Draft BAR: Appendix F – DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (Draft EMPr)

In terms of the **National Environmental Management Act** (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations (as amended, 2017) for:

PROPOSED DEVELOPMENT OF A RESIDENTIAL DWELLING ON ERF 1363, PARADYS STRAND, KOUGA LOCAL MUNICIPALITY, EASTERN CAPE

DEDEAT REFERENCE NUMBER: EC08/C/LN1&3/M/18-2026

REVIEW AND COMMENT PERIOD: 1 June – 1 July 2026

PREPARED FOR THE APPLICANT:	**Mr Krzysztof Kryszczuk**
PREPARED BY:	**Claire De Jongh (EAPASA REG: 2021/3519)**
DATE:	**June 2026**

ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS:

Appendix 4 of Regulation 982 of the 2014 EIA Regulations (as amended, 2017) published in terms of the NEMA, 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:

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

(a) Details of – (i) The EAP who prepared the EMPr; and (ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae;	This EMPr was prepared by Claire De Jongh. Please see attached CV of the EAP (Annexure 3).
(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 5 - ENVIRONMENTAL MANAGEMENT PROGRAMME
(c) a map at an appropriate scale which superimposes the proposed activity, it associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Annexure 1
(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 – (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Draft BAR
(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 – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (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;	Section 5 - ENVIRONMENTAL MANAGEMENT PROGRAMME
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 5 - ENVIRONMENTAL MANAGEMENT PROGRAMME Section 6 - **Property value** • Implement recommended mitigation measures and any conditions of the EA (if attained) **Water Quality – Elevated Nutrient and Bacterial Levels** • The proposed on-site conservancy tanks should be constructed, operated and maintained according to the design

	specifications to prevent leakage and emptied regularly to prevent overtopping. • Care should be taken, particularly during rainfall events and flooding events when conservancy tanks may be inundated due to high groundwater levels, to prevent nutrient-rich water from flowing into the surrounding area. • Ensure no disposal of items that can cause blockages / malfunctioning of system is not flushed down toilets. • Install the sewage and wastewater infrastructure according to applicable national SANS standards, DWS Guidelines and adhere to municipal regulations & by-laws. • Monitoring of water quality (e.g. determination of E. coli levels) immediately upstream and downstream of the proposed development site should be undertaken at regular intervals (e.g. at least twice a year) in order to detect any pollution emanating from the site due to overloading or poor management of the conservancy tank sanitation system • It is recommended that the existing septic tank be replaced with a conservancy tank (which is a closed system) with sufficient capacity. • Ensure the waste is regularly pumped out whenever the tank is full by a licensed hauling company ('Honey Sucker Service' to remove the content to the closest Wastewater Treatment Works once the tank is full). Keep record of service for audit purposes. **Stormwater Runoff Causing Erosion** • Avoid making footpaths through dune vegetation; make use of walkway and lookout point. • The lookout point is recommended for cleaning of surfing equipment due to space constraints and to avoid disturbance to dune vegetation and dune sands • Establishing dense stands of suitable indigenous vegetation • Stormwater tanks to be installed to capture water from roofing structures. • The rainwater and gutter system to be designed by an approved competent person.

	• The planned access and driveways will need to include suitable stormwater management measures to manage the anticipated runoff during storm events. Permeable pavers are recommended (if required) to allow quick infiltration of water to the permeable soils below • Check weather reports for rainfall predictions on a weekly and daily basis. Do not carry out maintenance work during rainfall and ensure the site has been prepared to prevent wash off of materials as required • Progressively place back subsoil, then topsoil and mulch and revegetate exposed areas once maintenance activity has been completed **General Waste pollution and hazardous materials** • Identify closest registered waste site • Under no circumstances may any solid waste be burnt or buried on site / surrounding area • Waste management must follow waste hierarchy – avoid, reduce, reuse, recycle, dispose • Specific area must be designated for general waste management at each dwelling. i.e. plastic, paper, tin, glass, organic • Ensure regular offsite removal of waste to suitably licensed disposal / transfer site • Specific area must be designated for storage of all hazardous materials and substances required for operations and / or maintenance. Ensure cleaning materials, volatile materials and other hazardous materials (e.g. chemicals) are securely stored within a suitable sealable non-corrosive container. Ensure lids are secure to avoid unnecessary release into the environment. Store on a bunded area covered with roof and secure with lock and key. Recommended to place this under the dwelling adjacent to lockable garage. **Unintentional and uncontrolled fires can have high significant impacts on the social and natural environment**

	• No fires beyond boundary of portion • No cigarette butts or burning substances are permitted to be released into the environment. All cigarette butts to be extinguished first and then disposed of in a waste receptacle provided. • No burning of waste – put in place waste management measures to ensure waste is moved off site timeously, particularly AIS slashed material which can be a fire risk if it is not chipped and spread. • Fire response measures to be in place at risk areas along site (I,e fire extinguishers, fire emergency response water) • If a fire is detected it must be attended to immediately. • Ensure emergency numbers are on hand for fire response in the area. • Regularly check South African weather Services at all times to receive early warning details of floods, droughts, high winds and potential fires in the area and plan accordingly **Climate Change** • As per mitigation measures for construction and operational phase EMP Targets – Planning, Construction, Operations Section 7 - COMPLIANCE WITH THE EMPr
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6 - **Property value** • Implement recommended mitigation measures and any conditions of the EA (if attained) **Water Quality – Elevated Nutrient and Bacterial Levels** • The proposed on-site conservancy tanks should be constructed, operated and maintained according to the design specifications to prevent leakage and emptied regularly to prevent overtopping. • Care should be taken, particularly during rainfall events and flooding events when conservancy tanks may be inundated due to high groundwater levels, to prevent nutrient-rich water from flowing into the surrounding area. • Ensure no disposal of items that can cause blockages / malfunctioning of system is not flushed down toilets.

	• Install the sewage and wastewater infrastructure according to applicable national SANS standards, DWS Guidelines and adhere to municipal regulations & by-laws. • Monitoring of water quality (e.g. determination of E. coli levels) immediately upstream and downstream of the proposed development site should be undertaken at regular intervals (e.g. at least twice a year) in order to detect any pollution emanating from the site due to overloading or poor management of the conservancy tank sanitation system • It is recommended that the existing septic tank be replaced with a conservancy tank (which is a closed system) with sufficient capacity. • Ensure the waste is regularly pumped out whenever the tank is full by a licensed hauling company ('Honey Sucker Service' to remove the content to the closest Wastewater Treatment Works once the tank is full). Keep record of service for audit purposes. **Stormwater Runoff Causing Erosion** • Avoid making footpaths through dune vegetation; make use of walkway and lookout point. • The lookout point is recommended for cleaning of surfing equipment due to space constraints and to avoid disturbance to dune vegetation and dune sands • Establishing dense stands of suitable indigenous vegetation • Stormwater tanks to be installed to capture water from roofing structures. • The rainwater and gutter system to be designed by an approved competent person. • The planned access and driveways will need to include suitable stormwater management measures to manage the anticipated runoff during storm events. Permeable pavers are recommended (if required) to allow quick infiltration of water to the permeable soils below • Check weather reports for rainfall predictions on a weekly and daily basis. Do not carry out maintenance work during rainfall and ensure the site has

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	• Fire response measures to be in place at risk areas along site (I,e fire extinguishers, fire emergency response water) • If a fire is detected it must be attended to immediately. • Ensure emergency numbers are on hand for fire response in the area. • Regularly check South African weather Services at all times to receive early warning details of floods, droughts, high winds and potential fires in the area and plan accordingly **Climate Change** • As per mitigation measures for construction and operational phase EMP Targets – Planning, Construction, Operations Section 7 - COMPLIANCE WITH THE EMPr
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6 of draft EMPr
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 5 - ENVIRONMENTAL MANAGEMENT PROGRAMME Section 6 of draft EMPr Section 7 - COMPLIANCE WITH THE EMPr
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 6 of draft EMPr Section 7 - COMPLIANCE WITH THE EMPr
(l) a program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	Section 4 - REPORTING PROCEDURES Section 7 - COMPLIANCE WITH THE EMPr
(m) an environmental awareness plan describing the manner in which – (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	Section 7 - COMPLIANCE WITH THE EMPr Section 10. - DRAFT STAFF / RESIDENT CONDUCT CONTROL AND INFORMATION SHEET
(n) any specific information that may be required by the competent authority.	Draft BAR

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
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.
CMP	**Coastal Management Plan**
EAP	**Environmental Assessment Practitioner –** An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must – (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 proponent 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 – 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. (2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the proponent 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. (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).
ECO	**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
EIA	**Environmental Impact Assessment**
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.

