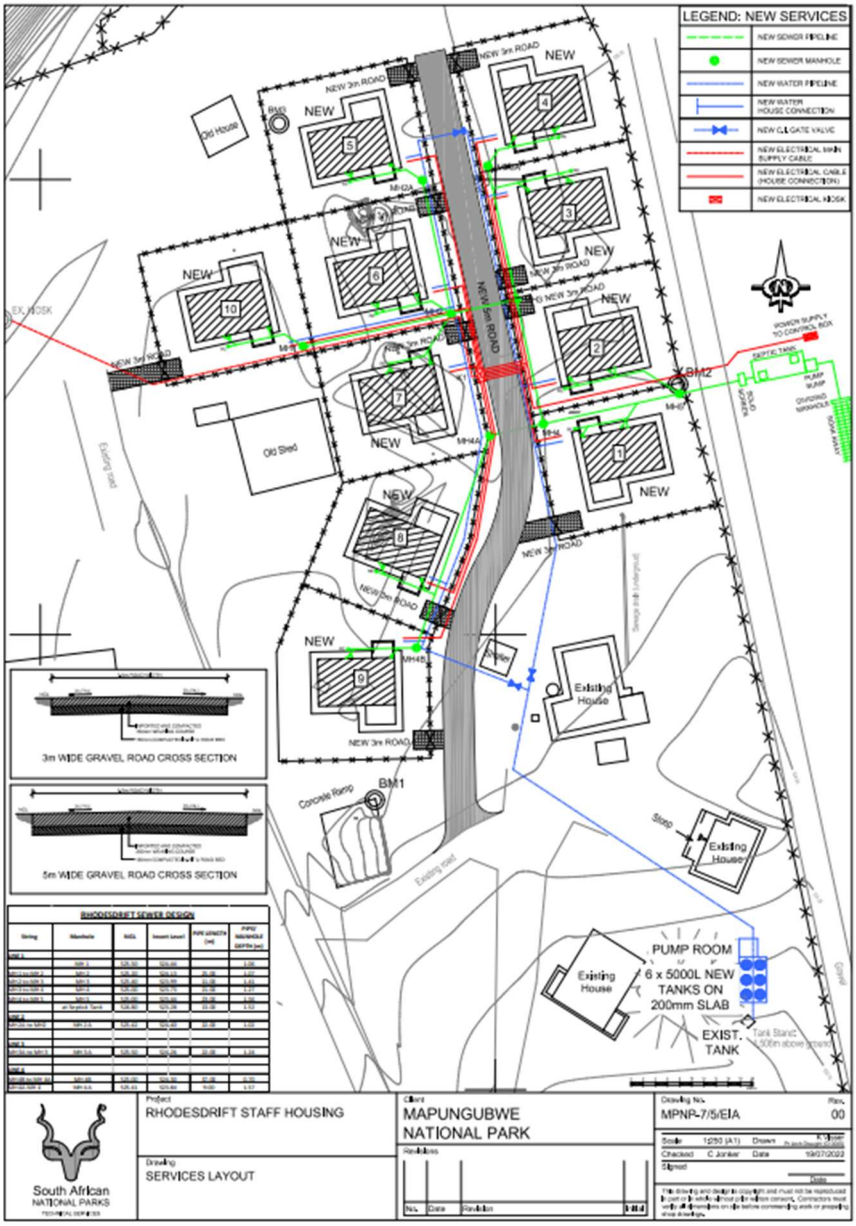


Figure 2: Site Layout Plan

Associated Infrastructure

- **Water**

Potable water is available on site by means of a borehole, which pump water to tanks situated on tank stands. An additional 6 tanks on a concrete slab needs be constructed next to the existing one to accommodate the additional water demand of the new units. The New and the Existing tanks will be connected to each other. From there it will go to the pump room which supply the new housing units with pressurised water.

The new water reticulation system will consist of the supply and installation of:

(i) New 6 x 5000L tanks on new concrete slab connected to the existing one tank on the tank stand.
(ii) New 3 x 3m pump station building with pressure pump set.
(iii) New 63mm Ø HDPE main pipeline from the Pump room to each unit.
(iv) New house connections with water meters at each unit.

Water Demand

- 10 houses x 5 people/house x 200L/person/day = 10 000L/day
- Additional Water storage of 30 000L will be provided.

- **Sewerage**

All sewerage and grey water effluent from the new units, will be diverted to a new septic tank with a pump-sump from there the grey water will be dispersed to a soak-away system.

The new sewage system will consist of the supply and installation of:

(i) New 110mm Ø uPVC pipeline from each building and between manholes up to the septic tanks.
(ii) Construction of new septic tank with pump-sump and soak-aways.
(iii) Installation and commissioning of sewer pumps.

Sewerage Production and Treatment

- 10 houses x 5 people/house x 200L/person/day = 10 000L/day x 85% = 8 500L/d
- Septic Tank Size = 8,6m x 2,4m x 1,5m = 30,96m^3 = 30 960L (3 days Retention)

- **Electricity**

- **Transformer** - The current Eskom power supply is 50KVA. The current load will not be adequate, thus the total power reticulation need to be upgraded. Transformer upgrade will be a pole mounted 100/150KVA Eskom distribution point.

- **Routing** - Current infrastructure will be upgraded to accommodate the ten new houses. Cables will be installed with the planned water reticulation infrastructure. Some cabling will need to be upgraded to accommodate load requirement needs.

- **Cable and trenching** - The required trenching at a cable depth of 900mm with relevant danger tape accompanying the cable at 600mm.

- **Kiosks and cabling** - The three existing kiosks require an upgrade and two new kiosks will be implemented in the proposed building construction zone. The cabling will vary with distances from 200 to 300 m intervals from point of supply to point of use kiosk distribution lengths will vary.

- **Outer lights** - Pole mounted lights will be along the road side at 30-50m intervals.

- **Roads**

The new access road to the new Housing Units will start from where the existing one ends. It will be a 5m wide gravel road, 200mm thick.

- Access Road – 140 meter staff village's access road.
- Yard Access – 85 meter internal access to each house – 10 units in total.

The current conditions can be summarised as follows:

There is currently no internal road in the development. The area is veld and the in-situ material is mostly clay. The area is free draining from stormwater.

It is proposed that the following minimum standard be implemented.

Taking in to account the following:
- Low traffic volumes;
- Weather conditions;
- In-situ clay material;
- Available road construction material; and
- Future maintenance requirements.

- **Road Structure**
  - Access road. To be constructed with a 250mm thick and 5m wide dolerite layer.
  - Yard access. To be constructed with a 150mm thick and 3m wide dolerite layer.

- **Stormwater**
  - The road surface will be free draining.
  - The total road length and land profile justify no additional stormwater systems.

The construction methodology can be listed as follows:

- Establishing road construction plant at development (excavator, grader, tip trucks watercart and roller).
- Excavation and spoil of road prism material (clay and top soil).
- Compaction of excavation floor.
- Importation of road construction material and compact.

Road construction material will be sourced from active borrow pits within the Mapungubwe NP.

8.4 CONDITIONS ATTACHED TO ENVIRONMENTAL AUTHORISATION (EA)

RATING **0** = Non-Compliance **1** = Partial-Compliance **2** = Compliance **N/A** = Not Applicable

	CONDITIONS AS PER THE ENVIRONMENTAL AUTHORISATION	RATING	NOTES
Scope of Authorisation			

8.5 IMPACTS AND MITIGATION MEASURES FROM THE EIA

Vegetation Clearance

Receiving Environment	Ecology and Biodiversity (Flora and Fauna)
Key Considerations / Potential Impacts / Risks of the Development	(i) **Degradation, destruction or elimination of ecosystems** - Ecosystems will be permanently lost where structures and associated infrastructure consume land. Ecosystems may be disturbed or destroyed during construction. Many of the areas disturbed during construction, such as road verges and sidewalks, open space, cuttings and embankments, and construction camps will be rehabilitated after construction, but impacts will remain until rehabilitation has been implemented successfully. Even after rehabilitation, species diversity and ecosystem dynamics may not be the same as prior to the disturbance. (ii) **Ecosystem fragmentation**: A development may result in the fragmentation of an ecosystem, dividing it into smaller parts. Fragmentation may affect the integrity and stability of the ecosystem. Smaller habitats are more vulnerable and their ability to support the original number and diversity of species may be compromised. Detached / isolated units created by developments are often not able to support their original species composition. (iii) **Impacts on migration routes of wildlife** - In some instances, developments with their road networks, perimeter walls and fences, paved areas and other structures may create a barrier to movement of faunal species. When a development intersects or blocks the migration routes through which species travel to or from waterholes, feeding, breeding and birthing grounds and seasonal ranges, it may result in cessation of use of the migration route and increased mortalities. (iv) **Creation of habitats**: Gardens and landscaped areas often provide habitats for a variety of faunal species that would not have occurred in the area prior to the establishment of the development. Some species are attracted to commercial for various reasons, including protection from predators, good hunting conditions, good nesting sites, and ample food supplies at waste disposal sites, kitchens, fruit and vegetable gardens, bird feeding tables, etc. (v) **Impacts of pollution on fauna and flora -** Dust generated on unsurfaced roads and air pollution due to biomass burning may settle on nearby flora. Contaminated runoff from the development may reach aquatic ecosystems after entering watercourses. Water may be contaminated due to the use of herbicides, pesticides and fertilisers, and other hazardous chemicals; erosion and elevated silt loads; and inappropriate waste management and sanitation services. If the accumulation of pollutants is significant, it may become a problem for certain floral species if it interferes with pollination and photosynthesis, hormonal balances and nutrient uptake. It may also result in death of plant tissues. Consumption of these plants may impact on faunal species, especially those on the top of the food chain. (vi) **Introduction of species** - The seed bank contained in top layer of soil often contains dormant seeds of invasive species. The growth of these may be stimulated if the soil is disturbed or if the natural vegetation cover is damaged or removed. Invasive species, particularly those that specialise in colonising recently disturbed areas, may be introduced to an area during construction or may gain an advantage due to removal of naturally occurring species. Non-endemic vegetation species may be used for landscaping and stabilisation of cuttings and embankments. The introduction of new species may result in competition for resources, often to the detriment of naturally occurring species.

	(vii) **Firewood collection and poaching** can have a major impact on local floral and faunal populations. This may result in gradual habitat degradation, deforestation and depletion of fauna populations well beyond the immediate surroundings of the development.	
Alternative:	**Proposal**	**No-Go (Current staff village operations continue)**
Description of Impact on the Environment	**Impact Prediction - Ranking**	**Impact Prediction - Ranking**
Period	Planning & Construction & Operation	No Impact
Extent	Site Specific (1)	No Impact
Duration	Long Term (3)	No Impact
Consequence / Intensity / Severity	Low (1)	No Impact
Probability	Highly Probable (3)	No Impact
Irreplaceable loss of resources:	Marginal (2)	No Impact
Significance rating of impact prior to mitigation	**Medium (10)**	No Impact
Degree to impact mitigation	CO (-5)	No Impact
Significance rating of impact after mitigation	**Low (5)**	No Impact
Environmental Management Objective and Mitigation Measures	**Prevention** (i) Planning must be consistent with Mapungubwe National Park (MPNP) and World Heritage Site Integrated Park Management Plan (2019-2028). (ii) Planning must be consistent with Limpopo Conservation Plan version 2 (2013). **Minimisation** (i) Ensure compliance with applicable legislation, such as the National Environmental Management Act, the National Environmental Management: Biodiversity Act, the National Environmental Management Protected Areas Act, the National Water Act, the National Forest Act, the Conservation of Agricultural Resources Act and the National Veld and Forest Fire Act. (ii) Indigenous vegetation which does not interfere with the safe construction and operation of the staff village shall be left undisturbed. (iii) Protected or endangered species may occur near the construction site. Special care should be taken not to damage such species. (iv) Limit vegetation clearing to development footprint. (v) Limit removal of indigenous tree species to a minimum. (vi) Debris through vegetation clearing shall not be burned under any circumstances. (vii) Landscaping with naturally occurring species to maintain ecosystem integrity. (viii) Avoid the establishment of invasive species. (ix) Control poaching and firewood collection.	

