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REGISTRATION NO. 1998/031976/23

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Environmental Management Programme

FOR

Proposed Construction of a Boundary Wall and Storage Area with
Viewing Deck, Erf 3132, St Francis Bay, Eastern Cape

DEDEAT Reference: EC08/C/LN1/19A/11-2024

*In terms of the
National Environmental Management Act, 1998 (Act No. 107 of 1998),
and the Environmental Impact Assessment Regulations, 2014 (as amended).*



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DATE:

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ECO-ROUTE

ENVIRONMENTAL CONSULTANCY



REGISTRATION NO. 1998/031976/23

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STATEMENT OF INDEPENDENCE

I, **Samantha Teeluckdhari**, of Eco Route Environmental Consultancy, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent Environmental Assessment Practitioner (EAPASA Reg: **2023/6443**) and receive remuneration for services rendered for undertaking tasks required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended). I have no financial or other vested interest in the project.

EAP SIGNATURE: S. Teeluckdhari

ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS:

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (EMP). The table below serves as a summary of how these requirements were incorporated into this EMPR:

(1) An EMPr must comply with section 24N of the Act and include:-

<p>(a) Details of –</p> <p>(i) The EAP who prepared the EMPr; and</p> <p>(ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae;</p>	<p>This EMPr was prepared by Samantha Teeluckdhari of Eco Route Environmental Consultancy. Samantha has a BSS Geography and Environmental Management degree and has 9 years' experience as an Environmental Assessment Practitioner, of which she has spent 8 years at Eco Route. Lizelle Genade of Eco Route Environmental Consultancy has assisted with the compilation of this EMPr. Lizelle has a BA. Honours in Environmental Management and is awaiting her Candidate EAP registration. Please see attached CV of the EAP (Appendix 1).</p>
<p>(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p>Section 2 provides specific project details.</p>
<p>(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;</p>	<p>Section 2 provides mapping which superimpose the proposed activity onto environmentally sensitive areas.</p>
<p>(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –</p> <p>(i) planning and design;</p> <p>(ii) pre-construction activities;</p> <p>(iii) construction activities;</p> <p>(iv) rehabilitation of the environment after construction and where applicable post closure; and</p> <p>(v) where relevant, operation activities;</p>	<p>Addressed in Sections 3, 4 and 10.</p>
<p>(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to –</p> <p>(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;</p>	<p>Addressed in Sections 3, 4, 6 and 7.</p>

(ii) comply with any prescribed environmental management standards or practises;	
(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	
(iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Addressed in Section 10.
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 7 and 10.
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 5 and 10.
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Sections 10.
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Sections 7, 8, 9 and 10.
(l) a program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	Section 7.
(m) an environmental awareness plan describing the manner in which –	Sections 6 and 7.
(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	
(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
(n) any specific information that may be required by the competent authority.	All required information has been addressed within this EMPr and annexures.

Glossary of Terms

BAR	Basic Assessment Report – A tool used by the EAP to submit to the competent authority if listed activities is triggered in Regulations GNR 327 and GNR 324 as per NEMA to make a decision regarding a proposed development.
DFFE	Department Forestry Fisheries and Environment – the national authority for sustainable environmental management and integrated development planning.
DEDEAT	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism – the provincial authority for sustainable environmental management and integrated development planning.
CBA	CBA Critical Biodiversity Area – Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
EAP	<p>Environmental Assessment Practitioner – An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must –</p> <ul style="list-style-type: none"> (a) be independent. (b) Have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these regulations and any guidelines that have relevance to the proposed activity. (c) Ensure compliance with these Regulations (d) Perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application. (e) Take into account, to the extent possible, the matters referred to in regulation 18 when preparing the application and any report, plan or document relating to the application; and (f) Disclose to the applicant or applicant, registered and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing – <ul style="list-style-type: none"> i. Any decision to be taken with respect to the application by the competent authority in terms of these regulations; or ii. The objectivity of any report, plan or document to be prepared by the EAP or specialist, in terms of these Regulations for submission to the competent authority; unless access to that information is protected by law, in which case it must be indicated that such protected information exists and is only provided to the competent authority. <p>(2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the applicant or applicant must, prior to conducting public participation as contemplated in chapter 5 of these regulations, appoint another EAP or specialist to externally review all work undertaken by the EAP or specialist, at the applicants cost.</p> <p>(3) An EAP or specialist appointed to externally review the work of an EAP or specialist as contemplated in sub regulation (2), must comply with sub regulation (1).</p>
ECO/ESO	Environmental Control Officer – A site agent who needs to ensure that all environmental authorisation and conditions are adhered to during the construction phase of the project.
EMPr	Environmental Management Programme – can be defined as “an environmental management tool used to ensure that undue or reasonably avoidable adverse

	impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced".
ESA	Ecological Support Area – Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of Pas or CBAs, and are often vital for delivering ecosystem services.
NEMA	National Environmental Management Act (Act 107 of 1998) as amended 2017 – national environmental legislation that provides principles for decision-making on matters that affect the environment.
PA	Protected Area - A protected area is an area of land or sea that is formally protected by law and managed mainly for biodiversity conservation. Protected areas recognised in the National Environmental Management: Protected Areas Act (Act 57 of 2003) (hereafter referred to as the Protected Areas Act) are considered formal protected areas in the NPAES. This is a narrower definition of protected areas than the International Union for Conservation of Nature (IUCN) definition. ¹ The NPAES distinguishes between land-based protected areas, which may protect both terrestrial and freshwater biodiversity features, and marine protected areas.

Contents

1. INTRODUCTION	9
1.1 Purpose of the EMPr.....	9
1.2 The Polluter-Pays Principle.....	10
2. PROJECT DETAILS.....	10
2.1 Site Description.....	11
2.2 Locality	11
2.3 Key Issues	12
3. IMPACTS ASSOCIATED WITH THE PLANNING/DESIGN, CONSTRUCTION AND OPERATION OF THE ACTIVITY...	13
3.1 Impacts foreseen during the construction phase	13
3.2. Impacts foreseen during the operational phase.....	19
4. SPECIALIST RECOMMENDATIONS/MANAGEMENT ACTIONS	21
4.1 Palaeontological	21
4.2 Biodiversity	21
4.3 Geotechnical.....	22
4.4 Agriculture	23
5. LEGISLATIVE REQUIREMENTS	23
5.1 Signing of the EMPr	23
5.2. Legislation	23
5.3. Project Responsibilities.....	25
6. REPORTING PROCEDURES	26
6.1. Documentation.....	26
6.2. Environmental Register.....	26
6.3. Non-Conformance Report	26
6.4. Emergency Response.....	27
6.5 Erosion prevention during construction	27
6.6 Fire Management	28
7. COMPLIANCE WITH THE EMPr	28
7.1 Monitoring and Compliance.....	28
7.2 Auditing Process.....	28
7.3 Non-Compliance	29
7.4 Issuing a Non-Compliance	30
7.5 Process of Issuing Non-Compliance	30
7.6 Failure to complete corrective actions.....	30
7.7 Unlawful Activity/ies.....	31
8. AMENDMENTS TO THE EMPr.....	31
9. ENFORCING THE EMPr.....	31
10. ENVIRONMENTAL MANAGEMENT PROGRAMME	33
10.1 CONSTRUCTION PHASE.....	33

10.2. OPERATIONAL PHASE.....	42
10.3. REHABILITATION AND MAINTENANCE	45
11. ALIEN PLANT CONTROL PROGRAMME	47
11.1 INTRODUCTION.....	47
11.2 LEGISLATION.....	48
11.3 Ways to Eradicate Invasive Alien Plants.....	50
11.4 Managing IAP Invasions.....	50
11.5 Mechanical Methods.....	51
11.6 Chemical Methods.....	53
11.7 Biological Control.....	53
11.8 Environmental Safety.....	54
11.9 Disposal of IAP Vegetation	54
11.10 LIST OF INVASIVE ALIEN PLANT SPECIES	55
12. SPECIES PLANTING LIST.....	57
13. STAFF CONDUCT CONTROL AND INFORMATION SHEET.....	58
14. RESPONSIBILITIES	59
ACKNOWLEDGEMENT FORM.....	60
APPENDIX A: CV OF THE EAP	61

1. INTRODUCTION

In accordance with the Integrated Environmental Management Guidelines published by the Department of Environmental Affairs & Tourism (DEAT) in 1992, the purpose of an Environmental Management Programme (EMPr) is "to describe how negative environmental impacts will be managed, rehabilitated or monitored and how positive impacts will be maximised".

Section 28 of NEMA (National Environmental Management Act, Act 107 of 1998) states that:

Duty of care and remediation of environmental damage –

"(1) Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment"

This EMPr must be read in conjunction with the Environmental Impact Assessment Report dated February 2023 and the accompanying specialist reports. All recommendations, relevant conditions and mitigation measures provided in these documents must also be adhered to.

This EMPr must form an integral part of the contract documents, as it outlines the methodology & duties required so that the project objectives can be achieved in an environmentally sustainable manner; with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with this project.

These requirements will have a financial impact on the project's costings.

This EMPr is a dynamic document that may need to evolve during its implementation period so that it recognises any new issues that may arise; or changes in the parameters of identified issues and can address these issues with the required/amended mitigation.

1.1 Purpose of the EMPr

The purpose of this EMPr is to ensure that the negative environmental impacts of the proposed activities are managed, mitigated and kept to a minimum during the planning, construction and operation of the proposed development. The EMPr focuses on avoiding damage or loss on ecosystems and the services they provide, and to enhance positive environmental impacts where possible.

The EMPr is a living document that is flexible and responsive to new and changing circumstances, however, should a change be made within the EMPr permission from DEDEAT must first be obtained.

Once the EMPr is approved by DEDEAT it is seen as a legal binding document on the following affected parties:

- 1 Project Applicant.
- 2 All contractors.
- 3 Sub-contractors and construction staff.
- 4 The appointed ECO monitoring the construction phase.

N.B. COPIES OF THIS EMPr MUST BE KEPT ON SITE AND ALL SENIOR PERSONNEL ARE EXPECTED TO FAMILIARISE THEMSELVES WITH THE CONTENT OF THIS EMPr.