KKLM	**Koukamma Local Municipality**
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.
SANBI	**South African National Biodiversity Institute**
SBDM	**Sarah Baartman district Municipality**

1. Contents

1. INTRODUCTION

In accordance with the Integrated Environmental Management Guidelines published by the Department of Forestry, Fisheries, and the Environment (DFFE) 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 draft EMPr must be read in conjunction with the draft Basic Assessment Report and all related appendices dated October 2024. All recommendations, relevant conditions and mitigation measures provided in these documents have been included in the EMPr and must 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 planning, construction and operational phases and 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 require updating during the project phases in response to new and changing circumstances to mitigate environmental impacts.
Relevant changes and updated EMPr must be submitted to the Eastern cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for approval.

1.2 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 operational phases of the proposed development. The EMPr focuses on providing practical measures to avoiding negative environmental impacts and enhance positive environmental impacts where possible.
Once the EMPr is approved by DEDEAT it is seen as a legal binding document on the following affected parties:

1 Project Applicant (Mr Krzysztof Kryszczuk)
2 Project planning team including for example, town planner and SDP compilation, ECO (Pure Desing, engineer)
3 All contractors and subcontractors (eg Service providers)
4 Operational management team (Owner / residents)

Copies of this EMPr must be kept on site and all senior personnel are expected to familiarise themselves with the content of this EMPr.
Contractor method statements **must be aligned to relevant conditions in the EMPr and any conditions of the EA** (if attained).
It is suggested that the EMPr be reviewed on a five (5) year basis if required. Should any amendments need to be made during operational phase, **written authorisation should 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

Erf 1363 is situated on de Jager street in Parady's Strand (SG Code: C03400110000136300000) and falls within 100 meters of the high-water mark of the sea. The erf is an estimated 741.6 m2 in extent. Approximate central coordinates: 34° 6'21.00"S; 24°53'16.07"E (**Error! Reference source not found.**).

Figure 1: Location of erf 1363, Paradys beach

The owner of the property is proposing to develop a dwelling with an estimated development footprint of 298.9m2 which will include an estimated 43.8m2 decking area. A lookout point is also proposed which will be equipped with a walkway leading from the house to the lookout point and it will be set above the vegetation (similar to a rope bridge / raised decking walkway). The lookout area will be an estimated 20m2.

Access to the proposed development area will be a driveway developed off de Jager Street.

The development will be managed using self-generated electricity via a combination of solar power and gas. Stormwater management will be via correct placement of drainage pipes, stormwater catchment tanks, gradient and permeable paving and anti-erosion features where required. All stormwater will drain into the natural environment and be released so it doesn't result in erosion (I, e, back of the dwelling and / or equipped to drain to the Kouga municipal stormwater system in the road servitude. Water and waste management services are provided by the Kouga municipality as it is zoned as residential 1 and relevant service fees will be included in the rates. Sewage will be treated by means of a conservancy tank which will be suitable sized and sealed and regularly serviced. The tank will be positioned to allow for easy access of the honey sucker service.

Due to the dynamic nature of the site within a coastal environment, the dwelling is recommended to be designed in such a way to prevent instability of the dunes and to prevent erosion. Maintaining a dense vegetation cover will trap and stabilise the sand to some extent and avoid the nuisance of sand encroachment. The house design should keep this in mind in terms of doorways and outside spaces. A raised structure would allow sand transport under the

structure with less nuisance inside the buildings. The eastward part of the property could be raised (inundated by sand) in future years as the frontal dune migrates onto the property. The rate of movement is not known at this stage. To avoid possible shifts, it is advised that the foundations/pylons of the building on Erf 1363 extend down as far as possible along the southwestern side of the building (engineering advise recommended on depths). This will allow movements of the upper part of the dune without impacting the foundations of the building on Erf 1363. The risk of these shifts is less towards the north of Erf 1363.

Detailed site layout plans and designs will be provided once an environmental authorisation is in place; the site layout and designs will align to the relevant conditions of the EA (if attained) and accompanying mitigation measures contained within an approved Environmental Management Plan Report (EMPr).

Figure 2: Concept design and layout of the proposed dwelling on erf 1363

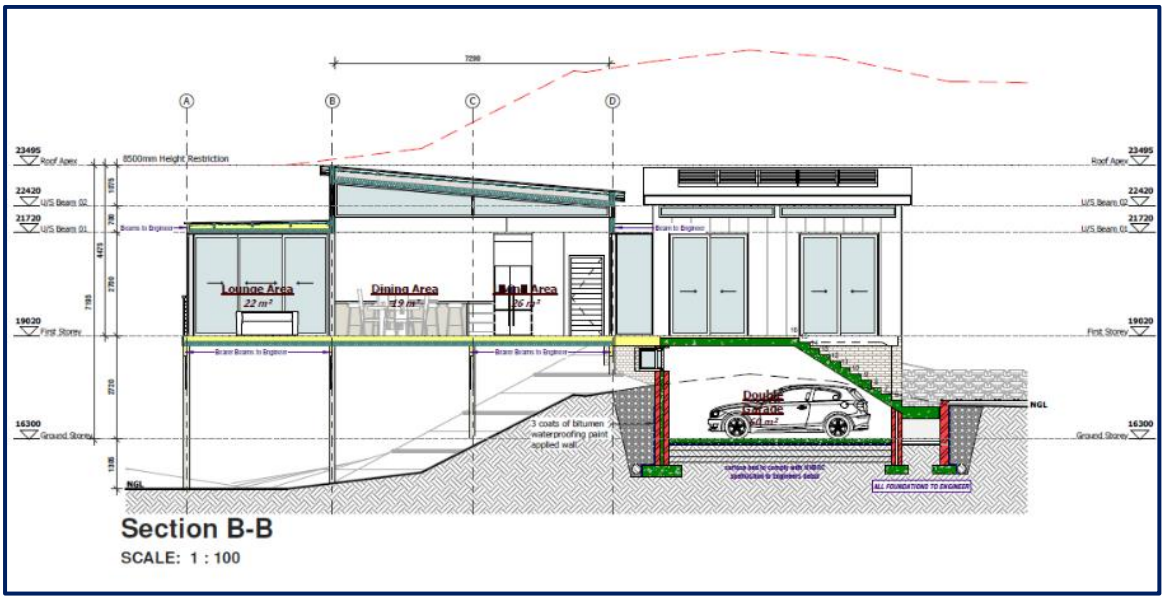

Figure 3: Design and layout of the proposed dwelling on erf 1363 (Pure Design; drawing number:100, August 2023)

The proposed development triggers activities in Listing Notice 1 and Listing Notice 3 of the Environmental Impact Assessment Regulations, 2014 (as amended, 2017) published in terms of the national Environmental Management Act (Act 107 of 1998) (NEMA) and therefore requires an environmental authorisation to be issued by the competent authority before development can commence. The competent authority for the application is the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism.

Based on the scope of work, the preconstruction and planning phase is estimated to take a further 24 months to complete; the construction of the dwelling is expected to take between 6 – 24 months to complete.

The final designs and conditions of the EA must be incorporated into the final SDP; the SDP approved by KLM must first be approved by the DEDEAT. The KLM, *inter alia*, will be sent the draft BAR for a 30-day comment and review period. Refer to Appendix A1 for the proposed site development plan; Refer to Appendix C for the concept designs.

The draft basic assessment report will be distributed for a 30-day review and comment period. The report will then be updated to address all comments received and the final report will then be submitted to the DEDEAT for a 107-day decision making phase. The report aims to provide all relevant information required for the competent authority to make an informed decision on the proposed NEMA EA application.

The main impacts associated with the proposed activity includes the following:

- Impacts to dune systems
- Development within dynamic coastal environment
- Erosion
- Disturbance to vegetation
- Alien invasive species
- Dust impacts
- Incorrect management of sludge stream
- Incorrect waste management
- Positive impact on socio-economic conditions as a result of employment opportunities
- Negligible impacts on heritage resources with the implementation of relevant conditions contained within this draft EMPr.

The EMPr contains all the mitigation measures to prevent / reduce negative environmental impacts and enhance positive impacts. These mitigations measures are a combination of measures recommended by the specialist assessments and recommendations by the EAP. **This EMPr must be updated with all conditions of the environmental authorisation (EA) if attained and the final approved SDP and design.**

3. LEGISLATIVE REQUIREMENTS

3.1 Signing of the EMPr

The acknowledgement form at the back of the approved EMPr is to be signed by the holder of the Environmental Authorisation (the Applicant), the Contractor, and the ECO; acknowledging that all parties are familiar with the requirements of the EMPr. All employees 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.

3.2 Legislation

Of importance are all national, provincial and municipal by-laws and regulations
Relevant environmental legislation and guidelines:

- ***National Environmental Management Act (Act 107 of 1998) and EIA Regulations***

The NEMA 2014 Environmental Impact Assessment (EIA) Regulations (as amended, 2017) sets out a list of identified activities that may not commence without environmental authorisation from the competent authority. Activities that may be applicable are listed below with an indication of relevance of the listed activity to the upgrade. Activities indicated in grey are deemed not to be applicable / triggered by th1e EAP, while the remaining activities are requested to be confirmed by the DFFE.