	(x) Trees, shrubs, grass, natural features and topsoil which are not removed during vegetation clearance shall be protected from damage during operation of the staff village. **Compensation** (i) Conservation, rehabilitation or creation of ecosystems to 'replace' damaged or destroyed ecosystems in the case of unavoidable loss of highly sensitive ecosystems. **Monitoring** (i) Integrity of vegetation cover. (ii) Presence of invasive species. **Enhancement** (i) Eradicate existing exotic species. (ii) Rehabilitate previously disturbed ecosystems and creation of alternative habitats.

Heritage Resources

Receiving Environment	**Heritage Resources (Cultural, Historical and Pre-Historical)**	
Key Considerations / Potential Impacts / Risks of the Development	This impact relates to potential effects construction activities may have on existing archaeological artefacts (if any). Impact on structures and sites of architectural heritage and value (buildings, bridges etc.). Impact on structures and sites of cultural heritage (stonewalls, kraals etc.). Impact on structures and sites of historic heritage (battlefields etc.). Impact on sites of archaeological or palaeontological importance (prehistoric, Iron-age etc.). Impact on sites used in traditional rituals or events. Impact on sites or areas of religious or spiritual significance (holy places, graveyards etc.). Impact on integrity of cultural resources. Impact on level of disturbance due to improved access (destruction, vandalism, collectors etc.).	
Alternative:	**Proposal**	**No-Go (Current staff village operations continue)**
Description of Impact on the Environment	**Impact Prediction - Ranking**	**Impact Prediction - Ranking**
Period	Planning & Construction & Operation	No Impact
Extent	Site Specific (1)	No Impact
Duration	Long Term (3)	No Impact
Consequence / Intensity / Severity	Low (1)	No Impact
Probability	Improbable (1)	No Impact
Irreplaceable loss of resources:	No loss of resource (1)	No Impact
Significance rating of impact prior to mitigation	**Medium (7)**	No Impact

Degree to impact mitigation	CO (-5)	No Impact
Significance rating of impact after mitigation	**Low (2)**	No Impact
Environmental Management Objective and Mitigation Measures	**Prevention** (i) Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the HIA. (ii) Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance. (iii) All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material before construction recommences.	

8.6 GENERAL AND SPECIFIC ENVIRONMENTAL CONTROLS EMPR

NOTE: (EA-71) In the event of any conflicting mitigation measures and conditions of the Environmental Authorisation, the specific condition of this Environmental Authorisation will take preference.

8.6.1 Appointment of ECO - EA & EMPr Monitoring

Management Objective: To ensure that a project's actual environmental impacts are consistent with those evaluated in the (EIA) process.					
Management Outcome: EA & EMPr Compliance					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
• 29. The holder of the authorisation must appoint an experienced independent Environmental Control Officer (ECO) or a section ranger for the construction phase of the development that will have the responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in this environmental authorisation are implemented and to ensure compliance with the provisions of the approved EMPr. • 29.1 The ECO or a section ranger must be appointed before commencement of any authorised activities. • 29.2 Once appointed, the name and contact details of the ECO or a section ranger must be submitted to the Director: Compliance Monitoring of the Department. • 29.3 The ECO or a section ranger must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO or a section ranger. • 29.4 The ECO or a section ranger must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation. • 30. All documentation e.g. audit / monitoring / compliance reports and notifications, required to be submitted to the Department in terms of this environmental authorisation, must be submitted to the Director: Compliance Monitoring of the Department. • 31. The holder of the environmental authorisation must, for the period during which the environmental authorisation and EMPr remain valid, ensure that project compliance with the conditions of the environmental authorisation and the EMPr are audited, and that the audit reports are submitted to the Director: Compliance Monitoring of the Department. • 32. The frequency of auditing and of submission of the environmental audit reports must be as per the frequency indicated in the EMPr, taking into account the processes for such auditing as prescribed in Regulation 34 of GN R. 982, as amended.	SANParks	Pre-construction	Contract	Once off / As necessary	Notice to DFFE - Director: Compliance Monitoring of the Department.

• 33. The holder of the authorisation must, in addition, submit environmental audit reports to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities. • 34. The environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations, 2014, as amended and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the approved EMPr. • 35. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development. • 36. A written notification of commencement must be given to the Department no later than fourteen (14) days prior to the commencement of the activity. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number. • 37. A written notification of operation must be given to the Department no later than fourteen (14) days prior to the commencement of the activity operational phase. • 72. A copy of this environmental authorisation, the audit and compliance monitoring reports, and the approved EMPr. must be made available for inspection and copying - • 72.1. at the site of the authorised activity; • 72.2. to anyone on request; and • 72.3. Where the holder of the environmental authorisation has a website, on such publicly accessible website.					

8.6.2 Environmental Awareness Training

Management Objective: Environmental training of construction staff minimises the occurrence of environmental impact to the work area.					
Management Outcome: Environmental impact as a result of construction activities is minimised through the development of effective environmental awareness training material and execution of environmental awareness training all staff					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance

1. All staff to receive environmental awareness training; 2. All staff are aware of the conditions and controls linked to the EA and within the EMPr; 3. All staff are made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; 4. Environmental awareness training should include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Disease prevention; and k) Chance find procedure for archaeological/paleontological/historical sites unearthed during construction; 5. A record of all environmental awareness training courses undertaken as part of the EMPr must be available; 6. A staff attendance register of all staff to have received environmental awareness training must be available.	Contractor	Pre-construction	Conduct training for all construction personnel.	Start of construction & Monthly	ECO

8.6.*3* Construction Site Establishment

Management Objective: Ensure that environmental issues are taken into consideration in the planning and construction of site establishment					
Management Outcome: Impact to the environment during site establishment is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. A Method Statement shall be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management.	Contractor	Pre-construction	Monitor compliance and record non-compliance and incidents.	Before construction	Method Statements ECO and Project Manager

2. Location of construction camps must be carefully considered and approved by the ECO to ensure that the site does not impact on sensitive areas identified in the EIA or site walk through. 3. Sites should be located where possible on previously disturbed areas; and 4. The construction camp shall be fenced. • (EA – 40)The holder of this environmental authorisation must restrict the construction activities to the footprint area. • (EA – 42) The holder of this environmental authorisation must take note that no temporary site camps will be allowed outside the footprint of the development area as the establishment of such structures might trigger a listed activity as defined in the Environmental Impact Assessment Regulations, 2014, as amended.					

8.6.4 No-Go Areas

Management Objective: Construction related activity inside No-Go areas is prevented in an effort to avoid environmental impacts to such areas.					
Management Outcome: Impact to No-Go areas is avoided through the effective demarcation and management of these areas.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Identification of No-Go areas is to be informed by the BA/EIA and any additional areas identified during construction. 2. Prior to the commencement of construction, the actual site to be developed must be clearly demarcated by means of highly visible barriers such as fences and orange snow netting. Vegetation within the demarcated zone may be cleared. Disturbance of vegetation outside of the demarcated development footprint is not permitted. 3. All plant, material and equipment required for construction must be located within the designated areas. Laydown areas must be clearly demarcated within the site limits. No activities are allowed outside of the demarcated development footprint. • (EA-39) No activities will be allowed to encroach into a water resource without a water use authorisation being in place from the Department of Water and Sanitation (DWS). • (EA-41) Construction activities must be restricted to demarcated areas in order to restrict impacts on sensitive environmental features. • (EA-48) Water bodies outside the approved footprint of the proposed development must be treated as 'no-go' areas and demarcated as such. No vehicles, machinery, personnel, construction material, fuel, oil, bitumen or	Contractor & ECO	Pre-construction	Demarcation Sensitivity Plan	Before construction	Demarcation ECO and Project Manager

waste must be allowed into these areas without the express permission of and supervision of the ECO or a section ranger, except for rehabilitation work in these areas. • (EA-54) All geological features should be regarded as sensitive and as such must be treated as "no-go" area. • (EA-65) Contractors and construction workers must be clearly informed of the 'no-go' areas. The 'no-go' areas must be clearly demarcated and must be avoided.					

8.6.5 Access Roads

Management Objective: Minimise impact to the environment through the planned and controlled movement of vehicles on site.					
Management Outcome: Vehicle movement to adhere to agreed access plan.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Existing access routes to the construction/works area must be used as far as possible. The building of access roads must be restricted to within the development footprint to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimise erosion and dust generation. 2. Access roads shall be constructed in accordance with design standards (SANS 1200). • (EA-50) Existing road infrastructure must be used for providing access to the site. • (EA-51) Signs must be placed along construction road to identify speed limits, travel restrictions, and other standard traffic control information. • (EA-52) All construction vehicles must adhere to a low speed limit to avoid collisions with vulnerable species such as snakes and tortoises within the Park.	Contractor	Pre-construction & construction	Monitor compliance and record non-compliance and incidents.	Before construction & weekly	Method Statement ECO and Project Manager

8.6.6 Fencing and Gate Installation

Management Objective: To minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required					
Management Outcome: The erection of fencing and management of fencing is to be undertaken in accordance with the Fencing Act No 31 of 1963					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance

1. The Fencing Act No 31 of 1963 shall be adhered to at all times with regards to the leaving open of gates and the dropping of fences for crossing, purposes, climbing and wilful damage or removal of gates. 2. Use existing gates provided to gain access to all parts of the defined Working Area, where possible. 3. All gates shall be fitted with locks and be kept locked at all times during the construction phase. 4. Where there is no suitable gate for access to the site, on the instruction of the Project Manager, a gate shall be installed. 5. Care shall be taken that the gates shall be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground. 6. Original tension shall be maintained in the fence wires. 7. All gates installed in electrified fencing must be re-electrified. 8. All demarcation fencing and barriers shall be maintained in good working order for the duration of construction activities. 9. Fencing shall be erected around the construction camp, batching plants, hazardous storage areas, and all designated no-go areas, where applicable. 10. All fencing shall be constructed of high quality material bearing the SABS mark. 11. Fenced areas with gate access will remain locked after hours, during weekends and on holidays if staff are away from site. Site security will be required at all times. 12. On completion of the project all temporary fences are to be removed and where possible re-used by the contractor at new projects. 13. The contractor will ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.7 Water Supply Management

Management Objective: Undertake responsible water usage during construction					
Management Outcome: Water use during construction is compliant with the requirements of the National Water Act (No 36 of 1998)					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis.	Contractor	Construction	Monitor compliance and record	Weekly	Method Statement

2. Should water abstraction be required and the necessary authorisation from DWS and permission from the landowner has been received, the Contractor shall ensure the following: a) The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b) No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c) All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. 3. Ensure water conservation is being practiced by: a) Minimising water use during cleaning of equipment; b) Undertaking regular audits of water systems; and c) Including a discussion on water usage and conservation during environmental awareness training.			non-compliance and incidents.		ECO and Project Manager

8.6.8 Waste Water Management

Management Objective: To avoid, manage and mitigate potential impacts to the environment caused by waste water discharge during construction.					
Management Outcome: Waste water management is undertaken in accordance with relevant national and provincial legislation and local by-laws.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Runoff from the cement/ concrete batching areas shall be strictly controlled, and contaminated water shall be collected, stored and either treated or disposed of off-site, at a location approved by the ECO. 2. All spillage of oil onto concrete surfaces shall be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility. 3. Natural storm water runoff not contaminated by construction operations and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO. 4. Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment shall be subject to the Project Manager's approval and support by the ECO. 5. Safe disposal certificates for the disposal of any waste spillage, including those that would be pumped from the sump and discharged at a hazardous landfill site by a specialist contractor, must be kept by the Licence Holder for a minimum of five years. This must be reflected in the EMPr.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

6. Waste disposal certificates for mobile chemical toilets, as described in the EMPr, must be retained for a minimum of five years and this must be reflected in the EMPr. • (EA-49) The ECO or a section ranger must conduct a routine monitoring of the site for any spillages and water pollution I contamination that can have potential impacts on fauna and flora.					