It is suggested that the EMPr be reviewed

regularly if required. Should any amendments need to be made during construction, written authorisation must be obtained from DEDEAT.

1.2 The Polluter-Pays Principle

This principle provides for "the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment." The Polluter Pays Principle will be rigorously applied throughout the construction phase of this project.

2. PROJECT DETAILS

Eco Route Environmental Consultancy has been appointed by the applicant **Big Rock Ventures Proprietary Limited (Mr. Peter Vogel)** to prepare an Environmental Management Programme (EMPr) to ensure the lawful construction of a boundary wall and storage area with a viewing deck on Erf 3132, St Francis Bay, Kouga Municipality in accordance with Chapter 4: Part 2 and Appendix 4 of the National Environmental Management Act (Act 107 of 1998), EIA Regulations 2014, as amended.

The proposed development will be on Erf 3132, St. Frances. The erf had a dwelling on which burned down approximately 5-6 years ago, which was demolished after the fact. A cottage remain on the property close to entrance.

The proposed development on Erf 3132, will entail the construction of:

1. A boundary wall to join the existing one along the lateral edges and on the Harbour Road side.
2. A storage area with a viewing deck above.

The proposal

The boundary wall will join the existing one along the lateral edges and on the Harbour Road side and the wall will be 65m in length with a strip foundation of 600mm wide and 230mm deep.

The storage area will measure 7m wide x 5m long x 2,4m high with a viewing deck on top of it. The land underneath the deck is proposed to be excavated to make a storage space for water sports equipment, providing the owner easy access to get to the water with their necessary equipment using the existing pathway from the property leading onto Harbour Road.

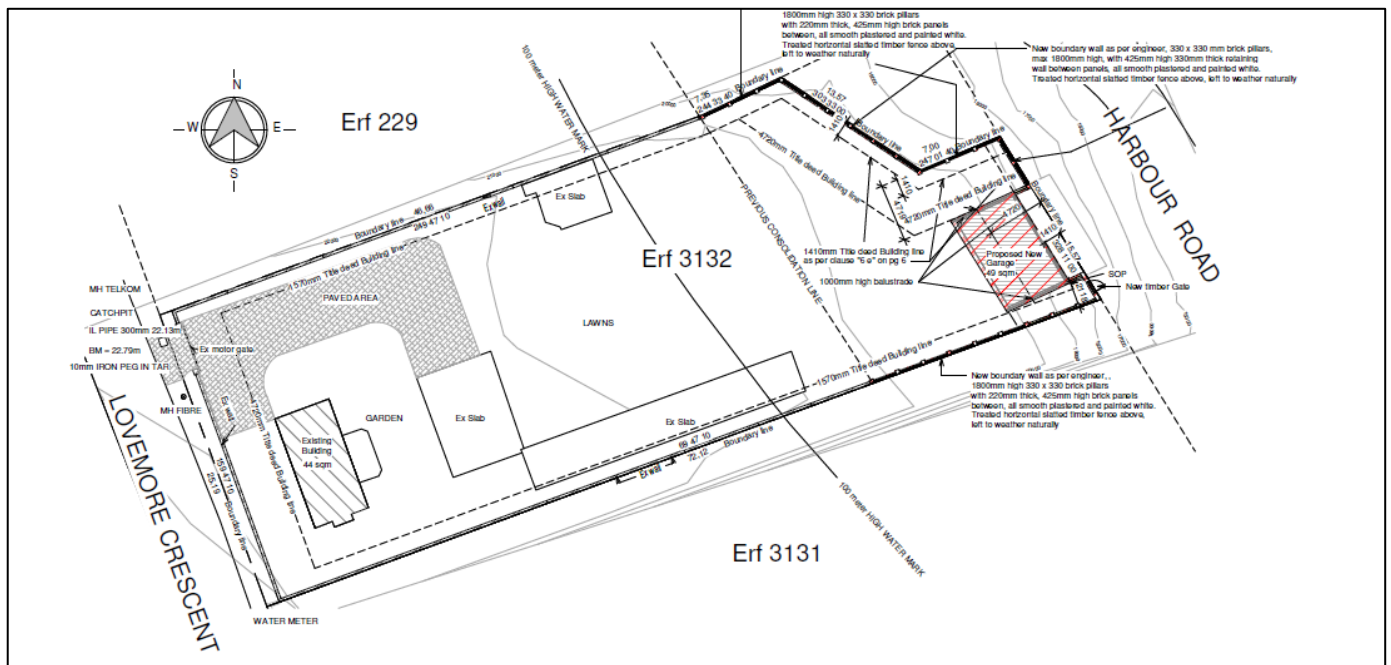


Figure 1: Erf 3132 building plans

2.1 Site Description

Erf Number:	Erf 3132
Area:	1655m ²
SG Code:	C03400140000313200000
Co-ordinates:	34°10'13.67"S/ 24°49'57.27"E

2.2 Locality



Figure 2: Locality map of Erf 3132, St Francis Bay

2.3 Key Issues

These are issues of importance and should be addressed during the Construction phase as well as the future management of the property.

The relevant Key Issues with regard to the Receiving Environment include:

- Areas of Ecological Importance/sensitivity as identified by the Biodiversity report must be demarcated as “No Go Areas”.
- A **stormwater drainage** system is necessary during construction. The system should lead run off water away from the construction area, in order to prevent soil erosion.
- **Removal of topsoil** must only be allowed in the disturbance area and undertaken prior to commencement of construction activities and stored for later use during the Rehabilitation Phase of the development. This will largely determine the success and rate of rehabilitation.
- **Erosion** due to disturbance of vegetation on sandy environment. Disturbance to the primary dune vegetation on the eastern boundary of the site should be kept to a minimum so as to minimize risks of wind and water erosion of the underlying dune sand. The placement of netting around cleared areas will further mitigate this risk.
- The **preservation of natural habitats**. Disturbance to the primary dune vegetation on the eastern boundary of the site should be kept to a minimum. In accordance with the ENCO, a permit for the destruction of protected plant species (*Cynanchum obtusifolium*, *Carpobrotus deliciosus* – refer to table no.6 and figure 2 of the Comprehensive Biodiversity Statement dated 06/02/2024) must be procured from the relevant authorities before construction commences.



Figure 3: SANBI Red List of Ecosystems – the site is categorised as 'Least Concern'.

3. IMPACTS ASSOCIATED WITH THE PLANNING/DESIGN, CONSTRUCTION AND OPERATION OF THE ACTIVITY

3.1 Impacts foreseen during the construction phase

Project Phase	Construction			
Impact	Clearance of terrestrial vegetation for the construction of the boundary wall and a storage area with a view deck.			
Description of impact	Loss of terrestrial vegetation			
Mitigable	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> the removal and translocation of plants should be undertaken prior to construction clearing activities. A permit is required prior to removal of any protected species on site (refer to table no.6 and figure 2 of the Comprehensive Biodiversity Statement dated 06/02/2024) Plants must either be moved to a safer, no-go area on the property or taken to a nursery for temporary storage until rehabilitation takes place. Construction works should be limited to the use of light machinery (TLB) or by hand. Only areas necessary for the development footprint should be cleared and excavated. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20years
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Medium	The resource is damaged	Low	The resource is not damaged

		irreparably but is represented elsewhere		irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	The previous clearing of vegetation and disturbance of topsoil at the site, together with the absence of plant SCC (high confidence) translates to a LOW site sensitivity.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction			
Impact	Geotechnical restraints			
Description of impact	Settlement issues, slope stability problems			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<p>Earthworks:</p> <ul style="list-style-type: none"> Some minor earthworks and bush clearing is anticipated to clear vegetation and form level platforms for the proposed structures. Earthworks could be accomplished with light machinery (TLB) or by hand, and all excavations to a depth of at least 2m were classified as per SABS1200D as "soft". The insitu sandy soils are suitable for general backfilling and compaction on platforms, under floors and foundations at the optimum moisture content. Any organic matter (roots, grass, etc) exposed in excavations should be entirely removed. Excavation sidewalls will be highly unstable at angles steeper than 35°, and adequate battering of excavations is recommended for safety reasons. Lateral support systems may be required for excavations adjacent to the boundary. <p>Foundations and floors:</p> <ul style="list-style-type: none"> Single or double storey masonry or timber structures can be founded on conventional lightly reinforced concrete strips and/or pads at a minimum recommended founding depth of 0.7m below GL on well compacted insitu soil (recommend <25mm/blow). Soil may require good watering to achieve the recommended compaction. Bearing pressures should be limited to max 120kPa to minimise settlement. Alternative foundation solutions, such as raft foundations can also be considered, depending on the structural design. Filling under surface bed concrete floors should be compacted at the optimum moisture content to 100% of Mod AASHTO density. No structures should be placed on, or within a distance of 2m of, slopes exceeding 1v:4h, unless special precautionary measures are taken by the engineer. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site
Intensity	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/ or social functions and/ or processes are somewhat altered

Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance	Moderate - negative		Negligible - negative	
Comment on significance	The site is considered suitable for the proposed development with conventional construction methods but there were some minor geotechnical constraints, mainly compressible sands, which require consideration by the structural engineer. Preliminary recommendations were provided but all information should be verified on site during construction.			
Cumulative impacts	With mitigation, damage to the environment can be limited.			

Project Phase	Construction			
Impact	Stormwater runoff and erosion			
Description of impact	Erosion from exposed surfaces / earthworks for storage area and boundary wall.			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Adequate drainage and erosion protection must be provided around the site and where necessary. • Erosion prevention and control measures must be implemented. This may be with the use of mulch bags. • Minimise disturbance to the primary dune vegetation on the eastern boundary – wind and water erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place. • The stockpiling of topsoil for use in rehabilitation is required. • Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed. • Revegetate all bare areas of soil post-construction with indigenous vegetation. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or	Very low	Natural and/or social

		processes are somewhat altered		functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Low	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	The development has permeable dune sand soil conditions and noticeable runoff is not envisaged. There are also open areas where runoff can be dissipated.			
Cumulative impacts	Without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.			