- ***National Environmental Management: Waste Act 59 Of 2008***

The waste hierarchy must be followed at all times. Reduce, reuse, recycle; discarding of waste must be the the last option. All waste must be correctly transported and safely disposed at a licensed landfill site. Material form the conservancy tank must be correctly transported to a licensed wwtw site / licensed landfill site as appropriate.

- ***National Environmental Management Act: Biodiversity Act (Act 10 of 2004)(NEMBA)***
- ***Environmental Conservation Act (Act 73 of 1989) (ECA)***
- ***Conservation of Agricultural Resources Act (Act 43 of 1993) (CARA)***
- ***Provincial Nature and Environmental Conservation Ordinance No 19 of 1974 (PCNO)***

NEMBA and CARA provides a list of Alien invasive species requiring removal (NEMBA supersedes CARA).
Collection and translocation of NEMBA threatened or protected species (TOPS) or species listed in the Nature Conservation Ordinance No. 19 of 1974 will require the relevant permits to be in place.
Search and rescue by a suitable specialist will need to be carried and required permits be in place irrespective of whether an Environmental Authorisation and accompanying EMPr is required.
Disturbance / removal of trees protected in terms of the National forest Act (i.e., Milkwoods) will also require a permit.

- ***National Heritage Resources Act 25 of 1999***

Should any buried archaeological resources, human remains or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. **Eastern Cape Provincial Heritage Resources Authority (ECPHRA) must be contacted immediately in order to determine an appropriate way forward**.
Chance Fossil Finds Protocol (CFFP): A Chance Fossil Finds Protocol, as incorporated into this draft Environmental Management Programme (EMPr), **is to be used to guide on-site personnel during all ground-disturbing activities.**

- ***National Environmental Management: Integrated Coastal Management Act (Act 204 of 2008) as amended (NEM: ICMA)***

Section 28(1) of NEMA contains duty of care and provides that every person who causes or has caused or may cause significant pollution of the environment must put in place reasonable measures to prevent such pollution or degradation form occurring, continuing or recurring 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 to the environment.
Section 58 of ICMA contains a duty of care in response of the coastal environment; environment in s28 NEMA must be read as including coastal environment

Statutes are amended periodically; it is the Applicant's responsibility to ensure a competent person (EAP or similar) identifies relevant legislation relevant to the proposed activity

3.3. 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 Architects are aware of and understand the conditions of the EMPr.
- Has the right to remove any person or appointed contractors or personnel from site if the contravene with the EMPr.
- Appoint an external Environmental Control Officer and palaeontologist
- The holder of the Environmental Authorisation (if attained) must notify the competent authority of the commencement of activities 14 days prior to such commencement taking place.

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

- Carry out preconstruction, monthly, post construction audit to on compliance with EMPr and conditions of EA
- Guide, advise and consult the relevant authority on environmental issues during construction.
- Guide, advise and consult any contractors who will be involved in this project.
- Revise the EMPr as required and inform the relevant parties of the changes.
- Ensure staff are adequately trained on environmental responsibilities as applicable

The responsibilities of the Design team and Contractors include but are not limited to the following:

- Adhere with the conditions and recommendations of the EA and EMPr and any other legally binding documentation.
- Prevent actions that may cause harm to the environment.
- Correct non compliances identified during audits
- 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.

Fines for noncompliance of EMPr to be predetermined by Project Applicant and contractor

4. REPORTING PROCEDURES

4.1 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;
- Permits as and if required
- Reports submitted to ECPHRA
- Communications Register – including records of complaints,
- Audit reports including written Corrective Action Instructions.
- Incident Register
- Waste Documentation such as, but not necessarily limited to: Waste transport and Disposal records
- Service slips of any chemical ablution facilities
- Material Safety Data Sheets (MSDSs) for any hazardous substances used during construction and operations

4.2. Incident / complaint 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.

4.3. Monthly Audit Report and Non-conformance report if required

Monthly external audits recommended for duration of construction including pre-construction and post construction report. Conditions of EA (if issued) and EMPr requirements will be audited including the EM file.
Non compliances will be identified and actions / recommendations provided with timeframes to address the NC.
A Non-Conformance Report (NC) 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:

- Details of non-conformance;
- Any equipment involved;
- Any chemicals or hazardous substances involved;
- Work procedures not followed;
- Nature of the risks and other physical aspects;
- 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.

4.4. 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.

5. ENVIRONMENTAL MANAGEMENT PROGRAMME

It is important that mitigation measures are strictly adhered to and that all measures are taken to reduce the disturbance footprint wherever possible to minimize negative impacts.

5.1 PLANNING AND DESIGN – site selection and development area – dune instability and coastal erosion

The following should be encouraged by local landowners:

- Beach access areas should be of such character that it does not funnel the dominant winds (south-westerly and easterly winds) towards infrastructure. Pathways should be at right angles/perpendicular to the prevailing and strongest wind directions to limit sand propagation along the pathway (Tinley, 1985). Based on the wind data, beach assess pathways and structures should be constructed in a south-easterly direction for Paradise Beach.
- Reduce the number of beach access pathways. A single convenient/accessible pathway for several properties in a ~500m range can be selected that meets the directional criteria, the other pathways should be abandoned and revegetated.
- Encourage dense indigenous vegetation along the dunes – limit dune vegetation disturbance as much as possible through cutting, harvesting and developing multiple pathways.
- Encourage smaller foredunes to form to store sand and form a buffer during erosive events. See section on brush packs below.
- Private properties should not clear dune vegetation and replant with lawns outside of the accepted fire break corridor as lawn grass has very shallow roots compared to the natural deeper-rooted dune vegetation, and it changes local near-ground wind profiles (accelerating sand transport). The longer roots of the indigenous dune vegetation help to anchor and stabilise the dunes, especially near the beach-dune interface where dune erosion is often a problem. Properties close to the beach should aim to have dense indigenous dune vegetation around their perimeter to slow any erosional threats despite the obstruction of the view.
- If beach access pathways are formalised with infrastructure, use low-impact ecologically friendly and recyclable materials as they are built within the dynamic zone and are likely to be damaged/removed by infrequent high seas. This will limit the onsite and off-site damage if the structures are impacted. Beach access structures with a minimalist design and more frequent maintenance can be more dynamic in the future as the coastal zone adapts to future water levels and storm intensity.
- Parabolic dunes move westward and can threaten infrastructure with sand inundation. As the parabolic dunes are dependent on sand supply, the best way to mitigate its development and propagation is to stabilise the bare sand immediately towards the east of the area affected by sand inundation through a network of hummock dunes. This should be initiated with anchored brushwood clumps (alien tree biomass that does not contain seeds; ~1 to 5 m diameter brush packs) at roughly 5 to 10 m spacings in a grid-type pattern. 5 m spacings should be used where blowouts are to be rehabilitated and larger 10 m spacings where dune hummocks are to be established. The brushwood area should be planted with indigenous sand-binding pioneer dune vegetation that will allow some sediment movement but will reduce the rate of transport. The brushwood will accumulate sand with the hope of creating a network of hummock dunes that can trap sand on the seaward side (foredune area), slow the wind velocity along the foredune surface and the blowout and act as a buffer against sea surges. It is important to leave a strip of unvegetated foredune that can erode and build up frequently as this will prevent steep dangerous dune cliffs from forming during storm events.

Design considerations to reduce damage due to dune instabilities

Coastal degradation may be mitigated by:

- minimizing dune disturbance,
- reducing the number of beach access pathways,
- reintroducing pioneer dune vegetation, and
- establishing brush structures to trap sand.