8.6.9 Solid Waste Management

Management Objective: To avoid, manage and mitigate potential impacts to the environment caused by the incorrect storage, handling and disposal of general and hazardous solid waste.					
Management Outcome: Solid waste management is undertaken in accordance with relevant national and provincial legislation and local by-laws.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All measures regarding waste management shall be undertaken using an integrated waste management approach – Refer to EMPr. 2. Waste is grouped into "general" or "hazardous", depending on its characteristics. The classification determines handling methods and the ultimate disposal of the material. 3. Waste must be separated at source (e.g. containers for glass, paper, metals, plastics, organic waste and hazardous wastes). 4. Sufficient, covered waste collection bins (scavenger and weatherproof) to be positioned strategically across the site at all working areas. 5. All waste collection receptacles must be provided with lids and an external closing mechanism to prevent their contents blowing out and must be scavenger-proof to prevent access by animals that may be attracted to the waste. 6. The entire site will be cleared of construction material, metal, tins, glass bottles, and food packaging or any other type of empty container or waste material or waste equipment used by the construction team on a daily basis. 7. The Contractor must dispose of all refuse generated on site or from the activities of construction or its related activities. The contractor must on a weekly basis dispose of all refuse at Twee Rivieren. 8. No refuse or litter is allowed to be burnt or buried on site. • (EA-58) Hazardous waste such as bitumen, oils, oily rags, paint tins etc. must be disposed of at an approved waste landfill site licensed to accept such waste.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

• (EA-59) No dumping or temporary storage of any materials may take place outside designated and demarcated laydown areas, and these must all be located within areas of low environmental sensitivity. • (EA-67) An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling and re-use options where appropriate. Where solid waste is disposed of, such disposal shall only occur at a landfill licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act 59 of 2008).					

8.6.10 Protection of Watercourses and Water Bodies

Management Objective: Construction related activity is undertaken in a manner which prevents impacts to watercourses, water bodies and wetlands.					
Management Outcome: Impact to No-Go areas is avoided through the effective demarcation and management of these areas.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All watercourses and water bodies shall be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities. 2. In the event of a spill, prompt action shall be taken to clear the polluted or affected areas. 3. Where possible, no construction equipment shall traverse any seasonal or permanent wetland. 4. No natural watercourse or water body shall be used for the purposes of swimming, personal washing and the washing of machinery or clothes. 5. Excavation or construction in a water course or wetland area shall be avoided unless exceptional circumstances require that excavation or construction cannot be avoided. 6. No excavation or construction shall be permitted within the 1:100 year flood line or riparian zone (whichever is the greatest) of a watercourse or within 500 m from the boundary of a wetland area without prior approval from the Competent Authority (DWS or Catchment Management Agency) in the form of a water use authorisation. 7. When working in or near any watercourse or wetland, the following environmental controls and consideration shall be taken: a. River levels during the period of construction; b. Construction within flowing water is to be minimised. All diversions shall be in place, water diverted away from the Working Area and the area properly stabilised prior to excavations commencing;	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

c. When working in flowing water, downstream sedimentation shall be controlled by installing and maintaining the necessary temporary sedimentation barriers, e.g. geotextile silt curtains or sedimentation weirs constructed out of suitably secured straw bales. Sedimentation barriers shall be a maximum of 25 m downstream of the construction activities; d. During the execution of the Works, appropriate measures to prevent pollution and contamination of the riverine environment shall be implemented e.g. including ensuring that construction equipment is well maintained; e. Where earthwork is being undertaken in close proximity to any watercourse, slopes shall be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and f. Appropriate rehabilitation and re-vegetation measures for the river banks shall be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as construction allows. • (EA-39) No activities will be allowed to encroach into a water resource without a water use authorisation being in place from the Department of Water and Sanitation (DWS). • (EA-48) Water bodies outside the approved footprint of the proposed development must be treated as 'no-go' areas and demarcated as such. No vehicles, machinery, personnel, construction material, fuel, oil, bitumen or waste must be allowed into these areas without the express permission of and supervision of the ECO or a section ranger, except for rehabilitation work in these areas.					

8.6.11 Vegetation Clearing

Management Objective: To ensure the safe construction and operation of the project without causing unnecessary environmental damage.					
Management Outcome: Vegetation clearance is minimised through adherence to EMPr vegetation clearance requirements.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Protected trees may not be cut, disturbed, damaged and/or destroyed except under license granted by the Department of Agriculture, Forestry and Fisheries. 2. The detail of vegetation clearing shall be subject to the ECO`s approval. Indigenous vegetation which does not interfere with the safe construction and operation of the project shall be left undisturbed.	Contractor	Construction	Monitor compliance and record non-	Weekly	ECO and Project Manager

3. The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated. 4. Before site clearance takes place, vegetation surveys will be conducted and protected species identified. 5. No protected plant species shall be removed without written consent from the relevant authorities. 6. Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works. 7. No vegetation located outside the construction site shall be destroyed or damaged. 8. The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site. 9. Alien vegetation on-site shall be managed in terms of the GNR 1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983; 10. Alien invasive vegetation should be removed immediately (in line with **Appendix 2: Alien Plant Species Eradication Plan**, relevant SANParks and provincial procedures, guidelines and recommendations) and disposed of at a licenced waste disposal facility. 11. The use of herbicides shall be in compliance with the terms and conditions of The Fertilisers, Farm, Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947). A register shall be kept of all relevant details of herbicide usage as stipulated in Act 36 of 1947. 12. Rivers, watercourses and other water bodies shall be kept clear of felled trees, vegetation cuttings and debris. 13. All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off if required in accordance with No-Go procedure. • (EA-46) Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but must be temporarily stored in a demarcated area. • (EA-68) Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983). • (EA-69) Relevant permits must be obtained from relevant authorities for any removal or destruction of Threatened or Protected Species (TOPs). • (EA-70) Before the clearing of the site, the appropriate permits must be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF) for the removal of plants listed in the National Forest Act and from the relevant provincial department for the destruction of species protected in terms of the specific provincial legislation. Copies of the permits must be kept by the ECO or a section ranger.			compliance and incidents.		

8.6.12 Protection of Fauna

Management Objective: Ensure care is taken to minimise disturbance to fauna during construction and potential future impact during the operation of the project.

Management Outcome: Impact to fauna is avoided during construction and mitigated during operation.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site an appropriately skilled person should be summoned to remove the creature from site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members. 2. No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as No-Go areas. 3. The Contractor or Contractor's Environmental Officer must monitor trenches/excavations at the start and end of each working day to check if any small animals are trapped. 4. The Contractor must ensure that the work site be kept clean, tidy and free of waste that would attract animals. • (EA-55) Animals crossing the road must always be given a right of way and hunting is not permitted within the Kalahari Gemsbok National Park (KGNP).	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.13 Protection of Heritage and Palaeontological Resources

Management Objective: Prevent damage and destruction to fossils, artefacts and materials of heritage significance					
Management Outcome: Impact to heritage resources is avoided					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section : No-Go areas; 2. Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; 3. All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Appendix 1 ECO and Project Manager

4. Monitoring reports of all development areas must be submitted to SAHRA upon completion of the construction phase; 5. 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; 6. 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; 7. 38(4)d – See section 51(1) of the NHRA; 8. 38(4)e – The following conditions apply with regards to the appointment of specialists: 9. i) If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; 10. The Final EMPr must be submitted to SAHRA for recorded purposes. 11. Should human remains be discovered at any stage, these should be reported to the Heritage Specialist and relevant authorities (SAHRA) and development activities should be suspended until the site has been inspected by the Specialist. The Specialist will advise on further management actions and possible relocation of human remains in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources Act (Act no. 25 of 1999) and any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials. **<u>Palaeontological Resources</u>** (i) The Environmental Control Officer (ECO) responsible for the tourism developments should be aware of the possibility of important fossils (e.g. shells, trace fossils, mammalian bones and teeth) being present or unearthed on site and should regularly monitor all substantial excavations into superficial sediments as well as fresh (i.e. unweathered) sedimentary bedrock for fossil remains;			Appendix 1		

(ii) In the case of any significant fossil finds made during construction, these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to the relevant heritage management authority, SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). This is so that appropriate mitigation (i.e. recording, sampling or collection) by a palaeontological specialist can be considered and implemented, at the developer's expense; and (iii) These recommendations are summarized as a tabulated Chance Fossil Finds Procedure in Appendix 1 and should be incorporated into the Environmental Management Plan (EMP) for the tourism projects. (iv) The palaeontologist concerned with recording and mitigation work will need a valid palaeontological collection permit from SAHRA. All work would have to conform to international best practice for palaeontological fieldwork and the study (e.g. data recording fossil collection and curation, final report) should adhere to the minimum standards for palaeontological heritage studies developed by SAHRA (2013). • (EA-64) Construction managers/foremen must be informed before construction starts of the possible types of heritage sites and cultural material that may be encountered and the procedures to follow when they find sites. • (EA-66) If concentrations of archaeological heritage material, fossils and human remains are uncovered during construction, all work must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) or a qualified archaeologist must be informed of such discovery so that a systematic and professional investigation / excavation can be undertaken.					

8.6.14 Safety of the Public

Management Objective: Reasonable measures are taken to ensure the safety of the public at all times during construction.					
Management Outcome: All precautions are taken where possible to minimise the risk of injury, harm or complaints.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance

1. Identify fire hazards, demarcate and restrict public access to work areas. 2. All unattended open excavations shall be adequately fenced or demarcated. 3. Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding. 4. Ensure structures vulnerable to high winds are secured. 5. Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.15 Sanitation

Management Objective: An abundant supply of suitably located, clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.					
Management Outcome: No pollution or disease arises on-site as a result of sanitation facilities or lack thereof.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Mobile chemical toilets are installed onsite if no other ablution facilities are available. 2. The use of ablution facilities and or mobile toilets shall be used at all times and no indiscriminate use of the veld for the purposes of ablutions shall be permitted under any circumstances. 3. Ablution facilities shall be located within 100 m of any work place and shall be numerous enough to accommodate the workforce (minimum requirement of 1:15 workers on site). 4. Where mobile chemical toilets are required, the following shall be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and shall be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; 5. A copy of the waste disposal certificates shall be maintained. • (EA-62) On site chemical ablution facilities must be available for the use of construction workers at the times during the construction period.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

• (EA-63) The ablution facilities must be removed from the site when the construction phase is completed as well as associated waste to be disposed of at a registered waste site.					