Project Phase	Construction			
Impact	Waste Pollution			
Description of impact	Pollution caused by waste generated by the construction process.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • All construction waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported. • All construction waste materials must be collected and disposed of at a suitable waste facility. • No dumping of construction material in any unlicensed facility or sensitive areas may take place. • Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced and these facilities must be kept clean at all times. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes	Very low	Natural and/or social functions and/or

		are somewhat altered		processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	
Comment on significance	Construction activities are likely to generate solid waste that could pollute the surrounding environment.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction			
Impact	Noise pollution			
Description of impact	Noise caused by machinery and staff			
Mitigable	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Construction activities must only take place during normal working times between 07:00-17:00 on weekdays. • Machinery may be fitted with silences to dampen noise. • Staff must be reminded that they are working within a residential area and noise levels must be kept low. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact

Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Some extent of noise pollution during construction is expected; however, with mitigation the impact will be reduced.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Visual impact			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Due to the proposed dwelling being surrounded by already existing dwellings, there is little to be done to mitigate against visual pollution; however, shade cloth may be used to demarcate and reduce visual consequences caused by construction. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	Impact will last approximately 1 year.	Short term	Impact will last approximately 1 year.
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Likely	The impact may occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	There is some visual/aesthetic consequences to be expected during construction. However, due to the surrounding area being residential, a low negative impact is expected, and little can be mitigated against.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Employment			
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities			
Mitigable	Medium	Mitigation only exists to ensure that the positive impact is followed through.		
Potential mitigation	<ul style="list-style-type: none"> Use existing social structures and communication channels to ensure social representation. 			
Assessment	Without mitigation		With mitigation	

Nature	Negative		Positive	
Duration	Short term	Impact will last approximately 1 year.	Short term	Impact will last approximately 1 year.
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Low	Judgement is based on intuition	Medium	Determination is based on common sense and general knowledge
Reversibility	Not relevant		Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	Negligible - negative		Negligible - positive	
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impact without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.			
Cumulative impacts	Minor upliftment for the local community.			

3.2. Impacts foreseen during the operational phase

Project Phase	Operation			
Impact	Visual / Sense of place			
Description of impact	Visual impacts of structures			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Municipal by-laws need to be adhered to regarding heights of structures, building materials and paint colours. • Re-vegetation and landscaping of disturbed areas with suitable indigenous vegetation must be undertaken. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative Low	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered

Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Revegetation during rehabilitation activities will result in negligible visual impact.			
Cumulative impacts	Without mitigation the activity would not conform to municipal by-laws and visual impacts may be increased.			

Project Phase	Operation			
Impact	Light Pollution			
Description of impact	Visual/ aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Municipal by-laws need to be adhered to. • It is strongly advised that only downward facing lights are used on the outside of the storage area. Motion sensor lights can be used so that light will not be on permanently at night. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common

				sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - positive	
Comment on significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			

4. SPECIALIST RECOMMENDATIONS/MANAGEMENT ACTIONS

4.1 Palaeontological

- The proposed minor works involve only shallow, low-volume disturbance at a site which has already been altered to some degree. Any material in the shallow subsurface such as bones and shells is very likely to be in an archaeological context. The seaward slopes of aeolianites at the shore are the preferred location of hyaena (strandwolf) dens wherein they hoard bones, thereby providing scientifically important “fossil bone bonanzas”. However the limited footprint of the proposed works renders such finds improbable.
- The proposed minor works are very unlikely to have an impact on palaeontological resources.
- **Should bones be unearthed**, work must cease at the spot and the Eastern Cape Provincial Heritage Resources Agency, ECPHRA, must be informed and provided with information on the nature of the find.

4.2 Biodiversity

- In accordance with the ENCO, a permit for the destruction of protected plant species listed in Table below must be procured from the relevant authorities before construction commences.

Species	Category	Abundance
<i>Cynanchum obtusifolium</i>	ENCO Schedule 4	Low
<i>Carpobrotus deliciosus</i>	ENCO Schedule 4	Low
<i>Sideroxylon inerme</i>	NFA	Low

- In accordance with the NEMBA, alien invasive species listed in Table below must be eradicated from the site and a plan for their ongoing control should be included in the environmental management plan of the development.

Species	Category	Abundance
<i>Acacia cyclops</i>	NEMBA Category 1b	Moderate
<i>Acacia saligna</i>	NEMBA Category 1b	Low

- Disturbance to the primary dune vegetation on the eastern boundary of the site should be kept to a minimum so as to minimize risks of wind and water erosion of the underlying dune sand. The placement of netting around cleared areas will further mitigate this risk.

Due to the historical transformation of terrestrial ecosystems and the low likelihood of animal and plant SCC occurring here, the site is generally of low sensitivity the construction of a boundary wall and decked storage area is unlikely to have a significant negative impact on aquatic and terrestrial biodiversity or animal and plant SCC. Implementation of impact management actions outlined above will further mitigate impacts on the local environment.

4.3 Geotechnical

Geology and substrate of the site:

The terrain in the proposed development area is gently sloping to the east, becoming moderate to steep near the eastern boundary. The ground surface conditions on the site were generally dry and stable with no signs of any drainage issues, marshy ground conditions or slope stability problems.

The natural geology of the area consisted of thick deposits of aeolian (wind-blown) sand of Quaternary age overlying shale rock of the Ceres Group. The soil profile is dominated by silty fine sand of aeolian origin. No clay was encountered or was expected on this site. No bedrock was encountered was not expected for several meters below ground level. No groundwater seepage was encountered. DCP tests indicated the following:

- 0-500mm: Loose, $\phi' \sim 28^\circ$
- 500-1500mm: Medium dense, $\phi' \sim 32^\circ$
- 1500-2000mm: Loose, $\phi' \sim 30^\circ$

The tests indicated that normal in-trench compaction would be required to safely accommodate light structural loads only with $BP < 120\text{kPa}$.

Earthworks

Some minor earthworks and bush clearing was anticipated to clear vegetation and form level platforms for the proposed structures. Earthworks could be accomplished with light machinery (TLB) or by hand, and all excavations to a depth of at least 2m were classified as per SABS1200D as "soft". The insitu sandy soils were suitable for general backfilling and compaction on platforms, under floors and foundations at the optimum moisture content. Any organic matter (roots, grass, etc) exposed in excavations should be entirely removed. Excavation sidewalls will be highly unstable at angles steeper than 35° , and adequate battering of excavations was recommended for safety reasons. Lateral support systems may be required for excavations adjacent to the boundary.

Foundations to be used for construction:

Single or double storey masonry or timber structures can be founded on conventional lightly reinforced concrete strips and/or pads at a minimum recommended founding depth of 0.7m below GL on well compacted insitu soil (recommend $< 25\text{mm/blow}$). Soil may require good watering to achieve the recommended compaction. Bearing pressures should be limited to max 120kPa to minimise settlement. Alternative foundation solutions, such as raft foundations can also be considered, depending on the structural design. Filling under surface bed concrete floors should be compacted at the optimum moisture content to 100% of Mod AASHTO density. No structures should be placed on, or within a distance of 2m of, slopes exceeding 1v:4h, unless special precautionary measures are taken by the engineer.

Stormwater drainage:

The soil was highly permeable and site drainage was not envisaged to be a problem. No subsoil drains are deemed necessary, except behind retaining walls as standard.

4.4 Agriculture

Aspects of the site:

- Terrain unit: upper slope
- Slope: gently sloping
- Soil form: Witbank 1100 ESD: 150 cm TSD 150 cm
- Topsoil clay %: 8
- Subsoil clay%: 6
- No agricultural activity takes place and has not for the past 5 years.
- There has been no agricultural related employment for the last 5 years.

This land has not been used for agricultural activities in the recent past. The surrounding area is not used for agriculture but housing. The site is of low agricultural sensitivity for agriculture.

The land concerned has not been used or agriculture for the past 5 years and more and the development have no impact on the agricultural potential; The proposed development will have no adverse effect on the agricultural potential.

The site has a low agricultural potential due to:

1. The soil has a low water holding capacity.
2. The area is too small to support an economically viable agricultural enterprise.

5. LEGISLATIVE REQUIREMENTS

5.1 Signing of the EMPr

The acknowledgement form found at the end of the approved EMPr is to be signed by the holder of the Environmental Authorisation (the Applicant), the Site Manager and the ECO; acknowledging that all parties are familiar with the requirements of the EMPr. All employees, especially the machine and equipment operators, are to be made aware of the conditions as contained in the EMPr as well as the contractual conditions relating to the environment as contained in the contract document.

5.2. Legislation

Of importance are all national, provincial and municipal by-laws and regulations. Statutes are amended periodically and it is the Applicant's responsibility to identify legislation relevant to the proposed activity.

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of the Republic of South Africa. (Act 108 of 1996)	All State and Provincial Departments as well as Local Authorities that have been identified as relevant Competent Authorities.	Relevant Consideration

Environmental Conservation Act (Act 73 of 1989)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Environmental Management Act (Act 107 of 1998)	Department of Economic Development, Environmental Affairs & Tourism	Authorization
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)	Department of Forestry, Fisheries, and the Environment (DFFE), Branch Oceans & Coasts (O&C)/ Department of Economic Development, Environmental Affairs & Tourism	Comment/ Relevant Consideration
National Environmental Management: Protected Areas Act (Act 57 of 2003)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Water Act (Act 36 of 1998)	Department of Water and Sanitation	Relevant Consideration
Conservation Of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture, Forestry and Fisheries	Relevant Consideration
National Heritage Resources Act (Act 25 of 1999)	Eastern Cape Provincial Heritage Resources Authority	Comment/ Relevant Consideration

5.3. Project Responsibilities

Responsibility for the implementation of the EMPr lies with the Applicant who must retain the services of a suitably experienced Environmental Control Officer (ECO) who will monitor the construction processes and activities periodically.

The project applicant will be responsible for the following:

- Adhering to the approved EMPr.
- Ensure that all employed Contractors and Engineers are aware of and understand the conditions of the EMPr.
- The right to remove any person or appointed contractors or personnel from site if they contravene with the EMPr.
- Ensure that all contracts with contractors/engineers include the authorised EMPr.
- Appoint an Environmental Control Officer.
- The project applicant (holder of the Environmental Authorisation of the EMPr must notify the competent authority of the commencement of maintenance management activities 14 days prior to such commencement taking place.