Building designs should account for these considerations to mitigate risks associated with dune instability and sand encroachment. Additional geotechnical data for the development footprint would further inform foundation design

Sewage Treatment

- Septic tanks are not recommended; conservancy tank must be suitably sized for number of persons expected and managed correctly
- A service level agreement must be in place for regular servicing of tanks
- Proof of service is to be kept of record for life of operation
- The proposed on-site conservancy tanks should be constructed, operated and maintained and sealed at all times according to the design specifications to prevent leakage and emptied regularly to prevent overtopping,
- Care should be taken, particularly during rainfall events and flooding events when conservancy tanks may be inundated to prevent nutrient-rich water from flowing into surrounding dune system

5.2 Construction and decommissioning as appropriate

Preconstruction and preoperational Planning requirements - inadequate planning and Non-compliance with Conditions of the Environmental Authorisations

- An Environmental Control Officer (ECO) should be appointed prior to the start of construction phase to ensure all preconstruction requirements required in terms of the EA (if attained) are in place
- Prior to commencement of construction, during the site establishment phase, the ECO must work closely with the design and construction team (i.e. architect, appointed contractor, resident engineer, site surveyor as applicable) to ensure designs, location of structures, location of construction laydown areas and no-go areas are aligned to conditions of EA (if attained) prior to start of construction.
- Carry out flora and fauna search and rescue prior to the start of construction;
- Ensure permits are in place timeously – allow at least 3 months before commencement.
- Environmental Awareness and training– Ensure all labour are informed and plant operators are aware of risks, issues, do's and don'ts and no-go areas
- ECO to audit the site monthly during construction of remining infrastructures (dwellings and access footprints and support services).
- An external audit every two years recommended to be carried out during operational phase and include any maintenance activities carried out for the two-year period
- The development area is to include:
    - Development of dwelling to be a maximum of 300m2 with a small lookout point and bridge pathway
    - Access from existing access road to each of the driveways; development of driveway to allow for parking of two additional vehicles per dwelling
    - Maximum of 1.4 meter width footpath (distance of 15 meters) to look out point (maximum 20m2) equipped with safety poles
    - Placement of rainwater harvesting storage tanks recommended due to intermittent and frequent water shortages in the area
    - Stormwater management requirements – type and footprint to be informed after detailed designs compiled by suitably qualified engineer

- Placement of conservancy tank and suitable service vehicle access to tank; conservancy tank to be sized by suitably qualified engineer.
- Placement of electrical reticulation requirements; solar power recommended instead of unreliable and high impact coal power
- Placement of waste management area recommended to mange recyclables and general and electronic waste
- Laydown area for contractors (to be rehabilitated at end of construction stage as required and monitored for 3 months post construction as required); Laydown areas will include waste receptacles, skips, ablution facilities, materials required, staff lunch area, delivery area etc.

- A site plan to be compiled by the contractor in conjunction with ECO to identify most suitable laydown area on the site and to ensure the following:
  - Sequence of construction events is taken into account when deciding on a contractor laydown area;

  The sequence of events recommended is as follows:
  - Stage 1: To be completed within 24 months of EA approval (if attained)
    - Approval of final designs of dwelling
  - Stage 2: To be completed within 24 months of EA approval (if attained):
    1. Contractor laydown area selected taking into account dune area and small size of sit; sequence of events and planning prior to construction is recommended to take place in conjunction with the appointed ECO and landowner. The area should include areas for waste management facilities, hazardous substances facilities. Ablution facilities, area for subsoils, areas for topsoils and vegetation; areas for building material required
    2. Pegging of dwelling, access, walkway, lookout point, laydown area
    3. Search of SCC within pegged areas and rescue
    4. Application for permits if required for any SCC identified
    5. Rescue of SCC to similar habitat outside development area (repeat as required throughout construction phase)
    6. Laydown area established (include waste management facilities, hazardous substances facilities. Ablution facilities, area for subsoils, areas for topsoils and vegetation; areas for building material required; site office as required; no housing of contractors on site permitted.
    7. Construction and Installation of services and stormwater management measures as per engineer recommendations
  - Stage 4:Rehabilitation of laydown area (3 months follow up and close out audit)
- If designated laydown area stand for more than 3 months until start of next construction activity, rehabilitation with suitable indigenous grass must be applied to ensure no bare areas are on the site if not in use for construction purposes. To take place by each responsible contractor as required and as required by the ECO, with 3-month rehabilitation monitoring period as required per scope of work carried out by contractor / subcontractor. Rehabilitate with indigenous vegetation similar to plants occurring in surrounding area. An Environmental Control Officer (ECO) should be appointed prior to the start of construction phase to ensure all preconstruction requirements required in terms of the EA (if attained) are in place
- Prior to commencement of construction, during the site establishment phase, the ECO must work closely with the design and construction team (i.e. architect, appointed contractor, resident engineer, site surveyor as applicable) to ensure designs, location of structures, location of construction laydown areas and no-go areas are aligned to conditions of EA (if attained) prior to start of construction.
- Carry out flora and fauna search and rescue prior to the start of construction;
- Ensure permits are in place timeously – allow at least 3 months before commencement.
- Environmental Awareness and training– Ensure all labour are informed and plant operators are aware of risks, issues, do's and don'ts and no-go areas

- ECO to audit the site monthly during construction of remining infrastructures (dwellings and access footprints and support services).
- An external audit every two years recommended to be carried out during operational phase and include any maintenance activities carried out for the two-year period
- The development area is to include:
    - Development of dwelling to be a maximum of 300m2 with a small lookout point and bridge pathway
    - Access from existing access road to each of the driveways; development of driveway to allow for parking of two additional vehicles per dwelling
    - Maximum of 1.4 meter width footpath (distance of 15 meters) to look out point (maximum 20m2) equipped with safety poles
    - Placement of rainwater harvesting storage tanks recommended due to intermittent and frequent water shortages in the area
    - Stormwater management requirements – type and footprint to be informed after detailed designs compiled by suitably qualified engineer
    - Placement of conservancy tank and suitable service vehicle access to tank; conservancy tank to be sized by suitably qualified engineer.
    - Placement of electrical reticulation requirements; solar power recommended instead of unreliable and high impact coal power
    - Placement of waste management area recommended to mange recyclables and general and electronic waste
    - Laydown area for contractors (to be rehabilitated at end of construction stage as required and monitored for 3 months post construction as required); Laydown areas will include waste receptacles, skips, ablution facilities, materials required, staff lunch area, delivery area etc.
- A site plan to be compiled by the contractor in conjunction with ECO to identify most suitable laydown area on the site and to ensure the following:

Sequence of construction events is taken into account when deciding on a contractor laydown area;

- The sequence of events recommended is as follows:
    - Stage 1: To be completed within 24 months of EA approval (if attained)
- Approval of final designs of dwelling
    - Stage 2: To be completed within 24 months of EA approval (if attained):
- Contractor laydown area selected taking into account dune area and small size of sit; sequence of events and planning prior to construction is recommended to take place in conjunction with the appointed ECO and landowner. The area should include areas for waste management facilities, hazardous substances facilities. Ablution facilities, area for subsoils, areas for topsoils and vegetation; areas for building material required
- Pegging of dwelling, access, walkway, lookout point, laydown area
- Search of SCC within pegged areas and rescue
- Application for permits if required for any SCC identified
- Rescue of SCC to similar habitat outside development area (repeat as required throughout construction phase)
- Laydown area established (include waste management facilities, hazardous substances facilities. Ablution facilities, area for subsoils, areas for topsoils and vegetation; areas for building material required; site office as required; no housing of contractors on site permitted.
- Construction and Installation of services and stormwater management measures as per engineer recommendations
    - Stage 4:Rehabilitation of laydown area (3 months follow up and close out audit)

If designated laydown area stand for more than 3 months until start of next construction activity, rehabilitation with suitable indigenous grass must be applied to ensure no bare areas are on the site if not in use for construction

purposes. To take place by each responsible contractor as required and as required by the ECO, with 3-month rehabilitation monitoring period as required per scope of work carried out by contractor / subcontractor. Rehabilitate with indigenous vegetation similar to plants occurring in surrounding area.

Site clearing, excavations, construction, installation - Loss of heritage, archaeological, palaeontological resources

- Induction / Pre-construction training to be done with construction workers on importance of notifying site foreman and ECO and landowner to any potential findings of palaeontological / archaeological resources
- Monitoring during excavations to be done on ongoing basis by the construction team and any sites exposed to be reported to the ECO and landowners and include photographs and coordinates, who must report the find to the ECPHRA. Steps provided by ECPHRA regarding the find to be followed.
- Any chance findings as a result of maintenance activities to report to ECPHRA for lifetime of operations.

Unnecessary loss of vegetation and disturbance to fauna

- Search and rescue to be carried out prior to construction and relevant permits applied for. Relocate flora, keep rehabilitation, store and reuse / dispose as required. Ground-dwelling animals /nests / eggs must be searched for.
- No clearing outside of the identified development area is to take place. No go areas include the remaining area outside the designated dwelling footprint and laydown area.
- The importance of No-go areas must be clearly communicated to site workers and contractors through a site induction, which is required each time new workers enter the site. No stockpiling, dumping, littering or traversing this sensitive area is permitted and should be cordoned off for the during of the construction period. Fines should be imposed for non-compliance to this condition / measure.
- No animals are to be harmed or killed during the course of operations. Workers are NOT allowed to snare any faunal species. Contractual fines to be imposed on any employee who is found attempting to harm fauna on site or in surrounding areas.
- If any animals are seen on site, a photo / video should be taken if possible (to assists in identification) and all fauna encountered on site should be reported to the ECO immediately. This is important when:
    - An animal is harmed or compromised in any way during construction.
    - Any animal with limited mobility is found on site (e.g. tortoises, moles, chameleons).
    - Any potentially dangerous animal is encountered. This includes any potentially venomous animal (e.g. snakes, scorpions)
    - For any assistance with snake removals/relocations, identifications or bite treatment contact the African Snakebite Institute.
- As far as possible, work should be undertaken by hand using spades, pickaxes etc. However, it is acknowledged that some use of heavy vehicles for safe construction of dwellings will be required; this must be restricted as far as practically possible and remain within development area at all times.
- Check delineated footprints area not exceeded

Stormwater Runoff Causing Erosion

- An appropriate stormwater management plan should be implemented to ensure that (if necessary) all runoff from the site is collected in suitable detention ponds or sumps and that only sediment-free, good quality water of a reasonable quantity is allowed to flow into the surrounding natural environment and ponding and over saturation is prevented.
- During the construction phase it may be necessary to construct temporary stormwater containment and control measures (e.g. temporary cut-off berms) to prevent erosion and sediment-laden water causing erosion and dune impacts.