8.6.16 Prevention of Disease

Management Objective: All necessary precautions linked to the spread of disease during construction are taken.					
Management Outcome: The risk of the occurrence and spread of disease is minimised through the effective implementation of EMPr actions.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Undertake environmentally-friendly pest control in the camp area; 2. Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; 3. The Contractor shall ensure that information posters on AIDS are displayed in the Contractor Camp area; 4. Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; 5. Medical support shall be made available; 6. Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Monthly	ECO and Project Manager

8.6.17 Emergency Procedures

Management Objective: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.					
Management Outcome: All emergency situations are managed in accordance with the emergency procedures.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; 2. The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; 3. All staff shall be made aware of emergency procedures as part of environmental awareness training; 4. The relevant local authority shall be made aware of a fire as soon as it starts; 5. In the event of emergency necessary mitigation measures to contain the spill or leak shall be implemented (see Hazardous Substances section B.17).	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Monthly	Method Statement ECO and Project Manager

6. Any event resulting in a spill, as described in the BAR, of any hazardous substances (e.g. diesel), must be reported to all relevant authorities, including Directorate: Pollution and Chemicals Management, within 14 (fourteen) days. This requirement is in terms of Section 30 (10) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) that pertains to the control of emergency incidents and should include the reporting, containment and clean-up procedure of such incident and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes. Containment, clean-up and remediation must commence immediately in the case of NEMA Section 30 incidents. Kindly insert the former into the reporting procedure in the EMPr. • (EA-60) Leakage of fuel must be avoided at all times and if spillage occurs, it must be remedied immediately. • (EA-61) Spill kits must be made available on-site for clean-up of spills.					

8.6.18 Hazardous Substances

Management Objective: To minimise the risk of impact to the environment through the safe storage, handling, use and disposal of hazardous substances.					
Management Outcome: The management of hazardous substances is undertaken in accordance with the Hazardous Substances Act of 1973 (Act No. 15 of 1973), the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (Department of Water Affairs and Forestry, 1998) and Farm Feeds, Agricultural Remedies and Stock Remedies Act of 1947 (Act No. 36 of 1947) and National Environmental Management: Waste Act of 2008.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. The Occupational Health and Safety Act No 85 of 1993 to be complied with at all times; 2. The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; 3. All hazardous substances will be stored in suitable containers as defined in the Method Statement; 4. Containers will be clearly marked to indicate contents, quantities and safety requirements. 5. All storage areas will be bunded. The bunded area will be of sufficient capacity to contain a spill / leak from the stored containers; 6. An Alphabetical Hazardous Chemical Substance (HCS) control sheet will be drawn up and kept up to date on a continuous basis. All hazardous chemicals that will be used on site will have Material Safety Data Sheets; 7. All employees working with HCS will be trained in the safe use of the substance and according to the safety data sheet;	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

8. Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment (PPE) must be made available; 9. The Contractor shall ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; 10. The tanks/ bowsers shall be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); 11. The floor of the bund shall be sloped, draining to an oil separator; 12. Provision shall be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray shall be used to ensure small spills are contained; 13. All empty externally dirty drums shall be stored on a drip tray or within a bunded area; 14. No unauthorised access into the hazardous substances storage areas shall be permitted; 15. No smoking shall be allowed within the vicinity of the hazardous storage areas; 16. Adequate fire-fighting equipment shall be made available at all hazardous storage areas; 17. Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit shall be used. Appropriate ground protection such as drip trays shall be used as well; 18. An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance shall be available at all times; 19. The responsible operator shall have the required training to make use of the spill kit in emergency situations; 20. In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to relevant sections for procedures concerning waste water management and for solid waste management. • (EA-60) Leakage of fuel must be avoided at all times and if spillage occurs, it must be remedied immediately. • (EA-61) Spill kits must be made available on-site for clean-up of spills.					

6.8.19 Workshop, Equipment Maintenance and Storage

Management Objective: The control operation, maintenance and storage of equipment prevents soil, surface water and groundwater contamination		
Management Outcome: Soil, surface water and groundwater contamination is prevented as due to adherence of EMPr requirements		
Impact Management Actions	**Implementation**	**Monitoring**

	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; 2. During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil; 3. Leaking equipment must be repaired immediately or be removed from site to facilitate repair; 4. Workshop areas must be monitored for oil and fuel spills and such spills; 5. Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place shall be available; 6. The responsible operator of equipment must have the required training to make use of the spill kit in emergency situations; 7. The workshop area shall have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; 8. Water drainage from the workshop are shall be contained and managed in accordance the Section on Waste water management (EA-53) The holder of the environmental authorisation must ensure that all equipment and machinery are well maintained and equipped with silencers.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

8.6.20 Batching Plants

Management Objective: To control concrete and cement batching activities in order to prevent spillages and concomitant contamination of soil, surface water and groundwater environment.					
Management Outcome: The management, handling and storage of sand, stone and cement is undertake in accordance with the EMPr					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Concrete mixing shall be carried out on an impermeable surface (such as on boards or plastic sheeting and/or within a bunded area with an impermeable surface); 2. Concrete mixing areas must be fitted with a containment facility for the collection of cement laden water. This facility must be impervious to prevent soil and groundwater contamination; 3. Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains;	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

4. A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; 5. Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; 6. Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site in appropriate containers; 7. Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer Section to dust emissions) 8. Any excess sand, stone and cement must be removed from site on completion of construction period and disposed at a registered disposal facility if it cannot be reused; 9. Temporary fencing shall be erected around batching plants in accordance with Section: Fencing and gate installation.					

8.6.21 Dust Emissions

Management Objective: To reduce dust emissions during construction activities.					
Management Outcome: Minimal occurrence of dust due the adherence of EMPr requirements.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1) Material in transit should be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage onto the roads and the creation of dust clouds. If necessary, the bin of the vehicle shall be covered with a tarpaulin to prevent dust. 2) Dust is to be controlled on unpaved access roads and site roads using sprayed water. Contractors are responsible for managing dust generated as a result of their activities. 3) Water for dust control shall only be taken from approved sources. 4) Some dust control measures which are normally applied during construction are presented in this section for inclusion by the Contractor in his Dust Control Method Statement: • Operate vehicles within speed limits, where no speed limit has been specified the limit shall be 20 km/h. • Wash paved surfaces within the construction area twice a week. • Minimise haulage distances.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

• Apply water to gravel roads with a spraying truck when required. • Environmentally friendly soil stabilisers may be used as additional measures to control duct on gravel roads and construction areas. • Dust suppression measures will also apply to inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more). • Construction material being transported by trucks must be suitably moistened or covered to prevent dust generation. • Minimise disturbance of natural vegetation during right-of-way construction (e.g. transmission lines and erection of fences) to reduce potential erosion, runoff, and air-borne dust. • Implement as system of reporting excessive dust conditions by construction personnel (as instructed through Environmental Awareness Training). • (EA-57) Appropriate dust suppression techniques must be implemented on all exposed surfaces to minimise and control airborne dust. Such measures must include amongst others wet suppression, chemical stabilisation, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.					

8.6.22 Noise

Management Objective: To prevent unnecessary noise to the environment by ensuring that noise from construction activity is mitigated.					
Management Outcome: Noise management is undertaken in accordance with SANS 10103 and requirements of the EMPr.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. The contractor shall take into consideration that the project areas are located within a natural environment and that noise could be a major disturbance/nuisance for the fauna and visitors to the park. 2. Operating hours as determined by the environmental authorisation are adhered to during the construction phase. Where not defined, construction shall be limited to daylight hours. 3. Conduct noise monitoring tests, as required by the ECO or environmental authorisation. 4. Noise levels are to comply with ECA's 7dB rule i.e. cannot generate noise that increases the noise levels to 7db above the current ambient.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

8.6.23 Fire Prevention

Management Objective: To minimise the risk of fire during construction					
Management Outcome: Fire prevention measures are carried out in accordance with the National Veld and Forest Fire Act, 101 of 1998					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Designate smoking areas where the fire hazard could be regarded as insignificant; 2. Educate workers on the dangers of open and/or unattended fires; 3. No open fires shall be allowed on site under any circumstances; 4. Firefighting equipment shall be available on all vehicles located on site; 5. The local Fire Protection Agency (FPA) must be informed of construction activities; 6. Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site. • (EA-56) No unsupervised open fires for cooking or heating must be allowed on site and within the Park.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

8.6.24 Stockpiling and Stockpile Areas

Management Objective: To reduce potential erosion and sedimentation as a result of stockpiling of materials					
Management Outcome: Stockpiling management is undertaken in accordance with the requirements of the EMPr					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Stockpiles must be located at least 10 m away from storm water channels and drains, and at least 32 m away from any watercourse, water body or wetland, and on flat areas where runoff will be minimise. 2. Stockpiling may only take place in designated areas indicated on the approved site layout plan. Sensitive areas shall be avoided in this regard. 3. Any area to be used for stockpiling or material laydown shall be stripped of all topsoil. 4. Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials. 5. Stockpiled soil shall be protected by adequate erosion-control measures.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Monthly	Method Statement ECO and Project Manager

6. Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation. 7. Topsoil shall be stockpiled separately from other materials and kept moist. 8. Excavated subsoil, where not contaminated, must be used for backfilling and topsoil for landscaping and rehabilitation of disturbed areas. 9. Where topsoil has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor. 10. Stockpiles (excluding ballast stockpiles) shall not exceed 2m in height unless otherwise permitted by the ECO. • (EA-44) Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.					

8.6.25 Civil Works

Management Objective: Impact to the environment to be minimised during civil works.					
Management Outcome: Impact to the environment is minimised through adherence to EMPr requirements.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas; 2. Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; 3. These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; 4. Rehabilitation of the disturbed areas shall be managed in accordance with Section: Landscaping and rehabilitation; 5. Any blasting activities must be controlled and executed by a licensed person. Blasting activities must be well communicated with nearby communities; 6. All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a legally operated landfill site; 7. Spoil can however be used for landscaping purposes and must be covered with a layer of 150mm topsoil for rehabilitation purposes;	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

8. Under no circumstances may any illegal / hazardous substances or materials be dumped with topsoil and used during landscaping. • (EA-44) Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.					