The ECO's responsibilities must include, *inter alia*:

- Secure the protection and rehabilitation of the environment.
- Guide, advise and consult the relevant authority on environmental issues during construction.
- Guide, advise and consult any sub-contractors, suppliers etc. who will be involved in this project.
- Revise the EMPr as required and inform the relevant parties of the changes.
- **Ensure that the EMPr has been accepted and understood as a contractually binding document on all parties involved with this project.**
- Ensure staff operating equipment are adequately trained, certified, and sensitised to any potential hazards associated with their tasks.
- Educate staff as to the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources, ensure that they (the staff) have received the necessary safety training, and are aware of the importance of a "clean-site policy".
- The management guidelines contained in this document must form part of the contractual agreements between the Applicant, Site Manager, and the ECO.

The Site Manager and Contractors are responsible for the construction activities of the approved development. The responsibilities indicated here are also relevant to Sub-Contractors. The responsibilities of the Site Manager and Contractors include but are not limited to the following:

- Adhere with the conditions and recommendations of the EMPr or any other legally binding documentation.
- Prevent actions that may cause harm to the environment.
- Be responsible for any remedial activities in response to an environmental incident within their scope of influence.
- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.
- **Induct ALL contractors, sub-contractor, and delivery personnel** on the Construction Phase Management Rules, appended to the EMPr.
- **Provide Method Statements** for the construction phase of the project including but not limited to stormwater, erosion, shoring (if required), dust control, stockpile and storage areas, site preparation and construction, and spill (hazardous material and concrete).

All fines for non-compliance of EMPr to be predetermined by Site Manager, ECO, and Project Applicant, this needs to be included in method statement. Breach of the Construction Phase Management Rules can be consulted in this regard.

6. REPORTING PROCEDURES

6.1. Documentation

The following documentation must be kept on site in order to record compliance with the EMPr:

An Environmental File which includes:

- Copy of the EMPr;
- Copy of the EA;
- Copy of all other licences/permits;
- Environmental Method Statements;
- Non-conformance Reports;
- Environmental Inductions;
- Environmental register, which shall include:
 - Communications Register – including records of complaints, minutes and attendance registers of all environmental meetings;
 - Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports; and
 - Incident book – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.
- Waste Documentation such as, but not necessarily limited to: Waste Manifest Documents;
- Material Safety Data Sheets (MSDSs) for any hazardous substances; and
- Written Corrective Action Instructions.

6.2. Environmental Register

The Applicant will put in place an Environmental Register and will ensure that the following information is recorded for all complaints / incidents:

- Nature of complaint / incident.
- Causes of complaint / incident.
- Party/parties responsible for causing complaint / incident.
- Immediate actions undertaken to stop / reduce / contain the causes of the complaint / incident.
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint / incident.
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions.
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented.
- Copies of all correspondence received regarding complaints/incidents.

6.3. Non-Conformance Report

A Non-Conformance Report (NCR) will be issued to the Applicant as a final step towards rectifying a failure in complying with a requirement of the EMPr. This will be issued by the ECO to the Applicant in writing. Preceding the issuing of a NCR, the Applicant must be given an opportunity to rectify the issue.

Should the ECO assess an incident or issue and find it to be significant (e.g. non-repairable damage to the environment), it will be reported to the relevant authorities and immediately escalated to the level of a NCR. The following information should be recorded in the NCR:

- Details of non-conformance;
- Any plant or equipment involved;
- Any chemicals or hazardous substances involved;
- Work procedures not followed;
- Any other physical aspects;
- Nature of the risk;
- Actions agreed to by all parties following consultation to adequately address the non-conformance in terms of specific control measures and should take the hierarchy of controls into account;
- Agreed timeframe by which the actions documented in the NCR must be carried out; and
- ECO should verify that the agreed actions have taken place by the agreed completion date, when completed satisfactorily; the ECO and Applicant should sign the Close-Out portion of the Non-Conformance Form and file it with the contract documentation.

6.4. Emergency Response

The Applicants environmental emergency procedures must ensure appropriate responses to unexpected / accidental actions / incidents that could cause environmental impacts.

The Environmental Emergency Response Plan is separate to the Health and Safety Plan as it is aimed at responding specifically to environmental incidents and must ensure and include the following:

- Employees shall be adequately trained in terms of incidents and emergency situations;
- Details of the organisation (i.e. manpower) and responsibilities, accountability and liability of personnel;
- A list of key personnel and contact numbers;
- Details of emergency services (e.g. the fire department / on-site fire detail, spill clean-up services) shall be listed;
- Internal and external communication plans, including prescribed reporting procedures;
- Actions to be taken in the event of different types of emergencies;
- Incident recording, progress reporting and remediation measures to be implemented; and
- Information on any hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

6.5 Erosion prevention during construction

Clearing of vegetation for the construction phase must be undertaken in a phased approach such that clearing for construction of boundary wall, storage area and view deck is undertaken on approval of building plans and Environmental authorisation. Details to be provided in method statement that must be compiled by the appointed Contractor for each phase of the development.



6.6 Fire Management

It is the responsibility of the owner during operational phase and contractor during construction phase to ensure fire management is in place to prevent fires on site.

Equipment and trained personnel must be available on the site at all times to fight and extinguish any fires.

Mitigation measures include both preventative and control measures:

- Due care should be taken to ensure that construction work is performed in a manner, which is unlikely to start a fire.
- Works which generate sparks are to be done in safe areas only (safe areas should be identified by the supervisor and cleared of any combustible material).
- Firefighting equipment is to be kept with work teams during the whole construction phase.
- Any fires caused by the project or NOT are to be reported immediately to the Environmental Officer and Health and Safety Department.

Recommendations for both construction and operational phase:

- Implementing regulations/rules around "braai" fires /open flame fires that should be considered especially when high fire danger weather conditions are predicted.
- ensuring that access roads are kept clear for firefighting vehicles to have unobstructed access to the structures.
- work collaboratively with local authorities - develop an emergency preparedness plan that outlines the steps to take in the event of a fire. The plan should include protocols for notification, evacuation, and communication with local authorities.
- overall, the goal of the fire management plan should be to prevent fires from starting and spreading.

7. COMPLIANCE WITH THE EMPr

7.1 Monitoring and Compliance

The monitoring and compliance of the development should take place as follows:

- The ECO has the authority to instruct the Applicant to cease a particular operation causing or liable to cause significant environmental damage, and issue fines or penalties for non-compliance of the Environmental Management Programme/ EMPr.
- An Environmental Control Officer (ECO) must audit the site and compile an audit report on a monthly basis until rehabilitation is successful.
- The holder of the environmental authorisation (the Applicant) is responsible to ensure that an environmental audit report is submitted to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) as per the timeframes stipulated in the Environmental Authorisation (EA).

7.2 Auditing Process

The terms of reference for the audits must comprise the following:

- Develop a checklist against which the criteria can be referenced during the audit.



- During the audit process, key individuals involved with the management of the project are to be given the opportunity to comment on issues being audited and will be invited to accompany the auditor during the site inspection.
- Compile an audit report on the implementation of the EMPr and compliance to the Environmental Authorisation and submit this report to the competent authority (DEDEAT).

Compliance ratings against which the listed criteria are assessed are as follows:

Symbol	Rating	Interpretation
Y	Yes	Evidence of compliance
P	Partial	Evidence of partial compliance
N	No	Evidence of non-compliance
NR	Not Relevant	The condition or commitment is not relevant at this stage of the development or it is inappropriate
NA	Not Audited	Not audited

7.3 Non-Compliance

Definition

The non-compliance is defined as, and will be issued for:

- Any deviation by the Applicant from the environmental conditions and requirements as set out in the EA and EMPr, or;
- Any contravention by the Applicant of environmental legislation, or;
- Any unforeseen environmental impact resulting from direct or indirect actions or activities on site that would be considered as a significant impact. Significance will be determined by the Environmental Control Officer (ECO) but will be informed by geographic extent, duration, lasting effects of the impact and extent of remediation to the impact.

Types of non-compliances issued

Two types of non-compliances may be issued:

A. Stop Works Non-Compliance

Stop Works Non-Compliance will require that all works as described in the non-compliance will stop immediately and may only continue on a formal written permission from the ECO.

Stop Works Non-Compliance will be issued under the following conditions:

- Total disregard by the Applicant to the environmental conditions and requirements listed in the EA and EMPr;
- An activity that if left unattended will escalate the degree, severity, or extent of the environmental impact.



B. General Non-Compliance

A general non-compliance will allow work and activity by the receiving party to continue while the corrective action takes place.

7.4 Issuing a Non-Compliance

Non-compliance may be issued to:

- The Applicant
- Any representative of the Applicant

7.5 Process of Issuing Non-Compliance

The appointed Environmental Control Officer (ECO) may issue a formal non-compliance to the Applicant. A copy of the non-compliance issued will be placed in the EMPr file. The Applicant will be responsible for returning a formally signed off corrective action (as per template) to the ECO to be placed in the EMPr file. The ECO will be required to sign-off on the corrective action, indicating that it has been completed within the timeframes and to the satisfaction of the ECO.

7.6 Failure to complete corrective actions.

In the event that the Applicant fails or refuses to complete the corrective action, either at all or within the allocated timeframe, the ECO shall,

- Inform DEDEAT in writing that a condition of approval for the project is not being met.

The DEDEAT office is responsible for resolving the impasse with the Applicant.

The Applicant is deemed not to have complied with the EA and EMPr if:

- Within the boundaries of the site and site extensions there is evidence of contravention of clauses;
- Environmental damage occurs due to negligence; inappropriate actions taken by the Applicant or any of his staff.

On receiving a notice of non-compliance, the Applicant is required to swiftly address the issue/s taking all corrective actions required to rectify the situation. Penalties will be applied for non-compliant situations. Penalties/fines are advocated to ensure corrective measures are successfully undertaken and the necessary standard of rehabilitation is achieved.

The penalty associated with a chemical spill is not a set amount but will depend on the nature and extent of the spill; the cost of any soil and /or groundwater monitoring and any soil and /or groundwater remediation required by authorities will be to the Applicant's account.

The imposition of such penalties / fines shall not preclude the relevant competent authority from applying an additional penalty in accordance with statutory powers.



Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression as deemed fit.

7.7 Unlawful Activity/ies

NEMA and its Regulations entitle environmental authorities to administer a fine not exceeding R 5 million or 10 years imprisonment and/or a fine and imprisonment for a person guilty of an unlawful activity. The Act makes allowance for the rectification of unlawful activity and may charge up to R1 million administration fees over and above the remediation costs.

NEMA makes provision for damages to be awarded by the courts where loss or damage has occurred as a result of a contravention of other environmental statutes. Importantly, NEMA provides for the liability of conviction of employees, managers, agents, and directors for any offences resulting from the failure to take all the reasonable steps that were necessary under the circumstances to prevent the commission of an offence.

8. AMENDMENTS TO THE EMPr

This EMPr outlines the environmental practices and mitigation measures to be adhered to during the construction, operational phases, and rehabilitation in order to curtail and/or minimise potential negative impacts and promote sound environmental practises.

Any major issues not covered in the EMPr as submitted, will be addressed as an addendum to this EMPr, and submitted for approval. The EMPr is a living document and is subject to change from time to time in consultation with the DEDEAT. Any amendments to the EMPr will require approval from the DEDEAT.

9. ENFORCING THE EMPr

The holder of the Environmental Authorisation (EA) has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes casual labour, etc.). The EA and EMPr shall be part of the terms of reference for all stakeholders.

All senior and supervisory staff members shall familiarise themselves with the full contents of the EA and EMPr. They shall know and understand the specifications of the EA and EMPr and shall be able to assist other staff members in matters relating to the EA and EMPr.

TABLE OF RESPONSIBLE PARTIES BELOW:

Responsibility	Name of Responsible Party
Applicant	Peter Vogel
Environmental Control Officer/ ECO	(To be appointed)



Eco Route

ENVIRONMENTAL CONSULTANCY

REGISTRATION NO. 1998/031976/23

DR. COLLEEN EBERSOHN

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MS. JANET EBERSOHN

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Site Manager	(To be appointed)
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10. ENVIRONMENTAL MANAGEMENT PROGRAMME

10.1 CONSTRUCTION PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Authorisations, Licences and Permits	Environmental Authorisations	Applicant	Once-off
	All necessary authorisations, permits and licences must be obtained by the Applicant prior to construction commencement. This includes permits for the removal of protected plants.		
Appointment of Environmental Control Officer	Appointment of Environmental Control Officer	Applicant & ECO	Once-off
	An Independent ECO must be appointed at the Applicant's cost to monitor the implementation of the EMP.		
	Fourteen (14) days written notice must be given to the Department that the activity will commence. 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 which includes site preparation and demolition.		
	The nomination of the ECO must be given to DEDEAT, in writing fourteen (14) days prior to construction commencement. The notification must include contact details for the ECO and details pertaining to the ECO's relevant experience.		
	Should the ECO for the development change at any time, this must be communicated, in writing, to DEDEAT, within fourteen (14) days of appointing the new ECO. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience and reasons for the change in ECO.		As required
Preparation of Method Statements	Method Statements	Applicant/ Contractor	Prior to commencement of construction and during
	Method Statements must be submitted by the Applicant/ Contractor to the ECO and DEDEAT for approval. Method Statements must be adhered to by the Applicant/ Contractor. These relate to but are not limited to:		



Eco Route

ENVIRONMENTAL CONSULTANCY

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<ul style="list-style-type: none"> ❖ Stormwater management ❖ Erosion control ❖ Dust control ❖ Stockpile and storage areas ❖ Site preparation and construction ❖ Solid waste management ❖ Storage of hazardous materials (if applicable) ❖ Standard emergency procedures 		construction (if necessary)
	The ECO will monitor the implementation of the statements.	ECO	On-going
Notifying Relevant I&APs	Notice of Environmental Authorisation (EA)		
	A written notice must be given to all relevant I&APs notifying them of the EA. The notice must include a date on which the EA was received and the reference number for the EA. Commencement of construction may not begin until 21 days after the notification, provided no appeals have been lodged against the EA.	Applicant	Prior to commencement
Education of Site Staff on General and Environmental Conduct	Environmental Awareness and Training		
<i>A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff.</i>	All contractors, sub-contractor and delivery personnel will be required to be briefed on the Construction Phase Management Rules (Appended to the EMP). The main contractor must do these briefings before his staff will be allowed to work on the Estate. The main contractor remains the liable person.	Contractor	Once-off and as required
	Construction staff must be adequately educated by the ECO as to the provisions included in the EMP, and in terms of general environmentally-friendly practice.	ECO	Once-off and as required
	The ECO must ensure that all staff, and if applicable, Contractors / Sub-contractors / Suppliers / Service Providers are trained on the environmental, occupational safety and/or legal responsibilities expected from them.		
	The training must take into account language and literacy requirements as well as measures to determine the effectiveness of the training. Proof of training must be attached to the ECO's audit reports.		
Consideration of the implications of the EA and EMP must form part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language.			



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>The induction training will, as a minimum, include the following:</p> <ul style="list-style-type: none"> ➤ The importance of conformance with all environmental policies; ➤ The environmental impacts, actual or potential, of their work activities; ➤ The environmental benefits of improved personal performance; ➤ Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and ➤ The mitigation measures required to be implemented when carrying out their work activities. 		
	<p>All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMP and environmental responsibilities by signing an induction attendance record.</p>	ECO	Once-off
	<p>Staff, operating equipment, shall be adequately trained and sensitised to any potential hazards associated with their tasks.</p>	Applicant	During staff induction, followed by on-going monitoring
	<p>Translators are to be used where necessary during staff training.</p>	ECO	
	<p>The ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.</p>	ECO	
	<p>Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.</p>	ECO & Applicant	
	<p>All employees must undergo the necessary safety training and wear the necessary protective clothing at all times.</p>		
	<p>No alcohol / drugs to be present on site; no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs.</p>		
	<p>No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).</p>		
	<p>No unsocial behaviour will be permitted.</p>		
	<p>Bringing pets onto site is forbidden.</p>		
	<p>Staff must make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden).</p>		
<p>No fires to be permitted on site.</p>			



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	<p>Trespassing on private / commercial properties adjoining the site is forbidden.</p> <p>No worker may be forced to do work that is potentially dangerous or for what he / she is not so trained</p> <p>The staff conduct rules are described in a separate table of rules in the EMPr. This is aimed at providing staff with the basic information regarding worker conduct on site.</p>		
Site Management	Access		
	No vehicles may drive onto the adjacent properties and any other no-go areas.	Contractor/ Site Manager	On-going
	Site Management		
	To ensure that the ecological integrity of the surrounding environment is maintained and preserved, the applicant and contractor must ensure that the construction footprint is limited to the construction area. The extent of the construction must be marked out to satisfaction of the engineer and ECO.	Applicant/ Contractor/ Site Manager	On-going
	The Contractor must restrict all activities, materials, equipment, and personnel within the area specified or restricted activities to areas that are necessary to undertake the work.		
	The Contractor must ensure that materials are appropriately secured to ensure safe passage between destinations, loads including, but not limited to, sandstone chips, fine vegetation or refuse should have appropriate cover to prevent pollution of adjacent properties.		
	The applicant will be held responsible for any clean-up in the dune environment resulting from failure by the contractors or suppliers to properly secure material.		
Adequate drainage and erosion protection must be provided around the site and where necessary.			
Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust. Alternatively, a binding product such as Dustex (supplied by Patch Industrial Supplies) could be used.			
Sewage and Sanitation	Ablutions		
	Contractors must make adequate provision for drinkable water and temporary toilets situated on the building site for the use of their employees until such time		



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	as the water-borne sewer drainage is available. This must be done prior to any work done on site.		
	All site temporary toilets are to be serviced and cleaned at least once a week. The contractor is to keep an onsite weekly record of the servicing/emptying of the temporary ablution facilities.	Contractor/ Site Manager	Immediately & on-going
	Unauthorised spilling of waste from the septic tank into the environment and burying of waste are strictly prohibited.		
	Ablution facilities must not cause any pollution to any water resource and it must not be a health hazard to the general public.		
Social Impacts	Communication Between Site Manager, Site Staff and I&APs		
	Should the staff be approached by members of the public or other stakeholders, they must assist them in locating the Site Manager, or provide a number on which they may contact the Applicant/ Site Manager.	Site Manager	On-going
	The conduct of the staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times.		
	Drivers of heavy-duty vehicles must exercise care when travelling to and from the site – and adhere to all legally enforceable requirements.		
Equipment lay-down and storage	Storage Areas		
	The contractor will be allowed to erect green storage sheds/huts within the boundaries of the building site and to a maximum height of 2,4 m. The position of such structures must be indicated on the site diagram, which must be approved by Estate Management & ECO.	Site Manager/ Contractor & ECO	On-going
	Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to “No Go” areas, general on-site topography and water erosion potential of the soil. Impervious surfaces, bunded areas or drip trays must be provided where necessary.	Site Manager & Contractor	On-going
	Material stockpiles must be protected against rain and flooding.		
	Equipment lay-down and storage areas must be designated, demarcated and signed.		
Erosion and Stormwater Control	Soil erosion and runoff		
	Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.	Site Manager & Contractor	On-going



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	<p>Storm water control must be undertaken to prevent soil loss and erosion impacts from the site.</p> <p>Erosion prevention and control measures must be implemented. This may be by the use of mulch bags or silt fences. The engineer must provide a method statement for site specific erosion methods.</p> <p>Provision shall be made for storm water management measures that will ensure effective run-off control and prevent erosion at run-off points.</p> <p>Continuous monitoring for evidence of erosion must be undertaken around the site.</p> <p>The stockpiling of topsoil for use in rehabilitation is required</p> <p>Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.</p> <p>Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.</p> <p>The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.</p>		
<p>Conservation of the Natural Environment</p>	<p>Fauna and Flora</p> <p>Areas which are identified by the Environmental Control Officer (ECO) as being ecologically sensitive on or adjacent to the site are to be suitably demarcated to prevent damage by construction practices. These areas are to be recognised as "no-go" areas.</p> <p>No natural vegetation may be cleared without prior permission from the ECO and if applicable from any relevant authority. Indigenous vegetation that is removed is to be replanted either back to the point from which it was taken or must be replaced by new relevant indigenous vegetation.</p> <p>All alien invasive plant species must be continuously removed around the site. The best way to do this is to remove the plants from the roots by hand and leave the plants in the sun to dry out and die before disposal.</p>	<p>Site Manager/ Contractor & ECO</p>	<p>Immediately</p> <p>On-going</p> <p>Immediate and On-going</p>