- All erodible areas within the construction site should be stabilized using appropriate (best practice) methodologies and erosion protection works and all disturbed areas should be rehabilitated with appropriate indigenous vegetation.
- Particular attention should be given to prevention of damage to the adjacent dune systems and to stabilizing any sign of erosion, preferably by establishing dense stands of suitable indigenous vegetation acting as sand traps.
- Ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated footprint areas
- Ensure stockpiled materials and other mobile materials are bunded with sandbags to prevent their loss during rainfall and covered / wetted to prevent windblown dust.
- Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.
- Do not blanket clear the site; ensure that vegetation clearing is conducted in parallel with the construction progress of the planned sequence of events to minimise erosion and runoff.
- Reduce transport of sediment form development area through use of mulch fencing/ biodegradable coir logs / soil saver biodegradable matting
- Consider that materials, temporary toilets, leaked fuel and litter can be washed away during heavy rainfall and must therefore be bunded, secured, covered or surrounded by sandbags as appropriate. The ECO must inspect these areas for compliance.
- Check weather reports for rainfall predictions on a weekly and daily basis. Postpone work during rainfall and ensure the site has been prepared to prevent wash off of materials as required
- Progressively place back subsoil, then topsoil and mulch and revegetate exposed areas once construction has been completed in the area with suitable indigenous vegetation.

Soil disturbance

- Construction disturbance to be within the development area and within the footprint of the applicable construction activity
- The site should be cleared in a phased manner as per sequence of construction activities and be suitably stockpiled / composted within boundaries of the erf, on a level area that will not be disturbed by construction, for later use for levelling, rehabilitation and landscaping on the site.
- Covered with shade cloth to prevent loss of soil/ erosion / dust generation. Practice ‘first out, last in’ for soil excavated. Topsoil is highly valuable for use in landscaping at the end of the construction activity.
- Stockpile soil at a maximum 1.5-meter height
- Excavated materials to be re used as far as possible (i.e. as fill material);
- Excavation materials not re-used are to be removed off site as quickly as possible and disposed at an appropriately licensed waste site. Replace subsoil first, followed with the stored topsoil and composted vegetation.
- No driving on soil stockpiles permitted
- Excavations by hand and other access required as far as possible and only may be used for installation of the walkway and lookout point

AIS Displacing indigenous flora and fauna; decrease of natural runoff in catchment area

- Ensure the site kept is free of AIS seeds and plants
- Ensure topsoil that is purchased is weed free
- Check for weed regrowth in stockpiles and within development area and pull-out plant as soon as it is detected to avoid expensive AIS management in the long term; make use of guideline provided during training to identify the common AIS in the area.

- All AIS within the site construction footprint to be removed on an ongoing basis (as required) by the appointed construction team per construction activity and for 3 months following end of construction activity.
- Any required removal of AIS within this footprint / any required rehabilitation with suitable indigenous vegetation / grass seed will remain the responsibility of the appointed contractor; Budget for this task must be included in the quote to landowner for carrying out the required scope of works.
- All AIS removed must be placed in a designated area on site and removed offsite as quickly as possible to a suitably licensed general waste site.
- After construction, the landowner is responsible for the vegetation maintenance per land portion and to resume ongoing AIS clearing and revegetation as required.
- When removing AIS ensure the area is not left bare and use mulch, indigenous seeds and plants local to the area, to hold soil in place (have mulch, seeds, seedlings ready prior to clearing)

AIS common in area	Biological control	Mechanical control	Chemical control	Specific management measure
 Western coastal rooikrans *(Acacia cyclops)*	Seed feeding weevils (*Melanterius servulus*)– reduces seed production; Midge - (*Dasineura diels)* induces galls on the ovary, introduce and can control seed production.	Hand pulling seedlings; Pulled out either by hand or using a tree popper. This is the most preferred method of control.	YES – after cutting apply herbicide to stumps to prevent growth	Plants MUST be pulled out roots and all for this method to be effective. Minimise soil disturbance to reduce seed germination. Regular follow-up treatments are necessary to control seedlings and regrowth.
 Castor Oil Plant (*Ricinus communis*)		Yes – hand remove prior to seed, bag and dispose	Yes	

General Waste pollution and Hazardous Waste pollution

The following hazardous materials require strict management and disposal:

- Chemical pollutants (e.g. hydrocarbons, paint and cleaning fluids) associated with site-clearing, pile-driving for stilts and earth-moving machinery could wash into the watercourse.
- Hazardous materials & chemical pollutants stored on site and used in construction could accidently spill or be washed into the surrounding environment

- Uncured concrete and dry cement powder could contaminate the watercourse – e.g. due to heavy rains during construction. It is important to note that uncured cement is highly alkaline and could significantly raise the pH of any water in contact with it to levels lethal to aquatic life.

Waste management

- Construction materials and waste generated needs to be carefully managed to ensure impacts on the environment are reduced.
- Waste management must follow waste hierarchy – avoid, reduce, reuse, recycle, dispose
- Waste management plan to be put in place by the contractor to deal with all general waste streams and ensure the plan is aligned to mitigation measures; Possible waste streams:
    - Subsoils not reused
    - Construction rubble (broken bricks, cement, concrete spills)
    - General waste items (paper, tins, plastic, metals, organic, cleared vegetation not for reuse)
    - Hazardous materials / waste that may be used /generated:
        - Fuels, oils, oil-based paints, turpentine etc
        - Spillage of hazardous materials
- An incident/complaints register must be established and maintained on-site.
- Suitable storage, drip trays, mixing trays, bins, skip to be provided as required
- Waste management area on site – The designated laydown area must have areas marked out for eating, resting, waste receptables (secure with lockable lids for small general waste items; skip for rubble with tarpaulin for covering; hazardous material storage area; emergency response spill kits, required drip trays and cement mixing containers; hazardous waste storage receptacle; and sanitation (cleaning drinking, washing water and toilets).
- Identify closest registered waste site
- Bins / skip must be available for collection, separation and storage of waste streams - i.e. general waste (plastic, paper, tin, glass, organic etc), construction waste (wood, concrete, metal scrap etc), hazardous waste (fuels, oils, chemical). Area to be designated for storage of subsoils, construction rubble.
- Keep rubble separate from stockpiles of soils.
- Maintain records of disposal
- Under no circumstances may solid waste be burnt or buried on site / surrounding area; Any waste cement should be allowed to dry and stored in skip at the site for safe offsite disposal. No waste cement should be discarded in aquatic habitats under any circumstance.
- No Littering; consider implementing fines for litter
- Provide adequate bins for disposal of personal waste (e.g. lunch wrappers) as well as a waste area for larger waste materials (e.g. concrete rubble).
- All workers must be made aware that no rubbish may be disposed of in aquatic habitats or any other place beside the waste bins provided under any circumstance. Fines to be issued accordingly.
- All solid waste collected must be disposed of at a registered waste disposal site on a regular basis; waste materials must be removed from site as quickly as possible and not stockpiled on site. A certificate of disposal must be obtained by the construction site manager and kept on file and be made available for review at any time.
- Corrective action must be undertaken immediately if a complaint is received.
- Upon the completion of construction, the area will be cleared of all construction materials.

Hazardous materials management

- Strict use and management of all hazardous materials used or stored on site during construction.