8.6.26 Excavation of Foundation, Cable Trenching and Drainage Systems

Management Objective: Impact to the environment to be minimised during the excavation of foundations					
Management Outcome: Impact to the environment is minimised through adherence to EMPr requirements					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a legally operated landfill site, if not used for backfilling purposes; 2. Spoil can however be used for landscaping purposes and must be covered with a layer of 150mm topsoil for rehabilitation purposes; 3. Management of equipment for excavation purposes shall be undertaken in accordance with Section: Workshop equipment maintenance and storage; 4. Hazardous substances spills from equipment shall be managed in accordance with Section: Hazardous substances. • (EA-44) Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.27 Steelwork Assembly and Erection

Management Objective: Impact to the environment to be minimised during steelwork assembly and erection					
Management Outcome: Impact to the environment is minimised through adherence to EMPr requirements					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance

1. During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts 2. Emergency repairs due to breakages of equipment shall be managed in accordance with Section: Workshop equipment maintenance and storage and Section: Emergency procedures.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.28 Temporary Site Closure

Management Objective: Minimise the risk of environmental impact during periods of site closure greater than five days					
Management Outcome: Site closure procedures are implemented in accordance with the EMPr					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. Bunds shall be emptied (where applicable); 2. Hazardous storage areas shall be well ventilated; 3. Fire extinguishers shall be serviced and accessible; 4. Emergency and contact details displayed shall be displayed; 5. Fencing and barriers shall be in place as per the Occupational Health and Safety Act (No 85 of 1993); 6. Security personnel shall be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; 7. Night hazards such as reflectors, lighting, traffic signage etc. shall have been checked; 8. Fire hazards identified and the local authority shall have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; 9. Stockpiles shall be appropriately secured; 10. Structures vulnerable to high winds shall be secured; 11. Wind and dust mitigation shall be implemented; 12. Cement and materials stores shall have been secured; 13. Toilets shall have been emptied and secured; 14. Refuse bins shall have been emptied and secured; 15. Drip trays shall have been emptied and secured.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	ECO and Project Manager

8.6.29 Dismantling of Old Equipment

Management Objective: Impact to the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning					
Management Outcome: Site closure procedures are implemented in accordance with the EMPr					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment; 2. Oil containing equipment must be stored to prevent leaking or be stored on drip trays; 3. All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; 4. Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment; 5. The Contractor must also be equipped to contain and clean up any pollution causing spills; 6. Disposal of unusable material must be at a registered waste disposal site and a certificate of disposal must be obtained and copied to the developer.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Monthly	ECO and Project Developer

8.6.30 Landscaping and Rehabilitation

Management Objective: Areas disturbed during construction are returned to a state that approximates the state which they were before disruption					
Management Outcome: Landscaping and rehabilitation is in undertaken in accordance with the approved rehabilitation plan/specification					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible person	Time Period	Method	Frequency	Mechanism for Monitoring Compliance
1. All areas disturbed by construction activities shall be subject to landscaping and rehabilitation. 2. All spoil and waste will be removed to a registered waste site and certificates of disposal provided. 3. All slopes in excess of 2% (1:50) must be contoured in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983. 4. All slopes in excess of 12% (1:8.3) must be terraced in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983. 5. Rehabilitation of project sites shall be undertaken in accordance with civil designs.	Contractor	Construction	Monitor compliance and record non-compliance and incidents.	Weekly	Method Statement ECO and Project Manager

6. Indigenous species will be used for replanting. 7. Stockpiled topsoil shall be used for rehabilitation (refer to Section: Stockpiling and stockpiled areas. 8. Stockpiled topsoil will be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion. 9. Before placing topsoil, all visible weeds from the placement area and from the topsoil shall be removed. 10. Subsoil shall be ripped before topsoil is placed. 11. The project shall be timed so that rehabilitation can take place at the optimal time for vegetation establishment. 12. Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled as per the instruction from the ECO. 13. Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; 14. Where required, re-vegetation can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen. b) Pioneer species are included. c) Species chosen must grow in the area without any problems. d) Root systems must have a binding effect on the soil. e) The final product should not cause an ecological imbalance in the area. • (EA-43) All areas of disturbed soil must be reclaimed using only indigenous grass and shrubs. Reclamation activities shall be undertaken according to the rehabilitation plan indicated in the EMPr. • (EA-45) No exotic plants must be used for rehabilitation purposes; only indigenous plants of the area must be utilised. • (EA-47) Disturbed areas must be rehabilitated as soon as possible after construction with locally indigenous plants to enhance the conservation of existing natural vegetation on site.					

ANNEXURE A1: DECLARATION OF UNDERSTANDING - DEVELOPER

DECLARATION OF UNDERSTANDING

I, _____

representing _____

declare that I have read and understood the contents of the Environmental Management Programme for

Contract: _____

I also declare that I am able and shall comply with all legislation pertaining to the nature of work to be done and all things incidental thereto.

I further declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed:

Place:

Date:

Witness 1:

Witness 2:

ANNEXURE A2: DECLARATION OF UNDERSTANDING - CONTRACTOR

DECLARATION OF UNDERSTANDING

I, _____

representing _____

declare that I have read and understood the contents of the Environmental Management Programme for

Contract _____

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract.

Signed:

Place:

Date:

Witness 1:

Witness 2:

ANNEXURE A3: PRO FORMA: PROTECTION OF THE ENVIRONMENT

PRO FORMA

Employer:

Contract No:

Contract title:

PROTECTION OF THE ENVIRONMENT

The Contractor will not be given right of access to the Site until this form has been signed

I/ we,.....{Contractor} record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.
2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
3. I/we have signed the Declaration of Understanding with respect to the Environmental Management Plan
4. I/ we acknowledge and accept the right of the Developer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Project Manager (PM) / Environmental Control Officer (ECO) shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:

4.1 The Project Manager (PM) / Environmental Control Officer (ECO), in determining the amount of such fine, shall take into account inter alia, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences

4.2 The Project Manager (PM) / Environmental Control Officer (ECO) shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Project Manager (PM) / Environmental Control Officer (ECO) has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed .....
Date .....

CONTRACTOR

ANNEXURE B: METHOD STATEMENTS

APPENDIX 1: ALIEN PLANT SPECIES ERADICATION PLAN	
Responsibility	Project Manager, Contractor and ECO (SANParks)
Objective	To minimise or prevent degradation impacts by maintaining or restoring key ecological processes which support long term persistence of biodiversity.
Legal Framework	**Conservation of Agricultural Resources Act (Act No. 43 of 1983)** In terms of the amendments to the regulations under the Conservation of Agricultural Resources Act (Act No. 43 of 1983), all declared aliens must be effectively controlled. Landowners are legally responsible for the control of invasive alien plants on their properties. In terms of this Act 198 alien species were listed as declared weeds and invaders and ascribed to one of the following categories: • Category 1: Prohibited and must be controlled. • Category 2 (commercially used plants): May be grown in demarcated areas provided that there is a permit and that steps are taken to prevent their spread. • Category 3 (ornamentally used plants): May no longer be planted. Existing plants may be retained as long as all reasonable steps are taken to prevent the spreading thereof, except within the flood line of watercourses and wetlands. **National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004)** The National Environmental Management: Biodiversity Act (NEMBA) regulates all invasive organisms in South Africa, including a wide range of fauna and flora. Regulations have been published in Government Notices R.506, R.507, R.508 and R.509 of 2013 under NEMBA. According to this Act and the regulations, any species designated under section 70 cannot be propagated, grown, bought or sold without a permit. Below is an explanation of the three categories : • Category 1a: Invasive species requiring compulsory control. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued. • Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued. • Category 2: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Cat 2 plants to exist in riparian zones. • Category 3: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Cat 3 plants to exist in riparian zones. It is important to note that alien species that are regulated in terms of the Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) as weeds and invader plants are exempted from NEMBA. This implies that the provisions of the CARA in respect of listed weed and invader plants supersede those of NEMBA.
Impact	Continued movement of personnel and vehicles on and off the site, as well as occasional delivery of materials required for maintenance, will result in a risk of importation of alien species throughout the life of the project.

Clearing Methods	All AIS (Alien and invasive species) have been put through the NEM:BA decision making process and assigned to different management aims in relation to each AIS or group of AIS habit as well as the zonation of the park taking into consideration invasion corridors. In addition, preferred treatment methods have been identified for each of the key species or species groups. Control methods implemented to date by both park management as well as the BSP have been effective and do follow the guiding principles. This has included both (i) mechanical and chemical as (ii) manual control methods. In the case of *Prosopis*, the key to suppression and eradication is ensuring the correct follow-up periods are adhered to. **Note**: Alien invasive vegetation will removed in line with relevant SANParks and provincial procedures, guidelines and recommendations) and disposed of at a licenced waste disposal facility. Park Management in conjunction with SANParks Scientific Services will specify preferred control and treatments methods.

Construction Phase

	Actions	Responsibility	Timeframe
Mitigation Measures	The Environmental Control Officer (ECO) is to provide permission before any natural vegetation is to be cleared for development.	ECO	Daily / when required
	Clearing of vegetation must be undertaken as the work front progresses. Mass clearing is not to be permitted unless the entire cleared area is to be rehabilitated immediately thereafter.	Contractor / ECO	Weekly
	Should revegetation not be possible immediately, the cleared areas must be protected with packed brush or appropriately battered with fascine work (fixing horizontal branches along the ground using vertical pegs to create resistance to down-slope flow of water/materials). Alternatively, jute (Soil Saver) may be pegged over the soil to stabilize it.	Contractor / ECO	Weekly
	Organic matter used to encourage regrowth of vegetation on cleared areas should not be brought onto site from foreign areas. Brush from cleared areas should be used as much as possible. Arid areas generally have low organic content in the soil and the use of manure or other soil amendments should not be used as this would encourage invasion.	Contractor / ECO	Weekly
	Care must be taken to avoid the introduction of alien invasive plant species to the site. Particular attention must be paid to imported material such as building sand or dirty earth-moving equipment. Stockpiles should be checked regularly and any weeds emerging from material stockpiles should be removed.	Contractor / ECO	Weekly
	ECO to survey site once a month to detect aliens and have them removed.	Contractor / ECO	Monthly
	Alien vegetation regrowth must be controlled throughout the entire site during the construction period.	Contractor / ECO	Monthly
	The alien plant removal and control method guidelines should adhere to best practice for the species concerned. Such information can be obtained from the Working for Water website as well as herbicide guidelines.	Contractor / ECO / SANParks	Monthly
	Clearing activities must be contained within the affected zones and may not spill over into adjacent no-go areas. No-go areas should be clearly demarcated prior to construction.	Contractor / ECO	Weekly

Operational Phase The Park Management Plan Lower Level Plan for Management of Invasive Alien Species is applicable. Attached as Appendix 2B.			
Sub-objectives	**Actions**	**Responsibility**	**Timeframe**
To systematically survey and list alien species in and around the park.	Survey the site/s, to determine alien and invasive species (fauna and flora) abundance and distribution, and maintain updated species lists.	Park Management	Annually
	Monitor the spread of high priority species (fauna and flora).	Park Management	Ongoing
To prevent, where possible, the introduction of alien species.	Prohibit the presence of alien species (fauna and flora) in staff quarters and tourism accommodation.	Park Management	Ongoing
	Monitor, and / or where necessary, manage previously degraded areas within the site/s to reduce post clearing reinvasion.	Park Management	Ongoing
To ensure the effective and timely development and implementation of integrated control strategies, in such a manner that rapid response and long-term maintenance goals are met.	Introduce biological control agents (where applicable) and / or other appropriate and novel methods (subject to risk-benefit evaluation) where appropriate and necessary.	Park Management	Annually
	Maintain control of alien invasive species according to the NEM:BA clearing plans ascribed to per species.	Park Management	Annually
	Eradicate, where possible, all new incursions of alien species (fauna and flora) and monitor the efficiency of the eradication programme.	Park Management	Ongoing

APPENDIX 2: CV OF THE EAP

APPENDIX G: EAP_P DE LANGE_CV

CURRICULUM VITAE: PIETER DE LANGE BL (UP) (Pr. LArch SACLAP)

Signed at **Pretoria** on this **10** day of **March** of **2022**.

Signature: Pieter De Lange

Company: Delron Consulting (Pty) Ltd.