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.		
	Preservation of natural habitats		
	Prior to the commencement of clearing the proposed building site, the contractor must undertake vegetation search-and-rescue on the site. This operation is a legal requirement to ensure that any endangered vegetation species is transplanted prior to work commencing on the erf.	Site Manager/ Contractor & ECO	Immediate and On-going
	Permission must be attained from the relevant authority (DEFF) to remove any of the specially protected species.		
	Wherever there are sections of undisturbed natural habitat within the development area, they should not be impacted by the building activities and should be conserved.		
Waste Management	On-Site Waste Management		
	The excavation and use of rubbish pits is forbidden.	Site Manager & Contractor	On-going
	Burning of waste is forbidden. <i>A possible exception to this may be that the alien invasive vegetation which is removed from the site should be burned to prevent the spread of the plants. The transportation of Alien Invasive Plants is strictly forbidden in terms of the Conservation of Agricultural Resources Act (CARA), especially if in seed; unless stored in a completely sealed container.</i>		On-going and monitored weekly
	Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day.		On-going monitoring
	An adequate number of general waste bins must be arranged around the site to collect all domestic refuse, and to minimise littering.		
	Solid waste must be managed and separated into recyclable and non-recyclable and disposed of accordingly.		
	Waste must be removed from the site on a weekly basis.		
	The contractor must make adequate provision for removal of building rubble and excess material. No material or building rubble will be spoiled on the Estate. Stockpiling of sand to be completely covered with netting or hessian.		
Handling of Hazardous Materials (if necessary)	Hazardous Materials		
	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and		On-going



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.</p> <p>Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.</p> <p>The mixing of cement must be done on Rhino board.</p> <p>All empty contaminated containers must be stored within a hazardous bunded area until collection by a reputable hazardous waste collection company. Waybills must be presented to the ECO for review and filing purposes.</p> <p>No vehicles transporting hazardous materials to the site may be washed on or near site. They must return to the supplier of such material to be cleaned out.</p>	<p>Site Manager & Contractor</p>	
<p>Cultural Environment</p>	<p>Archaeology and Artefacts</p> <p>No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from ECPRHA.</p> <p>If any archaeological sites/materials are exposed, mitigation regarding the finds must be conducted with the ECPHRA regarding the destiny of the material. Examples of heritage resources are as follow:</p> <ul style="list-style-type: none"> • Human remains • Coins/Gold/Silver • Fossils • Fossils shell middens/ marine shell heaps • Pottery/ceramics <p>If ECPRHA agrees to the removal of the material, an archaeologist must apply for a permit to scientifically excavate/collect the material.</p> <p>All costs must be financed by the applicant. This may include: All monitoring and mitigation expenses regarding the excavations/collecting of material, travel, accommodation and subsistence, analysis of the material, radiocarbon date(s) of the site(s) and a one-off curation/storage fee payable to the relevant repository for Archaeological material.</p>	<p>Site Manager & Contractor</p>	<p>Immediate and On-going</p>



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
Safety and Security	Safety and Security On-Site	Site Manager & Contractor	On-going
	Material stockpiles or stacks must be stable and well secured to avoid collapse and possible injury to site workers / local residents.		
	Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.		
	No unauthorised person may be permitted to enter the site without prior permission of the site manager.		
	Fire Management	Site Manager & Contractor	On-going
	Firefighting equipment should be present on site at all times as per Occupational Health and Safety Act.		
	No fires will be allowed on any part of the the building site. Fire extinguishers are required to be on all sites at all times.		
	All project staff must be trained in fire hazard control and firefighting techniques and know the proper procedure in case of a fire occurring on site.		
	All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.		
	No open fires will be allowed on site.		
Smoking must not be permitted in areas considered to be a fire hazard.			



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10.2. OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation – progressive rehabilitation must be carried out	Vegetation		
	All disturbed areas, or areas which have been disturbed for the purpose of the development, are to be re-vegetated. This will aid in preventing erosion within the site. A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site.	Contractor & ECO	Project completion
	Erosion prevention and control measures must be implemented. Organic mulch or sandbags must be used to contain all sediment and prevent erosion during rehabilitation.	Contractor	Rehabilitation
	All rehabilitated areas must be maintained through weekly inspections until an acceptable success rate has been achieved.	Contractor & ECO	Post Construction/ Maintenance Phase
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. This would need to be undertaken by the ECO or a designated specialist.	Site Manager / Contractor & ECO	Project completion and Maintenance
	Landscaping		
	Owner should be encouraged to avoid planting exotic plants in their garden areas in favour of locally indigenous plants.	Site Manager & Contractor	Project completion
	A Landscape consultant be appointed to recommend and implement the introduction of an indigenous landscape plan to protect the existing indigenous vegetation and to prepare a landscape plan for implementation in the private and common areas.		
All disturbed open space areas are to be rehabilitated using locally occurring indigenous vegetation (plant list available in Section 12).	Site Manager / Contractor & ECO	Project completion and Maintenance	



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
Conservation of the Natural Environment	Foredune conservation		
	Gardening and landscaping should not result in removal or destruction of vegetation which will either destabilize the primary dune or cause a significant adverse effect on the dune system due to increased erosion by natural coastal processes or human movement, or detrimentally affect the ecology or habitat.	Site Manager	On-going
Alien Invasive Plants	Alien plant eradication		
	All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species. Section 11 details methods for Alien Invasive Plant Control.		
	An Alien Invasive Plant Control Plan must be implemented, as encroachment of alien vegetation may increase as a result of the construction process disturbances.		
	Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.	ECO & Site Manager	Immediate and On-going
	The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.		
Land Rehabilitation	Land		
	Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	Contractor & ECO	Project completion
	Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited.	Contractor	Project completion
	The site is to be cleared of all litter.	Site Manager & Contractor	Project completion and Maintenance



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	The surface of all disturbed areas must be left rough to facilitate binding of topsoil and vegetation.	Contractor	Progressive rehabilitation and on Project completion
	Areas that are disturbed through building activities should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth. Use complete cover of locally chipped woody material (for example Acacia cyclops stems and branches but not the seed pods).	Contractor	Progressive rehabilitation and on Project completion
Removal and Repair of Materials and Infrastructure	Materials and Infrastructure		
	All material used for the construction must be removed from site after construction.	Contractor	Project completion
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.		
	Fences, barriers, and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the ECO.		
All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.			
Stormwater Management	Increased stormwater runoff		
	Stormwater from neighbouring erven must be attenuated on site.	Contractor	Project completion
	Impervious surfaces and foundations		
	Stormwater management must encourage infiltration of water into the soil profile.	Contractor	Project completion
Waste	Removal of Hazardous and Non-Hazardous Waste		
	All hazardous materials and containers must be collected by a reputable hazardous waste collection company and disposed of appropriately.	Contractor	Project completion
	Collection and disposal of non-hazardous waste to a registered landfill site must occur at least once a week.	Site Manager	During Operational phase



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
Fire management	No burning of vegetation to be permitted, even as part of alien plant management.	Site Manager	On-going
	Ensure that no refuse waste is buried or burnt on the site or surrounds.		
	Smoking must not be permitted in areas considered to be a fire hazard.		
	Implement regulations/rules around "braai" fires /open flame fires especially when high fire danger weather conditions are predicted.		
	Ensure that access roads are kept clear in order for firefighting vehicles to have unobstructed access to the structures/houses.		
	Work collaboratively with local authorities to develop an emergency preparedness plan that outlines the steps to take in the event of a fire. The plan should include protocols for notification, evacuation, and communication with local authorities.		
	The goal of the management plan should be to prevent wildfires from starting and spreading and to minimize the impact of any fires that do occur.		
	Owner must report any sign of smoke or a vegetation fire immediately to their local Municipal Fire and Rescue Services.		

10.3. REHABILITATION AND MAINTENANCE

***All rehabilitation measures must be implemented with consultation with an Alien Invasive Plant Control Plan**

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation	Vegetation	Applicant, Site Manager & ECO	On-going site maintenance
	A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site.		
	Erosion prevention and control measures must be fully implemented (if necessary).		



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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation.		
Stormwater Management	Stormwater	Applicant & Site Manager	On-going site maintenance
	Any negative stormwater effects, related to the operational phase, must be remediated.		
	On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project.		

11. ALIEN PLANT CONTROL PROGRAMME

Please consult a Botanical specialist before attempting to remove Alien Invasive Plants.

11.1 INTRODUCTION

Benefits of control

- Elimination of spread of these species into non-affected areas.
- Improvement of water quality and quantity.
- Legal compliance: landowners are required to eradicate or control declared weed and alien invader plants in terms of the Conservation of Agricultural Resources Act 43 of 1983 and the National Environmental Management: Biodiversity Act 10 of 2004.
- Improvement of biodiversity in conservation areas. Fast growing invader plants suppress indigenous flora, with a resultant loss in overall biodiversity.
- Commercial reasons: alien vegetation can spread from conservation areas into production land resulting in greater weed control costs.

Important factors influencing the effectiveness of a control programme

- Timely implementation of control operations is important for alien plants.
- Operations must be directed towards killing alien vegetation. This is best achieved by using an effective herbicide chosen by the ECO and applied by using the "cut-stump; frilling or ring barking methods. Under no circumstances may spraying with a "Rose" or multi-stream nozzle head be done.

Requirements for an effective alien vegetation control programme

- Identify the problem: extent, location and species of problem plant.
- Divide the problem areas into manageable units, taking budget and resource constraints into account.
- Identify any sensitive ecosystems, rare or endangered plants etc. which may be affected by a control programme. Identify the original ecosystem applicable to the area.
- Make provision for a number of follow up operations. The initial clearing operation is only part of the total programme. Failure to follow up will result in a failure of the entire programme.