- Strict management of potential sources of pollution (hydrocarbons from vehicles & machinery, cement during construction, etc.).
- Access and hard surfaces should be constructed using porous grass block pavers, which allow water to soak away, minimising surface run-off. This would prevent surface flow due to heavy rains washing harmful chemicals into the surrounding environment.
- Containment and treatment of all contaminated water to ensure only clean water is allowed to flow into the adjacent watercourse.
- Any concrete mixing (dagha) that may be required should be done using mixing trays equipped with raised side and placed; cement is a pollutant that must not be allowed to leave the development area.
- Do not leave machinery / vehicles running unnecessarily. Service machines and vehicles regularly to prevent unnecessary fumes and leaks.
- Ensure cleaning materials, volatile materials and other hazardous materials (e.g. chemicals) are securely stored within a suitable sealable non-corrosive container. Ensure lids are secure to avoid unnecessary release into the environment. Store on a bunded area covered with roof and secure with lock and key.
- If machinery using fuels and oil required for construction (i.e. generators, compactors) refuelling must take place with drip tray / on designated bunded area and roofed area – refuelling to take place only within designated area within identified laydown area within development area.
- Drip trays must be placed under such equipment when standing;Any required machinery must be parked in designated area within designated area within identified laydown area within development area.
- All hazardous materials and waste stored under lock and key
- In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents.
- Spill kit in place - Any spills must receive the necessary clean-up action. Appropriate arrangements to be made for appropriate collection and disposal of all cleaning materials, absorbents, and any contaminated soils. This must be stored in separate designated container on site for offsite disposal at licensed waste disposal site.
- Spilled cement or concrete must be cleaned up as soon as possible and disposed of at a suitably licensed waste disposal site.
- Site to be monitored regularly for contaminant spillages and if detected, contact spillage remediation companies.
- Cover stockpiles of building materials like cement, sand and other powders. Regularly inspect stockpiles for spillages and store away from waterways or drainage areas.

Water Quality – Elevated Nutrient and Bacterial Levels through incorrect sewage management on site

- Adequate ablution facilities must be provided for all construction staff and strict supervision provided to ensure sewage contamination of the site does not take place.
- Ablution facility to be provided as necessary at a ratio of 1:10; ablution facility must be secured to prevent being blown over and must be placed within development / laydown area;
- Ablution facility to be regularly serviced registered company on a regular basis. Service slips to be kept on record by site manager for audit purposes.
- The proposed on-site conservancy tank should be constructed, operated and maintained according to the design specifications to prevent leakage and emptied regularly to prevent overtopping,
- Care should be taken, particularly during rainfall events and flooding events when conservancy tanks may be inundated due to high groundwater levels, to prevent nutrient-rich water from flowing into the surrounding area
- Ensure no disposal of items that can cause blockages / malfunctioning of system is not flushed down toilets.

Unintentional and uncontrolled fires can have high significant impacts on the social and natural environment

- No cigarette butts or burning substances are permitted to be released into the environment. All cigarette butts to be extinguished first and then disposed of in a waste receptacle provided.
- No burning of waste – put in place waste management measures to ensure waste is moved off site timeously, particularly AIS slashed material which can be a fire risk if it is not chipped and spread.
- Fire response measures to be in place at risk areas along site (I,e fire extinguishers, fire emergency response water)
- If a fire is detected it must be attended to immediately.
- Fire emergency response measures and associated training to be in place.
- Ensure emergency numbers are on hand for fire response in the area.
- Contractors are encouraged to be in close contact with South African weather Services at all times to receive early warning details of floods, droughts, high winds and potential fires in the area and plan accordingly

Traffic and road - Personnel vehicles, construction vehicles, deliveries / collections, machinery

- Entrance to the site only permitted from designated access point provided by landowner
- Ensure strict access control to and from the construction site at all times.
- All construction vehicles are to be monitored to ensure they are not overly full so the likelihood of spillage of debris is prevented. Ensure any debris spilled onto roads is cleared up.
- Any loose materials transported to / from site must be covered.
- Surrounding area and roads should be monitored for debris and materials associated with the proposed development and cleaned up a soon as such becomes apparent.
- All materials to be delivered in a safe manner at designated delivery area located within footprint of the development site; ensure sufficient space is allocated in the construction site plan to provide safe turning for larger trucks.
- Speed travelled by construction vehicles must be kept to a minimum and speed limits enforced; contractors and service providers are to travel slowly and avoid collisions with wildlife.
- No transport of construction machinery / materials to or from the site to take place on public holidays or weekends.
- Contractor to minimise trips to and from site as far as practically possible.
- All vehicles are to be in good working order and equipped with spare parts (tyre etc) to avoid breakdowns along the private road and disrupting other users of the road.

Visual and Noise impacts

- Sufficient notice to be given to the residents with an indication of a work schedule and expected work commencing on their households
- Working hours to be restricted to daytime hours (i.e. 7:30 am – 5:30pm)
- No major construction work to take place after hours or on Sundays or on public holidays.
- A complaints register should be kept to document complaints and the corrective action taken.
- Keep working area as small as possible in identified developable area.
- No loud music to be allowed on site.
- All vehicles and machinery must be kept in good working condition.
- Ensure good housekeeping by putting in place required mitigation measures (soil, waste management as applicable)

Income generation

- Use local reputable contractor
- Use local materials, where possible.
- Make use of local services where required and possible
- Do not pay any cash wages on site to minimise criminal risk to employees
- Ensure requirements of Health And Safety Act and Labour Act are in place as required

5.3 Operational phase

Dwelling within dynamic coastal area - AIS and indigenous flora and erosion and dune stability

- The landowners are to responsible for the vegetation maintenance per land portion and to resume ongoing AIS clearing and revegetation as required.
- All AIS removed must be placed in a designated area on site and removed offsite as quickly as possible to a suitably licensed general waste site.
- When removing AIS ensure the area is not left bare and use mulch, indigenous seeds and plants local to the area, to hold soil in place (have mulch, seeds, seedlings ready prior to clearing)
- Follow working for water guidelines / ARC guidelines –
  Working for water: wfw@dwaf.gov.za
  National Department of Agriculture: Declaredweedsandinvaders@nda.agric.za
  Agricultural Research Council for biocontrol: www.arc.agric.za

Property value

- Implement recommended mitigation measures and any conditions of the EA (if attained)

Water Quality – Elevated Nutrient and Bacterial Levels

- The proposed on-site conservancy tanks should be constructed, operated and maintained according to the design specifications to prevent leakage and emptied regularly to prevent overtopping.
- Care should be taken, particularly during rainfall events and flooding events when conservancy tanks may be inundated due to high groundwater levels, to prevent nutrient-rich water from flowing into the surrounding area.
- Ensure no disposal of items that can cause blockages / malfunctioning of system is not flushed down toilets.
- Install the sewage and wastewater infrastructure according to applicable national SANS standards, DWS Guidelines and adhere to municipal regulations & by-laws.
- Monitoring of water quality (e.g. determination of E. coli levels) immediately upstream and downstream of the proposed development site should be undertaken at regular intervals (e.g. at least twice a year) in order to detect any pollution emanating from the site due to overloading or poor management of the conservancy tank sanitation system
- It is recommended that the existing septic tank be replaced with a conservancy tank (which is a closed system) with sufficient capacity.
- Ensure the waste is regularly pumped out whenever the tank is full by a licensed hauling company ('Honey Sucker Service' to remove the content to the closest Wastewater Treatment Works once the tank is full). Keep record of service for audit purposes.

Stormwater Runoff Causing Erosion

- Avoid making footpaths through dune vegetation; make use of walkway and lookout point.
- The lookout point is recommended for cleaning of surfing equipment due to space constraints and to avoid disturbance to dune vegetation and dune sands

- Establishing dense stands of suitable indigenous vegetation
- Stormwater tanks to be installed to capture water from roofing structures.
- The rainwater and gutter system to be designed by an approved competent person.
- The planned access and driveways will need to include suitable stormwater management measures to manage the anticipated runoff during storm events. Permeable pavers are recommended (if required) to allow quick infiltration of water to the permeable soils below
- Check weather reports for rainfall predictions on a weekly and daily basis. Do not carry out maintenance work during rainfall and ensure the site has been prepared to prevent wash off of materials as required
- Progressively place back subsoil, then topsoil and mulch and revegetate exposed areas once maintenance activity has been completed

General Waste pollution and hazardous materials

- Identify closest registered waste site
- Under no circumstances may any solid waste be burnt or buried on site / surrounding area
- Waste management must follow waste hierarchy – avoid, reduce, reuse, recycle, dispose
- Specific area must be designated for general waste management at each dwelling. i.e. plastic, paper, tin, glass, organic
- Ensure regular offsite removal of waste to suitably licensed disposal / transfer site
- Specific area must be designated for storage of all hazardous materials and substances required for operations and / or maintenance. Ensure cleaning materials, volatile materials and other hazardous materials (e.g. chemicals) are securely stored within a suitable sealable non-corrosive container. Ensure lids are secure to avoid unnecessary release into the environment. Store on a bunded area covered with roof and secure with lock and key. Recommended to place this under the dwelling adjacent to lockable garage.