INTRODUCTION

PERSONAL PARTICULARS

Full Names	:	Pieter De Lange
Current Age	:	51
Birth Date	:	09/12/1969
I.D. Number	:	691209 5231 080
Citizen	:	South African
Occupation	:	Environmental Assessment Practitioner (EAP) / Landscape Architect
Years Working Experience	:	27 years
Language Proficiency	:	Afrikaans, English
Marital Status	:	Married
Contact Numbers	:	082 571 5396 (Mobile)
	:	pieter@delron.co.za (e-mail address)
EDUCATION	:	1987 - Matric - Hoërskool Waterkloof
	:	1988 - 1992 - Bachelor of Landscape Architecture Degree (BL) University of Pretoria
COURSES	:	Environmental Management Consulting South African Institute of Ecologist & Environmental Scientists 11-13 June 2001
AWARDS	:	UP - Award for Best 3rd Year Landscape Design Student – 1990

AFFILIATIONS : **EAPASA** – Registered Environmental Assessment Practitioner Reg. EAP (EAPASA) : 2021/3751

SACLAP (Professional Landscape Architect with the South African Council for the Landscape Architectural Profession): Member No. 20124.

(SACLAP Registration expired on 30 June 2020 – Not renewed, opted for EAPASA registration)

: **ILASA** (Institute of Landscape Architects South Africa): Member No. 46143.

: **IAIAsa** (International Association for Impact Assessments): Member No. 210

EXPERIENCE

2010 - Currently : **Delron Consulting (Pty) Ltd - Environmental Assessment Practitioners – Pretoria, RSA**

Director and Founder, Senior EAP

Servicing clients personally with skills developed over more than 25 years in the industry of integrated environmental planning and management including amongst other; Environmental Impact Assessments, Scoping Reports, Basic Assessments, Environmental Management Plans, Environmental Management Programmes, Water Use Licence Applications, Waste Management Licence Applications, Section 24G Applications and Screening Reports.

He also has experience in Environmental Management Programme Report Performance Assessments and Environmental Authorisation Compliance Audits and Legal Compliance Audits.

2002 – 2010 : **Triviron EAP (Pty) Ltd - Pretoria**

Director: Senior EAP

Responsible for the management and completion of numerous environmental impact assessments. Furthermore, responsible for securing new clients, servicing existing clients and ensuring quality that is being produced in the company. Mentoring and training the younger members of the company.

1992 – 2002 : **Gouws, Uys & White Landscape Architects (Pty) Ltd - Pretoria**

Associate & Senior Environmental Planner and Landscape Architect

Setting up the Environmental Management unit in a historically Landscape Architectural focussed firm.

FIELDS OF EXPERTISE : Environmental Impact Assessment

: Waste Permitting

: Water Use Licence Applications

: Environmental Project Management & Coordination

: Environmental Management Plan Formulation and Monitoring (EMP)

: Construction and Operation Monitoring & Evaluation

: Public Participation

: Environmental Planning

: Landscape Architecture

CAREER HIGHLIGHTS : As an EAP, Pieter has compiled over 300 environmental assessment and planning reports dealing with diverse and complex environmental and planning issues.

A career highlight was when I was appointed as the Lead Environmental Consultant and Environmental Project Manager, responsible for EIAs (reporting, public and stakeholder participation, authority consultation and project administration), Exemptions Applications and EMPs for approx. 100 project's for the "Parks Empowering People" (PEP) programme, a poverty relief effort (R760 million) of the National Department of Environmental Affairs and Tourism (DEAT) in Kruger-, Mapungubwe-, Kgalagadi Transfrontier-, Richtersveld-, Namaqua-, Augrabies Falls-,Golden Gate-, Addo Elephant-, Agulhas- and Wilderness National Parks.

As these projects were all located within national protected areas, compliance with relevant legislation and the inclusion of the views of the affected and interested public were critical to ensure the EIA processes were open, transparent and robust.

His field of expertise is integrated environmental planning and management and he has gained significant experience through his involvement in numerous projects across a wide sectoral range including, tourism and recreational development, transport infrastructure, commerce, service provision industry (water and electricity), land use and development planning, strategic environmental assessments (SEA), environmental management plans (EMP), environmental monitoring and audit, rehabilitation and end-use planning, site analysis, open space planning, and contract documentation.

PROJECT RELATED EXPERIENCE

PROFESSIONAL SKILLS

- **Impact Assessment and Public Participation**

Environmental impact assessment processes and reporting, public and stakeholder participation, authority consultation and project administration. Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse. This work is undertaken to comply with current legislation to inform and assist the authorities in their decision making process to granting environmental authorisation to undertake a listed activity.

- **Ecological Analysis and Planning**

Work undertaken under this category entails site surveys in respect of geology, topography, microclimates, hydrology, soil, plants, archaeology, etc., and is normally carried out in conjunction with specialist consultants. The interpretation of the abovementioned data is used to determine the intrinsic suitability of the site for various uses. This category of landscape planning is normally carried out for purposes of regional planning and the ecological planning of large sites to ensure optimum site utilisation, and for purposes of feasibility studies.

- **Project Management and Quality Assurance**

Managed, administered and coordinated wide spectrum of environmental management projects. Prepared statements of qualifications, tracked project progress and costs, and review project for quality assurance and consistencies.

SELECTED PROJECTS (1997-2021)

Note: Being self-employed I am in control of and responsible for every aspect of a project. In all of these projects I was responsible for:

- Client liaison, project administration, data collection, report writing, public and stakeholder participation, authority consultation and mapping (Micro-Station and GIS);
- Description of the project proposal and activities;
- Description of the baseline environmental conditions;
- Identification, quantification and evaluation of impacts;
- Identification and evaluation of the full range of reasonable alternatives;
- Specialist studies (administration, co-ordination, Terms of Reference, and review of specialist studies);
- Description of mitigation measures.

Roads / Storm Water

- EIA (BAR & EMPr) - Proposed Watsonia / Hediera Link Road Situated on A Portion of the Remaining Extent of Portion 1 of the Farm Town and Townlands of Rustenburg 272-JQ, within the Rustenburg Local Municipality, North West Province, 2019. Moolman Group.
- EIA (BAR & EMPr) - Proposed Construction of the N12 Alliance Road Interchange Daveyton within the Ekurhuleni Metropolitan Municipality, 2017. Ekurhuleni Metropolitan Municipality.
- EIA - Construction of an Access Road and Open Space Development as part of the Menlyn Learning Hub on Erf 97 Alphenpark; Erf 1/137 Ashlea Gardens; Erf 155 Ashlea Gardens; Erf 156 At Ashlea Gardens and Part of the Remainder of Erf 757 Menlo Park, City of Tshwane Metropolitan Municipality, 2017.
- EIA - Upgrading of Garstfontein Road (K50) from Primula Road / Loristo Street to January Masilela Drive and Solomon Mahlangu Drive (K69) between Garstfontein Road and Jacqueline / St Bernard Drive, City of Tshwane Metropolitan Municipality.
- EIA - Extension of Derdepoort Road (K139) from Stormvoël Road to Baviaanspoort Road, City of Tshwane Metropolitan Municipality.
- EIA - Proposed Construction of BMW Dust Bowl Parking Area on Erf 65 and Erf 34 of Rosslyn Township 274-JR, BMW South Africa, City of Tshwane Metropolitan Municipality.
- EIA - New Roads and Day Visitors Area within the Mokala National Park, Northern Cape Province, SANParks.
- EIA - Limpopo Tourist Access Facility (LTAF) and associated infrastructure in the Madimbo Corridor (Limpopo Province, RSA) / Chikwarakwara (Matabeleland South Province, Zimbabwe), SANParks.
- EIA - Sandspruit Rehabilitation for Stormwater Management at Melrose Arch, Melrose Arch Development Company /JRA.
- EIA - Stormwater Master Planning, Infrastructure Upgrading and Implementation of Flood Remediation Measures: Braam Fischerville, Johannesburg Roads Agency.
- EIA - Stormwater Master Planning, Infrastructure Upgrading and Implementation of Flood Remediation Measures: Diepsloot, Johannesburg Roads Agency.
- EIA - Upgrading of Hans Strijdom Drive (M10/K69) between the R21 interchange and the Waterkloof Air Force Base, City of Tshwane Metropolitan Municipality.
- EIA - Upgrading of Duncan Street and Implementation of the Hatfield One Way System, City of Tshwane Metropolitan Municipality /Nyeleti Consulting.

- EIA - Construction of Road P1894 (Gauteng Road), Ekurhuleni Metropolitan Municipality.
- EIA - Upgrading of various roads within the jurisdiction of the City of Johannesburg, Johannesburg Roads Agency.
- EIA - Erosion protection / embankment rehabilitation of various streams / rivers within the jurisdiction of the City of Johannesburg, Johannesburg Roads Agency.
- EIA - Upgrading of Lynnwood Road, Pretoria. City of Tshwane Metropolitan Municipality.
- Application for EIA Exemption for the Upgrading of Road D2952 (from Masibeleka to Thambokhulu), Mpumalanga Province, Mpumalanga Department of Roads & Transport.
- Application for EIA Exemption for the proposed Upgrading of Phase 2 of the Dwaleni Bus Route, Dwaleni Township, Mpumalanga Province, Dombo, Du Plessis & Partners (Pty) Ltd, Mbombela Local Municipality.
- EIA - Upgrading and Construction of Roads and a New Entrance Gate in the Vhembe/Dongola National Park, Limpopo, South African National Parks (SANParks).
- EIA - Upgrading and Construction of Roads and a New Entrance Gate in the Augrabies Falls National Park, Northern Cape, South African National Parks (SANParks).
- EIA - Upgrading and Construction of Roads in the Richtersveld - and Namaqua National Parks, Northern Cape, South African National Parks (SANParks).
- EIA - Road K198, a Single Carriage Way Road between Geba Street and Corlett Drive in Witpoortjie, Gauteng, Civil Concepts (Pty) Ltd. Consulting Civil Engineers on behalf of GAUTRANS.
- EIA - Upgrade of Road K5 (N14) with P16-1(R24) Intersection, Gauteng, BKS (Pty) Ltd. Engineering & Management on behalf of GAUTRANS.
- EIA - Road K481, a Section between Elukwatini and Mooiplaas, Mpumalanga, BKS (Pty) Ltd. Engineering & Management of behalf of the Mpumalanga Department of Public Works, Roads and Transport.
- EIA - Double Carriage Way Road K208, a Section between PWV 5 and the N1, Gauteng, Viaplan (Pty) Ltd. Consulting Civil Engineers on behalf of GAUTRANS.
- EIA - Lebombo/Ressano Garcia Combined Border Post, South African Department of Public Works and the Republica De Moçambique Direcção Nacional De Estrades E Pontes.