While the importance of removing or clearing of alien or exotic vegetation is recognised, there should be control over the way in which this takes place. Often what generally appears to be covered by alien vegetation, actually contains pockets of sensitive vegetation or protected species. It is for this reason that clearing of such areas must be undertaken by hand (*Guidelines for the Control and Management of Activities in Sensitive Coastal Areas, first edition, 1998*).

It is important to note that all of the above must be performed with instruction by the ECO, as well as in the presence of an ECO at all times.

11.2 LEGISLATION

The National Environmental Management Act, No 107 of 1998, creates a duty of care towards the environment. Within the preface of this Act, it is stated thus:

"Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development: the environment is a functional area of concurrent national and provincial legislative competence, and all spheres of government and all organs of state must co-operate with, consult and support one another."

Any person or business found to be responsible for illegally introducing an invasive plant or species, and allowing it to spread, may be compelled, by this Act to desist with their actions and remove the source of invasion.

The Conservation of Agricultural Resources Act, No 43 of 1983 (CARA) was passed to protect soil, water resources and vegetation. This included measures to manage and control weeds and invader vegetation species. The CARA regulations declare several species of "weeds" or "invader plants." These species have been divided into three categories:

Category 1a Listed Invasive Species:

Category 1a Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the National Environmental Management: Biodiversity Act/ NEMBA (Act 10 of 2004) as species which must be combatted and eradicated.

A person in control of a Category 1a Listed Invasive Species must-

- (a) comply with the provisions of section 73(2) of the NEMBA;
- (b) immediately take steps to combat or eradicate listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA; and
- (c) allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species.

If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

Category 1b Listed Invasive Species:

- 1) Category 1b Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the NEMBA as species which must be controlled.
- 2) A person in control of a Category 1b Listed Invasive Species must-
 - (a) control the listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA.
 - (b) must allow an authorised official from the Department to enter onto the land to monitor, assist with or implement the control of the listed invasive species, or compliance with the Invasive Species Management Programme contemplated in section 75(4) of NEMBA.
- 3) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

Category 2 Listed Invasive Species:

- 1) Category 2 Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the NEMBA as 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, as the case may be.
- 2) Unless otherwise indicated in the Notice, no person may carry out a restricted activity in respect of a Category 2 Listed Invasive Species without a permit.
- 3) A landowner on whose land Category 2 Listed Invasive Species occurs or person in possession of a permit, must ensure that the specimens of the species do not spread outside of the land or the area specified in the Notice or permit.
- 4) Unless otherwise specified in the Notice, any species listed as Category 2 Listed Invasive Species that occurs outside the specified area contemplated in sub-regulation (1), must, for purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to Regulation 3 above.
- 5) Notwithstanding the specific exemptions relating to existing plantations in respect of Listed Invasive Plant Species published in *Government Gazette* No. 37886, Notice 599 of 1 August 2014 (as amended), any person or organ of state must ensure that the specimens of such Listed Invasive Plant Species do not spread outside of the land over which they have control.
- 6) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.



Category 3 Listed Invasive Species:

1) Category 3 Listed Invasive Species are species that are listed by notice in terms of section 70(1)(a) of the NEMBA, as species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of the NEMBA, as specified in the Notice.

2) Any plant species identified as a Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3 below.

3) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

Should any invasive plant species occur, other than those stated in The Act, the land user must control them by species-specific control methods. Caution should ALWAYS be taken when dealing with noxious chemicals, and care should be taken to cause the least amount of harm to the environment.

11.3 Ways to Eradicate Invasive Alien Plants

This IAP eradication and control program comprises the following three steps:

Step 1

The first step of the Invasive Alien Plant Eradication Programme will be to undertake an inception and educational meeting, where the people employed to undertake this activity are able to identify the correct species as aliens and the manner in which to remove and control them.

Step 2

The second step will be to identify the Invasive Alien Plants (IAP) and start a process of removing the individuals that occur on the site. The removal of the alien species must be in a stepwise manner and be undertaken within a single area at a time. This will ensure that all individuals are removed at the same time to reduce re-infestations. Below are a number of methods that may be employed to undertake the activity of removing alien plant species. These methods are dependent on the size and nature of the plant that is to be removed.

11.4 Managing IAP Invasions

Once an invasion has been identified and quantified there are four methods that managers and landowners can take to deal with IAPs that includes prevention of new infestations and the early identification and eradication, containment or suppression of existing invasions. In the case of introduced, naturalised or invasive species, pre-introduction measures are no longer possible (apart



from preventing additional introductions), therefore post-introduction management is focused on controlling infestations with chemical, mechanical or biological means.

- Prevention

This includes the monitoring of the area so that new infestations can be prevented. This also includes rehabilitating disturbed areas and keeping the disturbance of natural areas to a minimum.

- Early identification and eradication

When an IAP is spotted during prevention monitoring it must be swiftly dealt with using the methods described below.

- Containment, control, and suppression

If there are already an established infestation of an IAP on site which cannot be eradicated, then it should be contained to the site. New propagules should be removed so that the infestation doesn't worsen. Efforts should be made to ensure the infestation is reduced as far as physically and economically possible.

11.5 Mechanical Methods

❖ *Hand-pulling*

This method of removal is only really an option during the summer months and when the IAP that are requiring removal are very small, and their root system is not very well established. The only precautionary note here is that many alien plant species may look similar to indigenous species when they emerge, so the labour force must be extremely well versed in the individuals that will require removal.

❖ *Up-rooting*

This method is similar to hand-pulling but is undertaken on slightly older individuals of the target species. It only has one drawback; a relatively large area can be disturbed with the soils being altered and opening the area up to re-infestation.

❖ *Lasso & Winch*

This method is the upgraded version of the up-rooting, with the same principles applying, that is of trying to remove the entire plant with all the root system attached, to prevent re-growth. This can have a serious destabilizing effect on the receiving environment and should definitely not be undertaken on slopes or sandy soils.

❖ *Cutting / Slashing*

This method is not a suitable method for control and long term management if used as a stand-alone technique because many of the IAP will simply coppice or re-sprout during the summer periods. Many, if not most, alien plants species are annual species, and through their natural life strategy (r-selected) are able to withstand disturbance, even extreme disturbance as in this instance.

❖ **Ring-barking**

This involves the removal of bark in a 30 centimetre band. This technique is used to desiccate the plant through killing the phloem and xylem and thus preventing transpiration. Further it also facilitates pathogen infestation. It is very effective on large trees if undertaken correctly.

❖ **Strip-barking**

As with ring-barking, just at a larger scale.

❖ **Frilling / Girdling**

Girdling and frilling are methods of killing standing trees that may be done with or without an herbicide. Girdling involves cutting a groove or notch into the trunk of a tree to interrupt the flow of sap between the roots and crown of the tree. The groove must completely encircle the trunk and should penetrate into the wood to a depth of at least 1.5 centimetres on small trees, and 2.5 to 4 centimetres on larger trees. Girdling can be done with an axe, panga or chain saw. When done with an axe or panga, the girdle is made by striking from above and below along a line around the trunk so that a notch of wood and bark is removed. The width of the notch varies with the size of the tree. Effective girdles may be as narrow as 2.5 to 5 centimetres on small-diameter trees, and as wide as 15 to 20 centimetres on very large-diameter trees. When a chain saw is used to girdle, two horizontal cuts between 5 and 10 centimetres apart are usually made completely around the tree when no herbicide is used and one horizontal cut is made completely around the tree when herbicide is used.

Frilling is a variation of girdling in which a series of downward angled cuts are made completely around the tree, leaving the partially severed bark and wood anchored at the bottom. Frilling is done with an axe or panga.

By themselves, girdling and frilling are physical methods to deaden trees that require very little equipment and may be done without herbicides. Both techniques require considerable time to carry out, particularly with an axe or panga. The effectiveness of girdling and frilling depends on the tree species and on the size and completeness of the girdle or frill. To be effective, girdles and frills must completely encircle the tree. Because frills can heal-over more easily, girdling is usually more effective.

The effectiveness of both girdling and frilling can be increased by using herbicides. With frilling and girdling, water soluble forms of herbicides are most commonly used to get maximum movement of herbicide within the plant. When using water-soluble herbicides, the herbicide/water mixture is



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commonly applied by squirting it on the girdle or frill until the cut surface is wet. Hand-held, spray bottles, such as those available at local garden stores, are ideal for applying herbicide to the girdle. Again, note that a single, rather than double chain saw girdle is used when a water soluble herbicide is to be applied.

11.6 Chemical Methods

The use of chemicals in controlling and removing of IAP should not be excluded as a possible option. Once the IAP are more manageable the use of chemicals should be reduced or excluded completely. The best option would be to pursue a combination of mechanical and chemical control in the early stages.

The only negative impact of the use of chemicals is that if used incorrectly may result in plant species being able to develop some form of resistance to the herbicide. If herbicides are used as a foliar spray, drift will cause non-target species to be impacted upon. The only method that should be undertaken is the cutting of the plants prior to the treatment of the remaining stems using a "stem painting" technique.

It is imperative that the herbicides used are dye treated or that the end-user add a dye to ensure that all stems that have been treated are easily identified. Note, the application of the chemical solution must follow directly after the cutting of the vegetation. Therefore, a small area should be selected and all cutting and stem painting be undertaken on that area prior to moving to the next area.

DFFE herbicide quantity estimation ([Invasive alien plant control management plan | Department of Environmental Affairs \(dffe.gov.za\)](#)) is attached to this document as a guide.

11.7 Biological Control

This entails using a natural enemy (bacteria, fungus, weevils, mites) of the intended IAP to attack specific parts of the plant (roots, stem, flowers) to either kill the plant, reduce its vigour, or reduce reproductive output. Only certain species have registered bioagents, the most successful stories of biocontrol being the *Opuntia* genus and *Acacia* species. Please contact DFFE or SANBI for directions on how to obtain these agents.

DFFE have provided a guide on bio-control agents for terrestrial plant species ([Invasive alien plant control management plan | Department of Environmental Affairs \(dffe.gov.za\)](#)), attached to this document.

11.8 Environmental Safety

In order to minimise the impact of the operation on the natural environment the following must be observed.