Unintentional and uncontrolled fires can have high significant impacts on the social and natural environment

- No fires beyond boundary of portion
- No cigarette butts or burning substances are permitted to be released into the environment. All cigarette butts to be extinguished first and then disposed of in a waste receptacle provided.
- No burning of waste – put in place waste management measures to ensure waste is moved off site timeously, particularly AIS slashed material which can be a fire risk if it is not chipped and spread.
- Fire response measures to be in place at risk areas along site (I,e fire extinguishers, fire emergency response water)
- If a fire is detected it must be attended to immediately.
- Ensure emergency numbers are on hand for fire response in the area.
- Regularly check South African weather Services at all times to receive early warning details of floods, droughts, high winds and potential fires in the area and plan accordingly

Climate Change

- As per mitigation measures for construction and operational phase

6. EMP Targets – Planning, Construction, Operations

Aspect: Planning Activities

Impact: Noncompliance to conditions of Environmental Authorisation can have financial implications and lead to delays in the project. Insufficient budget, planning and responsibility allocated for environmental management will result in unmitigated impacts.

Responsibility: Holder of EA, engineers, town planners as applicable

The following is a summary checklist that can be used to ensure compliance to mitigation measures for planning phase:

Targets:

- ✓ EA in place
- ✓ Final designs approved
- ✓ Final plans approved
- ✓ ECO appointed
- ✓ Local contractor appointed
- ✓ EMPr and EA distributed to construction team
- ✓ Training completed
- ✓ EM file in place
- ✓ Search and Rescue and required Permits in place
- ✓ Notice submitted to DEDEAT and DWS and CFP submitted to ECHRA

Aspect: Construction Activities

Impact: Noncompliance to conditions of Environmental Authorisation can have financial implications, loss of indigenous plants and animals, spread of alien invasive plants, erosion and polluting activities.

Insufficient budget, planning and responsibility allocated for environmental management will result in unmitigated impacts.

Responsibility: Holder of EA, contractors / maintenance contractors as applicable

The following is a summary checklist that can be used to ensure compliance to mitigation measures for construction activities

Targets:

- ✓ EM file kept updated
- ✓ ECO monthly audit reports
- ✓ Necessary training provided as per scope of work and records kept i.e., toolbox talks
- ✓ Working hours: Restrict to weekdays between 07:00 to 17:00; Saturday 08:00 to 13:00; no Sundays or public holidays
- ✓ No blanket clearing of vegetation.
- ✓ Designated footprint and demarcated laydown area, no unnecessary disturbance to vegetation (2meter disturbance); Laydown, stockpiles areas, waste management area, Pegs / tape / screening material as required for demarcation of site clearing footprint
- ✓ No go areas designated
- ✓ Subsoils reused where necessary; excess is disposed correctly
- ✓ No disturbance of indigenous plants outside development footprint
- ✓ No AIS in construction footprint
- ✓ No disturbance to fauna
- ✓ Ablution facilities (Ratio of 1:10)
- ✓ Waste plan in place
- ✓ No refuelling on site; no service of vehicles on site

- ✓ Drip trays, spill kits and hazardous waste bin as required
- ✓ Mixing containers and plastic liners (cement)
- ✓ Water cart / shade cloth for dust control
- ✓ Fire prevention training provided, and records kept
- ✓ Sand bucket for disposal cigarettes
- ✓ Fire response measures in place; emergency numbers on hand
- ✓ Code of conduct
- ✓ Incident / complaint register in place
- ✓ Records of waste management / toilet service
- ✓ External monthly audits carried out and kept on record
- ✓ Close out audits and any actions required
- ✓ No waste at end of construction; disturbed areas revegetated

Aspect: Operational Activities
Impact: Noncompliance to conditions can result in unnecessary loss of indigenous plants, erosion and coastal risk
Responsibility: Holder of EA
The following is a summary checklist that can be used to ensure compliance to mitigation measures for operational activities

- ✓ No fires beyond erf
- ✓ No additional paths created
- ✓ No removal vegetation beyond erf

Project Apects to be completed by construction team

Activity:	**Description of activity (i.e. AIS clearing, construction of road, maintenance activity)**			
Responsible person:				
Aspect	**Nature / Description**	**Required**		**Notes**
		✓	✘	
Scope of work	Description of scope of work and accompanying method statement / s	✓		
Designs / Plans completed	As required for scope of work			
Environmental Training	Environmental training required (i.e. excavations – archaeology; ongoing – litter; AIS; no -go)			
Health and safety	As required – HS File, first aid etc.			
Workforce	Number of workers required?			
	Required environmental management training (i.e. waste, soil management etc)			
	Local labour			
Suppliers	Local suppliers			
Transport and traffic	Transport required for site workers?			
	Access and parking requirements			
Site clearing	Area to be cleared			
	Permits on hand; Plants removed and stored			
Vegetation management	No disturbance to vegetation outside footprint	✓		
	Remove alien invasive from footprint as required	✓		
	Pegs / screening material for designating footprint			
Topsoil management	Top 300 mm soil with indigenous vegetation intact			
	Stockpile separately			

Activity:	**Description of activity (i.e. AIS clearing, construction of road, maintenance activity)**			
Responsible person:				
Aspect	**Nature / Description**	**Required**		**Notes**
		✓	✘	
	Compost separately as mulch elsewhere in landscaping / public open space area			
Earthworks and subsoil management, erosion control / archaeology and Palaeontology resources	Area and depth to be excavated			
	Volume of material to be excavated per component			
	Duration of earthworks component			
	Where will excavated material be stored on site; subsoils covered; Rocks for landscaping; excess for landfill;			
	Shade cloths / water cart – dust control			
	Palaeontologist on site during excavations	✓		
Building material and equipment	Nature of required materials and equipment			
	Storage requirements / laydown areas for materials / equipment			
	Hazardous materials / substances – sealed containers, bunded area, non-permeable flooring, secure, equipped with roof.			
Waste management	Ablution facilities – Required? Number? Service Provider? Record of service to be kept	✓		
	General waste bins			
	Drip trays, cement mixing trays, plastic liners,			
	Spill kits, hazardous waste bins			
	Skip			
	Service providers (waste / ablutions)			
	Construction rubble – designated area / skip as required			
	General waste – General waste bins with lids and labelled / storage area			
	Hazardous waste – drip trays / spill kits / storage area			
Drinking water and lunch area	Quantity required? Lunch area provided? Source of drinking water?			
Existing structures	Location of existing structures / infrastructures that may be in construction footprint			
Working hours	Working hours – no Sundays, no public holidays, no night time.	✓		

7. COMPLIANCE WITH THE EMPr

8. 6.1 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 construction completed; site is tidy, revegetation of disturbed areas
- The holder of the environmental authorisation (the Applicant) is responsible to ensure that an environmental audit report is submitted to the DEDEAT as per the timeframes stipulated in the Environmental Authorisation (EA).

9. 6.2 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

10. 6.3 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.

11. 6.4 Issuing a Non-Compliance

Non-compliance may be issued to:

- The Applicant
- Any representative of the Applicant

12. 6.5 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.

In the event of damage being caused, the contractor will be responsible for the cost of cleanup, repair and / or rehabilitation as necessary, as well as being liable for the fine. Where there is erosion damage, pollution to the environment, or contravention of the no-go policy, the contractor is required to reinstate the conditions to normal as determined by the ECO. Spot fines up to a maximum value of R10 000 per offence can be instituted at the discretion of the ECO for any breach or non-compliance in terms of the EMPr. Fines issued will increase exponentially for repeat offences.

13. 6.6 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 a 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.

14. 6.7 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.

15. 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.

16. 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	Role	Name of Responsible Party	Contact details
Applicant			
Engineers			
Contractors			
Site Manager			
External Environmental control Officer			
Heritage consultant			
Permits DEDEAT			
DWS official			
DEDEAT official			
ECHRA official			
External auditor (operations)			
Operational manager			
Suppliers - operations			
Service providers			

17. DRAFT STAFF / RESIDENT 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
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 / leaking / excessive fuels (such 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 Applicant and Environmental Control Officer.
14	**DO NOT** tamper with, destroy or remove vegetation from any areas that have been fenced off or marked.
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.

18. 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 / Holder of EA (if attained)	• 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. • The Applicant is responsible to ensure that all necessary communication and submission of required documentation concerning this project is submitted to the relevant authorities.
Contractor / s / Subcontractor/s	• The Contractor 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. • (Contractor) 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)	• An external 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 to carry out monthly audits to ensure compliance with EMPR and EA (if attained) and submit the reports to project team and relevant authorities • 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 - DEDEDEAT	• The Compliance Officer appointed by the Competent Authority is responsible for the ensuring that the Applicant, Contractor, and ECO are compliant with the provisions of the EA and EMPr.
DEDEAT	• Responsible for issuing any SCC permits for fauna and smaller plants
Department of Water and Sanitation and catchment management agency	• Responsibility for water use license compliance
ECPHA	• Responsible for issuing of permits required for any discovered artefacts during excavation / site clearing activities

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:

DEDEAT REF:

APPLICANT:

Signed: …….. Date: …….....

CONTRACTOR:

Signed: …….. Date: …….....