Power Lines, Pipelines, Pump Stations, Bulk Water Supply Schemes

- EIA - Petronet Avtur Booster Pump Station, Meyerton, Gauteng, Africon (Pty) Ltd. Development Services & Project Management Division on behalf of PETRONET.
- EIA - Petronet Crude Upgrade - Four New Booster Pump Stations No. 01-04, KwaZulu-Natal, Fluor Daniel SA (Pty) Ltd on behalf of PETRONET.
- EIA - Upgrading of the Lilianton Outfall Sewer, Germiston. Ekurhuleni Metropolitan Municipality.
- EIA - Construction of the 132kV overhead power line and associated upgrading of the Randfontein Distribution Substation and the establishment of the Middelvlei Transition Station, Randfontein Local Municipality. Randfontein Local Municipality.
- EIA - Upgrading of the Heidelberg Outfall Sewer, Heidelberg Gauteng. Lesedi Local Municipality.
- EIA - Upgrading of the Lakeside Mall Outfall Sewer, Benoni. Ekurhuleni Metropolitan Municipality.
- EIA - Upgrading of the Atteridgeville Outfall Sewer, Pretoria Gauteng. City of Tshwane Metropolitan Municipality.
- EIA - Frankfort/Namahadi Raw Water Intake Tower, Free State Province, VIP Consulting Engineers (Pty) Ltd.
- EIA - Nwanedi–Luphephe Regional Water Scheme, Limpopo Province, V3 Consulting Engineers (Pty)Ltd. on behalf of the Department of Water Affairs and Forestry.

Filling Stations, Storage of Hazardous Materials

- EIA - Proposed Development & Related Operation of Infrastructure for the Storage of a Dangerous Good (Diesel) on Proposed Portion 323 of The Farm De Onderstepoort 300-JR within the City of Tshwane Metropolitan Municipality. PDC Projects (Pty) Ltd. 2021
- EIA (Scoping/ EIR & EMPr) - Proposed Development and Related Operation of Infrastructure for the Storage of Diesel and Back-Up Generators associated with the Teraco JB4 Data Centre, on Erf 1865 of Witfontein Extension 85, in the Eastport Logistics Park within the City of Ekurhuleni Metropolitan Municipality. Teraco Data Environments (Pty) Ltd. 2021
- EIA - Proposed Development & Related Operation of Infrastructure for the Storage of a Dangerous Good (Diesel) at the Polokwane Shoprite's Freshmark Distribution Centre on Erf 43125, Polokwane Township Extension 91, N1 Industrial Park within Polokwane Local Municipality. 2020.
- EIA - Proposed Development and Related Operation of Infrastructure for the Storage of a Dangerous Good and for the Generation of Electricity from a Non-Renewable Resource at the Teraco Data Centre on Erf 25575, Brackenfell (Brackengate 2 Light Industrial Business Park) within the City of Cape Town Metropolitan Municipality, 2020.
- EIA - Proposed Filling Station on Erf 1505, Kaalfontein Extension 3 Township in Ivory Park, Registration Division IR within the Johannesburg Metropolitan Municipality, Gauteng, 2020.
- EIA - Proposed Elim Filling Station on Portion 29 of The Farm Waterval 45-LT within the Makhado Municipality, Limpopo Province, 2020.
- EIA - Proposed Sam Ntuli Filling Station on Erven 457 and 458 Mngadi Extension 1 Township (to be consolidated as Erf 543) and Erf 353 Kwenele Township, Katlehong, within The City of Ekurhuleni Metropolitan Municipality, Gauteng, 2019.
- EIA - Proposed Development and Related Operation of Facilities or Infrastructure for the Generation of Electricity from a Non-Renewable Resource at the New Teraco Isando Campus on Erven 302-305, R/437 and R/463, Isando Extension 1, within The City of Ekurhuleni Metropolitan Municipality, Province of Gauteng, 2018.
- EIA - Proposed Filling Station on Holding 248 Vischkuil Agricultural Holdings Extension 1, within The Lesedi Local Municipality, Gauteng, 2018.
- EIA - Proposed Development and Related Operation of Infrastructure for the Storage and Handling of Diesel and for the Development and Related Operation of Infrastructure for the Generation of Electricity from a Non-Renewable Resource for the Teraco Data Centre, JB2 - Bredell on Erven 1841 and 1843 Witfontein Extension 56 within the City of Ekurhuleni Metropolitan Municipality, 2017.
- EIA - New Double Service and Rest Area (N1 Irregasie) Located on the Remaining Extent of the Farm Irregasie 69-JR, Pienaarsrivier, Bela-Bela Municipality - Limpopo Province, Mr. A Dykema.
- EIA - Phola Park Filling Station on Portion 12 of the Farm Enkeldoringoog 651-JR in KwaMhlanga, Thembisile Hani Local Municipality, Mpumalanga Province, Phola Park Shopping Centre (Pty) Ltd.
- EIA - Ga-Kgapane Filling Station on A Portion of The Farm Meidingen 398-LT, The Greater Letaba Local Municipality Of Mopani District.
- EIA - Filling Station on Erf 158, Annlin-Wes Extension 21, City Of Tshwane Municipality, Mille Investments 187 (Pty) Ltd.
- EIA - New Filling Station on Portion 4 (A Portion of Portion 1) of the Farm Modderspruit 461-JQ, Madibeng Municipality, North West Province, Moratiwa Property Development (Pty) Ltd.
- EIA - Underground Fuel Tanks and Hazardous Material Store at the Massdiscounters Warehouse on Portion 36 and Portion 37 of Erf 59, Gosforth Park Extension 4, Raceway Industrial Park, Germiston, Saddle Path Props 69 (Pty) Ltd.
- EIA - New Filling Station Situated on Erf 351, Bramley, Johannesburg, Lexpo Trading Cc.

Dams

EIA – Proposed Construction of Riverview Earth Dam on The Farm Riverview 970-JU, White River, City of Mbombela. NAD Property Income Fund (Pty) Ltd. 2021

Cemeteries

EIA - Proposed Drieziek Cemetery (Proposed Township Drieziek Extension 11) Situated on Portion 46 of The Farm Drieziek 368-IQ within the City of Johannesburg Metropolitan Municipality. 2021

Commercial, Residential Land Use, Community & Development Planning

- EIA (Scoping/ EIR & EMPr) - Proposed Pienaarspoort Extension 22 Township on the Remainder of Portion 29, Portions 30, 31, 32, 36, 37, 38, 39, 40, 41, 43, the Remainder of Portion 42 and 44 of the Farm Pienaarspoort 339-JR and the Remainder of Portion 17, Portion 37, Remainder of Portion 38 and Portion 192 of the Farm Donkerhoek 365-JR, within The City of Tshwane Metropolitan Municipality. 2020
- EIA (Scoping/ EIR & EMPr) - Proposed Pienaarspoort Extension 23 Township situated on Portion 106, Portion 107 and the Remainder of Portion 5 of The Farm Donkerhoek 365-JR, within the City of Tshwane Metropolitan Municipality. 2020
- EIA - Proposed Mabopane Extension 11 Township on Part of the Remainder of the Farm Mabopane 702-JR within the City of Tshwane Metropolitan Municipality, 2020.
- EIA - Proposed Township: Zwavelpoort Extension 12 situated on Portion 188 of The Farm Zwavelpoort 373-JR within the City of Tshwane Metropolitan Municipality, 2020.
- EIA - Proposed Township Establishment Equestria Extension 157 (Comprising 2 Erven Numbered 1683 – 1684) situated on Portion 763 of the Farm The Willows 340-JR within the City of Tshwane Metropolitan Municipality, 2020.
- EIA - Proposed Stinkwater Extension 10 Township on the Remaining Extent of Portion 6 of the Farm Stinkwater 97-JR within the City of Tshwane Metropolitan Municipality, 2019.
- EIA - Proposed Townships: Blue Crane Estate Extension 1 and Extension 2 situated on A Part of The Remainder of Portion 24 of The Farm Grootfontein 394-JR, within City of Tshwane Metropolitan Municipality, 2019.
- EIA - Proposed Township Establishment to be known as Zandspruit Phase II on Portions 16, 23, 42, 47, 55, 56, 59, 60, 67, 68, 69, 72, 73, 76, 104, 160 & 175 of the Farm Zandspruit 191-IQ & Agricultural Holding 43 Sonnedal A.H, within the City of Johannesburg Metropolitan Municipality, 2017.
- EIA - Proposed Township Celtisdal Extension 73 to be Established on Holding 185 Raslouw Agricultural Holdings within the City of Tshwane Metropolitan Municipality, 2017.
- EIA - Proposed Township: Bronberg Extension 30 to be Situated on Portion 1 of Holding 36 Olympus Agricultural Holdings, Registration Division JR, within the City of Tshwane Metropolitan Municipality, Province of Gauteng, 2017.
- EIA - Proposed Townships: 1) Pienaarspoort Extension 15 Situated On Portions 28, 29, 36 and 39 of The Farm Donkerhoek No 365-JR; and 2) Pienaarspoort Extension 16 Situated On Portions 33 And 34 of The Farm Pienaarspoort No 339-JR within the City of Tshwane Metropolitan Municipality, 2016.
- EIA - Proposed Township Establishment to be known as Olympus Extension 1 situated on Holding 77 in Olympus Agricultural Holdings within the City of Tshwane Metropolitan Municipality, 2016.
- EIA - The construction of a Life Healthcare Private Hospital on Erf 2715 and a Portion of Erf 1178, Klisserville, Sol Plaatje Municipality, Kimberley.
- EIA - Nine (9) Mondi Agri-Villages on Various Locations within the Mkondo & Msukaligwa Local Municipalities, Mpumalanga Province, Mondi Limited.

- EIA - Establishment of 200 Residential Stands and Associated Infrastructure on a Portion of the Remainder of Portion 1 of the Farm Piet Retief Town and Townlands 149-HT, Mkhondo Local Municipality.
- EIA - Phola Park Shopping Centre on the Remainder of the Farm Enkeldoringoog 651-JR, KwaMhlanga, Thembesile Hani Local Municipality, Mpumalanga Province.
- EIA - Dumanis International Family Church Development (Southcrest Extension 12 Township) to be Established on the Remainder of Portion 110 of the Farm Elandsfontein No 108-IR.
- EIA - Fountain Towers and Gateway, Establishment of a Land Development Area in terms of the Development Facilitation Act, 1995 (Act 67 of 1995) on Erf 3441 Pretoria, Portion 346 of The Farm Elandspoort 357 – JR and Portion 1 of Erf 3418 Pretoria, Growthpoint.
- EIA - Jabulani Agri-Village on the Remaining Extent of Portion 1 of the Farm The Bends No 417- IT in Piet Retief within the Jurisdiction of Mkhondo Local Municipality, Mpumalanga Province, Mondi South Africa Limited (Mondi Ltd).
- EIA - Ruth First Mall Soshanguve on Erf 2458, Soshanguve M Extension 1, City of Tshwane Metropolitan Municipality, Maphumulo Investments (Pty) Ltd.
- EIA - Formalisation and Township Establishment on the Remainder of Portions 8 and 25 of the Farm Boschhoek 385-IR (SEDAVEN).
- EIA - Zandspruit Estates on the Remainder of the Farm Happyland 241-KT: Hoedspruit; Maruleng Local Municipality within Mopani District Municipality, Limpopo Province, Sugar Creek Trading 33 (Pty) Ltd T/Zandspruit Estates.
- EIA - Development Facilitation Application (DFA) for the Change of Land Use and Construction of a Private Resort / Lodge Development on Portions 6, 32, 33, 34, 35 and 36 of the farm Buffelspoort 421-KR. Silver Streams, Kunene 586 Centurion CC.
- EIA - Development Facilitation Application (DFA) for the Change of Land Use and Construction of a Private Resort on a Remainder of the farm Evergreen No 425-IT: Evergreen Lifestyle Estate, Interactive Trading (Pty) Ltd.
- EIA - Development Facilitation Application (DFA) for the Change of Land Use and Construction of a Private Resort and associated Infrastructure on the Remainder of Portion 40 of the Farm Malelane Estate No 140-JU (Malelane): Township Malelane Ext. 15, Plan-2-Survey Africa Inc.
- EIA - Development Facilitation Application (DFA) for the Change of Land Use and Construction of a Private Resort, Tholo Bush Estate, Limpopo Province, FPohl Town and Regional Planners.
- EIA - Thuthukani Ext. 1 – Project-Linked Subsidy Housing Project, Standerton, Hoscon (Pty) Ltd.
- EIA - Kranspoort Land Restitution, Preservation & Sustenance Project, The Farm Kranspoort 48 LS (Portion 2 and Portion 3), Limpopo Province, Vuka Proms (Pty) Ltd.
- Environmental Impact Screening Report for the Development Framework and Settlement Plan, Shembe Village, Zululand District Municipality, Vuka Planning Africa Inc. (KZN).
- Environmental Screening Report, Vrede/Cliffdale Villages, Regeneration and Formalisation of Existing Townships, Vryheid KZN, Vuka Planning Africa.
- Application for EIA Exemption for Matoks Police Station on the Remainder of Portion 1 of the Farm De Kaffersdrift No 510-L.S., Department of Public Works.
- An Environmental Management and Maintenance Plan for the Proposed Waterkloof Boulevard Private Natural Park Establishment, Pretoria, Gauteng, City of Tshwane Metropolitan Municipality on behalf of the Waterkloof Boulevard Home Owners Association.
- EIA - Soshanguve MM Township Development, Gauteng. City of Tshwane Metropolitan Municipality, 2006.