- ❖ Area contamination must be minimised by careful accurate application with a minimum amount of herbicide to achieve good control.
- ❖ All care must be taken to prevent contamination of any water bodies. This includes due care in storage, application, cleaning equipment and disposal of containers, product and spray mixtures.
- ❖ Equipment should be washed where there is no danger of contaminating water sources and washings carefully disposed of at a suitable site.
- ❖ To avoid damage to indigenous or other desirable vegetation product should be selected that will have the least effect on non-target vegetation.
- ❖ Coarse droplet nozzles should be fitted to avoid drift onto neighbouring vegetation, e.g. TG-1 or equivalent.
- ❖ The correct protective clothing is to be used in line with manufacturer's instructions and / or the Occupational Health & Safety Act, Act 85 of 1993 (and amendments) and,
- ❖ All MSDS sheets are to be made available on site along with a Medical First Aid Kit.

11.9 Disposal of IAP Vegetation

- ❖ Plant material should be used beneficially wherever possible, as opposed to disposing of it at a landfill site where it takes up valuable airspace, or let it further propagate on unchecked, vacant land.
- ❖ Woody and dry material, provided no seeds are present, can be chipped and used as mulch or made available to the local community for firewood.
- ❖ Wet material and aquatic weeds should be combined with other organic matter and composted. Alternatively, it may be possible to use it for basket making, animal feed or other uses.
- ❖ Burning of alien vegetation waste material is prohibited.
- ❖ Burying of alien vegetation waste material is prohibited.
- ❖ Any vegetation which is not viable for use must be disposed of at a registered disposal unit.

11.10 LIST OF INVASIVE ALIEN PLANT SPECIES

Please consult a Botanical specialist or Horticulturist to identify Invasive Alien Plants before attempting to undertake IAP removal.

IAP species that may occurring on the site according to the Terrestrial Plant Study:

Name	Common Name	Category	Abundance
<i>Acacia cyclops</i>	Rooikrans	NEMBA Category 1b	Moderate
<i>Acacia saligna</i>	Port Jackson willow	NEMBA Category 1b	Low

RED EYE (*ACACIA CYCLOPS*)

TARGET TREE	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS & SAPPLINGS	HAND PULL OR HOE			OPEN STAND	
	SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	DENSE STAND	2l / ha
TREES UP TO 2m TALL	CUT LOW DOWN				
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER		4l / ha
LARGE TREES	CUT LOW DOWN			DO NOT APPLY HERBICIDE	
	FRILL	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml/10L WATER		1.5 l / ha

NOTE: CUT DOWN LOW, TO PREVENT COPPING.

* CONSULT THE WFW TECHNICAL ADVISOR.



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PORT JACKSON WILLOW (*ACACIA SALIGNA*)





TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
SEEDLINGS	HAND PULL OR HOE			OPEN STANDS	
	FOLIAR SPRAY	MAMBA (GLYPHOSATE 360g/l)	2 – 4l / ha	SPOT SPRAY 1.5% SOLUTION	2-4l / ha
		TOUCHDOWN (GLYPHOSATE TRI-MESIUM 480g/l)	2 – 4l / ha		2-4l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	SEE NOTE BELOW	1.5l / ha
NOTE: USE GARLON 4 or VIROAXE, IF OTHER PIONEER GRASS SEEDLINGS PRESENT.					
SAPLINGS AND YOUNG TREES	HAND PULL OR HOE				
	FOLIAR SPRAY	TOUCH DOWN (GLYPHOSATE)	4 l/ha	PLANTS UP TO 600mm HIGH	4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	PLANTS UP TO 2m HIGH	3 l / ha
BIG TREES	CUT STUMP	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha
	FRILL	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha

12. SPECIES PLANTING LIST

A Botanical specialist should be consulted for a comprehensive list in this regard.

Plant list of common species in surrounding area:

Table 8: Descriptions of the terrestrial ecosystems observed on Erf 3132 Sea Vista during the site inspection.

Representative site	Ecosystem description	Biodiversity priority	SCC likelihood	Photo
Site 1	Landscaped garden comprising mainly a hedge of the non-native <i>Brachylaena discolor</i> fringed with a herbaceous layer of <i>Senecio angulatus</i> , as well as a single <i>Rapanea melanophloeas</i> tree (likely planted). The lawn fronting the hedge and garden bed is dominated by <i>Cynodon dactylon</i> .	Low	Animal – Low Plant – Low	
Site 2	A small patch of dune scrub comprising <i>Searsia crenata</i> , <i>Osteospermum moniliferum</i> , <i>Carpobrotus deliciosus</i> and the alien invasive <i>Acacia cyclops</i> . The edge of this patch has likely been landscaped, with the introduction of native species like <i>Carissa bispinosa</i> and <i>Polygala myrtilifolia</i> (these may also have regenerated naturally, but have the appearance of horticultural stock rather than wild plants). This site fringes on the primary dune slope of Site 4, and is fronted by a lawn that comprises a mix of <i>Cynodon dactylon</i> and <i>Stenotaphrum secundatum</i> .	Low	Animal – Low Plant – Low	
Site 3	Landscaped garden comprising native species like <i>Carissa bispinosa</i> , <i>Colpoon compressum</i> and <i>Dimorphanthea fruticosa</i> (these shrubs may be natural remnants, but have the appearance of horticultural stock rather than wild plants and seem to be pruned). A single individual of the alien invasive <i>Acacia saligna</i> also occurs here. The surrounding lawn comprises a mix of <i>Cynodon dactylon</i> and <i>Stenotaphrum secundatum</i> .	Low	Animal – Low Plant – Low	
Site 4	A previously disturbed primary dune slope that has since been colonised by a mix of alien and native species. The alien invasive <i>Acacia cyclops</i> is locally abundant, while native species are typical dune pioneers like <i>Ehrharta villosa</i> , <i>Osteospermum moniliferum</i> , <i>Metalsia muricata</i> , <i>Passerina rubra</i> and <i>Tetragonia decumbens</i> . A single wind-pruned individual of the protected tree <i>Sideroxylon inerme</i> occurs here. The mowed strip between the dune slope and road is dominated by <i>Stenotaphrum secundatum</i> .	Low	Animal – Low Plant – Low	



13. STAFF CONDUCT CONTROL AND INFORMATION SHEET

ALL STAFF MUST OBEY THE FOLLOWING RULES:	
1	DO NOT tamper with or destroy nesting sites, lairs or any other form of animal shelter.
2	DO NOT feed the native animals.
3	DO NOT leave the project site untidy and strewn with rubbish that will attract pests.
4	DO NOT bring any pets onto the project site.
5	DO NOT trespass onto private properties not linked to the project.
6	DO NOT carry a weapon onto the project site or in the vehicles transporting workers to and from the site.
7	DO NOT set fires.
8	DO NOT cause any unnecessary disturbing noise at the project site or at any designated worker collection/drop off points.
9	DO NOT drive a vehicle under the influence of alcohol.
10	DO NOT exceed the national speed limits on public roads or exceed the recommended speed limits in this management plan (where applicable)
11	DO NOT drive a vehicle that is generating excessive noise (noisy vehicles must be reported and repaired as soon as possible).
12	DO NOT litter along the roadsides, including both public and private roads.
13	DO NOT remove or destroy vegetation around the site without the prior consent of the site manager and Environmental Control Officer.
14	DO NOT tamper with, destroy or remove vegetation from any areas that have been fenced off or marked.
15	DO NOT pollute watercourses, whether flowing or not.
16	DO NOT drive through watercourses.
17	DO NOT operate critical items of mechanical equipment without having been trained and certified.
18	ALL employees must undergo the necessary safety training and wear the necessary protective clothing at all times.
19	NO unsocial behaviour will be permitted e.g., excessive shouting, hooting etc.
20	NO ad-hoc activities are to be undertaken e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden
21	NO trespassing on private / commercial properties adjoining the site is forbidden.
22	NO worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do.



14. RESPONSIBILITIES

The "Responsibility" column is merely a guide and does not relieve the Applicant of his responsibilities in terms of overall compliance with the EA and EMPr.

FUNCTION	RESPONSIBILITY
Applicant	<ul style="list-style-type: none"> The Applicant is ultimately responsible for the ensuring compliance with all the requirements associated with the construction, operation, rehabilitation and decommissioning phases of the project.
Site Manager	<ul style="list-style-type: none"> The Site Manager is responsible to ensure that all necessary communication and submission of required documentation concerning this project is submitted to the relevant authorities. The site manager is required to adhere to the EMPr and is responsible to ensure that all staff appointed also adhere the EMPr. Ensures that all staff are made aware of the need to conduct activities in an environmentally responsible manner. (Site Manager) On instruction by the ECO, ensures that storm/surface water controls are established. Ensures prompt remediation of any sewage spills. Stockpiles are protected from aeolian effects, stormwater effects, or being driven over by workers. Ensures that a "clean-site" policy is applicable at all times. Ensures that all complaints by residents are dealt with promptly. Is responsible for any contravention/s by staff or any non-compliance with the EMPr.
Environmental Control Officer (ECO)	<ul style="list-style-type: none"> The ECO is to have access to the site at all times, for the purpose of inspections to ensure that the environmental conditions of the EMPr as well as the conditions stipulated to in the EA and the recommendations made in the EIR are being implemented and adhered to. The ECO must report on the environmental aspects of the project to the responsible person/authority at agreed intervals. The need for any deviations or variations in the environmental conditions must be reported to the DEDEAT for approval prior to these being undertaken. The ECO must be fully cognisant with the contents of the Environmental Authorisation as well as this EMPr and any other applicable legislation
Competent Authority	<ul style="list-style-type: none"> The Compliance Officer appointed by the Competent Authority is responsible for the ensuring that the Applicant, Site Manager and ECO are compliant with the provisions of the EA and EMPr.



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ACKNOWLEDGEMENT FORM

Record of signatures providing acknowledgment of being aware of and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental mitigation measures for the project outlined below, and the environmental conditions contained in all other contract documents.

PROJECT NAME:

The Proposed Development of a boundary wall, storage area and view deck Erf 3132, St. France, Kouga Municipality.

APPLICANT:

Signed: Date:

SITE MANAGER:

Signed: Date:

ENVIRONMENTAL CONTROL OFFICER

Signed: Date:



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APPENDIX A: CV OF THE EAP