Abattoirs / Broilers / Hatcheries

- EIA - Construction of Two (2) Chicken Broiler Houses on the Remaining Extent of Portion 124 of The Farm Kafferskraal 400-IP, City of Matlosana, North West Province.
- EIA - 6 New Chicken Broiler Houses on Portion 313 of the Farm Hartbeespoort C 419 (Madibeng Local Municipality), Fourie Familie Trust.
- EIA - Construction of an Additional Six Chicken Broiler Houses on Portion 151 of the Farm Scheerpoort 477-JQ. Thorntree Boerdery CC.
- EIA - Upgrading of the Sangiro Abattoir and Associated Infrastructure. Village Star Trading 23 (Pty) Ltd.
- EIA - Construction of a Chicken Broiler and Abattoir at Barberton Prison. National Department of Public Works.

Section 24G Applications / EIA Project Management

- S24G - Application for Rectification in terms of Section 24G of The National Environmental Management Act (Act No. 107 Of 1998), as amended for the Unlawful Commencement of a Listed Activity: SANParks Management Offices, Farm Hamilton 41-MS, Mapungubwe National Park, Limpopo Province, 2019
- S24G - Application for the Rectification of Unlawful Commencement or Continuation of a Listed Activity in terms of S24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended: Portions 12 and 13 of the Farm Grootfontein 346-JQ, Rustenburg Municipality, Tsebenix (Pty) Ltd .2019.
- Project management for the "Parks Empowering People" (PEP) programme, a poverty relief effort (R760 million) of the National Department of Environmental Affairs and Tourism (DEAT) in Kruger-, Mapungubwe-, Kgalagadi Transfrontier-, Richtersveld-, Namaqua-, Augrabies Falls-, Golden Gate-, Addo Elephant-, Agulhas- and Wilderness National Parks.
- Eco-tourism Development (New Addo Lodge, Southern Entrance Gate, Arts & Crafts Centre and Roads) in the Addo Elephant National Park, Eastern Cape, Phases 1, 2 & 3 as part of the "Poverty Relief - Parks Empowering People" Programme in South African National Parks.
- 60 Bed Tourist Rest Camp, Reception Complex and an Access Road in the Agulhas National Park, L'Agulhas, Western Cape, South African National Parks.
- Mountain Retreat, a 42 Bed Tourist Accommodation Facility, Qwa-Qwa Rest Camp (70 bed) and supporting Infrastructure in the Golden Gate Highlands National Park, Free State, South African National Parks.

2010 Soccer World Cup

- EIA - SAFA House, FIFA Headquarters, 2010 World Cup, Nasrec Johannesburg. South African Football Association.
- EIA - Upgrade of the FNB Stadium for the 2010 World Cup, Nasrec Johannesburg. South African Football Association.

Eco-Tourism, Resorts & Leisure Developments

- EIA - Proposed Centurion Park Hotel by Marriott Development on Portion 147 of The Farm Lyttelton 381-JR, Erf 838 of the Die Hoewes Extension 256, within City of Tshwane Metropolitan Municipality, 2019.
- NOI / EIA - Proposed Crown Grant Holiday Resort Development on A Part of Erf 4831 and A Part of Erf 5327, Hermanus, 2019.
- EIA - Proposed Jelwana Tree House Tented Camp on the Remainder of Portion 1 of The Farm Thorndale 223-KU, Bushbuckridge Local Municipality, Mpumalanga Province, 2018.

- EIA - Proposed Refurbishment of Cheetah Plains Lodge on Portion 7 of The Farm Gowrie 342-KU, within The Sabi Sand Wildtuin, Mpumalanga Province, 2018.
- EIA - Proposed Dawid Kruiper Rest Camp and Picnic Sites at The Veertiende and Bedinkt Waterholes within the Kalahari Gemsbok National Park (KGNP) component of the Kgalagadi Transfrontier Park (KTP), Northern Cape Province, 2017.
- EIA - Construction of a Caravan Park (10 stands) and Associated Infrastructure at Matholyweni Rest Camp within the Addo Elephant National Park, Eastern Cape Province.
- EIA - Construction of 5 Additional Tourism Units and Associated Infrastructure within the Mountain Zebra National Park, Eastern Cape Province.
- EIA - Construction of 10 New Accommodation Units, 10 New Luxury Camping Sites, A New Access Road, Upgrading of Services Infrastructure and a Landing Strip at Nossob Camp, A Luxury Camp Site at Gharagap as well as a Luxury Camp Site at Graig Lockhardt (Mata Mata) in the Kgalagadi Transfrontier Park, Northern-Cape Province, SANParks.
- EIA - Construction of 10 New Tented Units at Bontle Camp Site in Marakele National Park, Limpopo Province, SANParks.
- EIA - Expansion of the Nqweba Camp Site within the Camdeboo National Park, Eastern Cape Province, SANParks.
- EIA - Wilderness Camps Urikaruus, Kielie Krankie & Gharagab and Associated Infrastructure, in the Kgalagadi Transfrontier National Park, Northern Cape, SANParks.
- EIA - 42 Bed Main Rest Camp & Associated Infrastructure in the Vhembe/Dongola National Park, Limpopo Province, SANParks.
- EIA - New Guided Trails Camp, Confluence View Point, Treetop Boardwalk, A Bird – and Game Hide and Associated Infrastructure in the Vhembe/Dongola National Park, Limpopo Province, SANParks.
- EIA - New Wilderness Camps Richtersberg & Gannakouriep and Associated Infrastructure in the Richtersveld National Park, Northern Cape.
- EIA - New 20 Bed Tuscanen Tented Camp and Associated Infrastructure in the Vhembe/Dongola National Park, Limpopo Province.
- EIA - Nhlangwini Game Lodge Development on Portion 4 of the Farm Mooiklip No 239, KwaZulu-Natal, Pybus Seventeen (Pty) Ltd.
- EIA - Lodge Development on Portion 2 of the Farm Hoopdal 96-KQ, Lephalale Municipality, Northern Province, Vuka Plan-2-Survey Inc. on behalf of Africa For You cc.
- EIA - Mgudu Game Reserve Lodge and Sectional Title Development, Pongola, KwaZulu-Natal, FPohl Town & Regional Planners.
- EIA - Leopard Rock Corporate Estate Development, Warmbaths, Northern Province, FPohl Town & Regional Planners on behalf of Co-Props 111 (Pty)Ltd.
- EIA - Tree Fern Trout Lodge, on the Remaining Portion of Portion 3 of the Farm Vlakfontein 323 TJ, District of Belfast, Mpumalanga, Dr. CEG & MM Labuschagne.
- Planning Framework for the Waterval Boven Eco-tourism Development Project, Mpumalanga, Next Resource Development (Pty) Ltd.

Golf Estates

- EIA - Development of the Mokopane Residential Golf Estate on Portions 181 (A Portion of Portion 80), 182 (A Portion of Portion 75) and Portion 183 (A Portion of Portion 75) of The Farm Piet Potgietersrust Town and Townlands No. 44-KS within the Mogalakwena Local Municipality, Waterberg District, Limpopo Province, Proudafrique Trading 191 (Pty) Ltd.

- EIA - Standerton Golf Estate on Portion 2 of the Farm Grootverlangen No.409-IS, Portion 65 of the Farm Grootverlangen No.409-IS, Portion 82 of the Farm Grootverlangen No.409-IS and Portion of the Remainder of the Farm Langerwyl No. 410-IS, Hayes Matkovich Developments (Pty) Ltd.
- EIA - Emfuleni Golf Course, Vanderbijlpark Gauteng. Emfuleni Golf Estate (Pty) Ltd.
- EIA - Highland Gate Golf & Trout Estate, Dullstroom Mpumalanga. GATE Developments.
- EIA - Thaba Lesodi Private Golf & Game Estate, Vaalwater. Obsidian.

Casinos

- EIA - Gold Reef City Casino and Entertainment Centre, Johannesburg, Gauteng, Akani Egoli (Pty) Ltd.
- EIA - Golden Horse Casino, Pietermaritzburg. Akani Egoli (Pty) Ltd.
- EIA - Free State Vaal River Casino Development, Zone 4, Sasolburg, Free State, Southern Leisure (Pty) Ltd.
- EIA - Rhino Resort Casino Development, Mogale City, Gauteng, Rhino Resort Limited.

Waste Management & Rehabilitation

- Application for A Waste Management Licence in terms of the National Environmental Management: Waste Act, 2008 (No. 59 of 2008): Proposed Waste Water Treatment Works and Construction 0f Facilities for Orion Properties 104 (Jane Furse Crossing), Limpopo Province.
- Waste Licence Application for A Proposed Sewage Treatment Package Plant (Lilliput) on Portion 4 (a Portion of Portion 1) of the Farm Modderspruit No. 461-JQ, KeYa Rona Centre, Modderspruit.
- Final Landform, End-use Alternatives, Site Landscaping and Rehabilitation Proposals for Roundhill Regional Solid Waste Disposal Site, East London, GIBB Africa (Pty)Ltd. Consulting Engineers.
- Rehabilitation Proposals for Borrow Pits at Cornwall Hill, Irene Extension 9 & 10, Centurion, Kroon & Sons (Pty) Ltd.
- Hatherly Landfill Site, Pretoria Gauteng. City of Tshwane Metropolitan Municipality.

Telecommunication / Signage

- EIA - Proposed 40 Meter Continuous Taper Monopole Telecommunication Mast for Cheetah Plains Lodge on Portion 7 of The Farm Gowrie 342-KU, Within The Sabi Sand Wildtuin, Mpumalanga Province. NAD Property Income Fund (Pty) Ltd. t/a Cheetah Plains Private Game Reserve, 2018.
- Sentech Millennium Tower (Brixton Tower) Signage Display, Johannesburg, Gauteng, Sentech (Pty) Ltd.

APPENDIX H: OTHER