EXTERNAL ENVIRONMENTAL CONTROL OFFICER

Signed: …….. Date: …….....

ANNEXURE 1: CV of EAP

Claire De Jongh

Curriculum Vitae

Current	Environmental Assessment Practitioner
Current Location	Port Elizabeth, South Africa
Date of birth	13 July 1983
Year of Birth	1983
Specialisation	Environmental Management and compliance
Nationality	South African
Years of experience	17 years
HDI status and gender	South African Female
Languages	English (Excellent – Reading, Writing, Speaking, Presenting) Afrikaans (Fair – Reading, Writing, Speaking)
Contact Details	+27846074743 / clairejarvis@hotmail.co.za
Career Profile	Claire's career in the environmental field spans 17 years. Her work over the years has included: • Project coordination, authority liaison, specialist team management • Application for Environmental authorisations, Waste management licences, Water use licence, Coastal Water Discharge (as required) and compilation of Basic Assessment Reports and Scoping and environmental impact Reports and Environmental management programmes reports; Rehabilitation strategies and implementation; Environmental training • Compliance audits to conditions of authorisation and ECO related work; Environmental monitoring, Review of management plans, methods statements, procedures • Environmental management systems; Aspect / impact registers and implementation of environmental management systems in line with ISO14001 • Environmental awareness education; Management, coordination and implementation of environmental and social development projects
Career History	• Independent and Freelance Environmental Assessment Practitioner (current) • CEN Integrated Management Unit |February 2015 to May 2025 |Senior Environmental Consultant (Full time) • Ethical Exchange sustainability Services (Pty) Ltd | June 2011 to January 2015 | Environmental Consultant • BSc Honours (Environmental Monitoring and Modelling) | 2009 to 2011 • WESSA (BushPigs Outdoor Environmental Education Centre) | 2007 to 2009 | Environmental Education Programme Coordinator • Green Gain Consulting 2005 to 2007 | Environmental Consultant: EMS; Training
Education and Courses	BSc (Hons) Environmental Monitoring and Modelling, 2012. BSc Environmental Management: Zoology Stream, 2007. IEMA Accredited Environmental Auditor Training Course: Aspects International, 2011. Environmental Awareness and Legal Liability Course, 2006 (2 days). Field Guiding Association of South Africa (FGASA) Level 1. ICDL, 2004, (Microsoft word, excel, access, PowerPoint, outlook).
Professional Affiliations	EAPASA Registered EAP (Number 2021/3519) SACNASP: Certificated Natural Scientist (Registration 115390). Member of the International Association for Impact Assessment (IAIA). Member of the Field Guiding Association of South Africa (FGASA).
Main Sectors of Expertise	Waste water treatment, Residential, Eco-tourism, Agriculture
Areas Worked	Predominantly Eastern and Western Cape; Throughout South Africa.

Professional Competency Statement:

Claire's career in the environmental consulting field spans 17 years. Claire has been involved in a number of environmental impact assessment projects. Her roles have included being the Environmental Assessment Practitioner (EAP), with responsibilities including compilation of regulated EIA's (i.e. scoping reports, EIA reports, Basic assessments, and Environmental Management Programme reports), undertaking environmental assessments, carrying out the legislated public participation process, compiling fauna screening reports, and incorporating specialists into the EIA team. Claire has been involved in environmental compliance audits and has acted as Environmental control officer and compiled the required audit protocols and audit reports. Claire has compiled environmental management systems compliant with ISO14001.

Claire has worked extensively throughout South Africa, with majority of work being in the Eastern and Western Cape provinces. Claire's strengths lie with understanding and application of environmental legislation, data collection and collation, research, compilation of reports, accuracy, effective communication, and effective time management.

List of Experience:

Environmental Impact Assessments, EMPr's, Water Use license applications

- NEMA application: Upgrading of Woodlands WWTW (2025 – current)
- NEMA application: Expansion of citrus, Tregaron Farming, Sundays River Valley (2025 – current)
- NEMA application: Proposed residential development, Albertinia, Western Cape (2025 – current)
- NEMA application: Proposed WWTW, Umzamwethu. Oyster Bay WWTW, KKLM and Zutari, 2025 (2025 – current)
- Screening of Kwanomzamo WWTW, KKLM and Zutari (2025 – current)
- Revision of OEMPr: Addo Lodge, Mantis (2025)
- NEMA Section 24G application: Cape St Francis, Soundprops cc (2025 – current)
- NEMA Section 24G EA application -Zandhoogte light industrial, Western Cape (2024 – current)
- NEMA Section 24G EA application -Outeniqua Game Farm, Western Cape (2024 – current)
- Elliotdale WWTW: Integrated EA and WML and EMP for Elliotdale WWTW and upgrading of sewage infrastructure (2024 - current)
- EMPR – Kingsway resort, 2024
- EMPR – Fairview, Erf 4256, 2024
- NEMA Section 24G EA application – illegal pumping activities, Sundays River (2023 to current)
- NEMA application: Residential development, erf 2074, Plettenberg Bay (2024 - 2025)
- NEMA application: Residential development, erf 7614, Knysna (2024 - 2025)
- NEMA: Expansion of Residential 1 dwelling, erf 1220, St Francis Bay (2024 - 2025)
- NEMA application – Maintenance Management Plan, Jeffreys Bay coastal area on behalf of Kouga LM (2023 – 2024)
- WULA Process for Addo Eco lodge, Addo, Eastern Cape (2023 – 2024)
- Estuary management plan, review; Seekoei Estuary Management, 2024
- Maintenance management plan and DWS General Authorisation for upgrade of Bay Dunes Sewer Pump Station, Mossel Bay on behalf Of Mossel Bay Municipality, Western Cape (October 2023 – February 2024)
- NEMA: Fuel storage facility in Nelson Mandela Bay Municipality, Eastern Cape (2023) (project halted – S24G for site required)
- NEMA: Expansion of fuel storage facility in NMBM, Eastern Cape (2023 to 2024).
- NEMA: Port Alfred Reverse Osmosis Project: 5Ml reverse Osmosis project, Ndlambe Local Municipality, Eastern Cape (2020 - 2022). (project halted)
- NEMA: Addo Lodge Addo, Eastern Cape (2021 - 2022).
- Operational EMP for renewal of air emissions license application, Langkloof Bricks (2021)
- Construction EMP: Somerset East Powerlines: for installation of H frame poles and overhead powerlines between substation and Industrial Park (2021)
- NEMA EA and NEMWA WML: Expansion of Clarkson WWTW and upgrading of sewage infrastructure (2018 – 2022)
- NEMA S24 G assessment report (2018 to 2019); Coega Kamma Citrus Farm 717, Addo:
- NEMA Scoping and Environmental Impact Assessment: 150 ha citrus and irrigation on behalf of Coega Kamma Citrus (2019 – 2023)

- NEMA: Basic Assessment and EMP for housing project on behalf of developer, Erf 168, Walker Driver, Port Elizabeth (2018 – 2020)
- NEMA Section 24G Application Oyster Bay Lodge: on behalf of landowner, Eastern Cape (2018 – 2020)
- NEMA Basic Assessment and EMP for residential development, Erf 3783, Summerstrand:, Port Elizabeth (2018 – 2019)
- NEMA Basic assessment, Kwandwe Staff Village: Kwandwe, Makana Municipality, Eastern Cape (2017 - 2018)
- Feasibility study: Screening assessment of properties on behalf of NMBM (2016)
- Wells Estate Conservancy Tanks: Basic Assessment process for Expansion project on behalf of NMBM (2016)
- Driftsands Waste Water Treatment Works: Integrated Environmental and Waste Management License; Coastal Water Discharge Permit; Water Use License Application for Expansion project on behalf of NMBM (2016 - 2017)
- Sundays River Citrus Corporation: Basic Assessment process for Expansion projects at Summerville and Hermitage on behalf of SRCC (2015 – 2017)
- Walmer Cosmo/ Erf 1953: Basic Assessment process for integrated residential development on behalf of Privivox cc, Eastern Cape (2015 - 2016)
- Milkwood Gardens / Erf 1953: Amendment Application for change of ownership; update construction and environmental management programmes on behalf of Own Haven (2015 – 2017)
- Sardinia Bay: Basic Assessment process for public access facilities at Sardinia Bay on behalf of NMBM, Eastern Cape (2015 - 2016)
- Sardinia Bay Public Access Facilities: Amendment Application for change of site (2016 – current)
- Bayethe Luxury tents: Basic Assessment Process on behalf of Bayethe Lodge, Eastern Cape (2015 – 2016)
- Bayethe: NEMA 24G rectification for luxury tents on behalf of Bayethe Lodge, Eastern Cape (2015 - 2017)
- Cascades Iron Ore Mine: EIA process on behalf of Mkhombi Mining, Mpumalanga (2014).
- Zuurberg Road Upgrade: Basic Assessment process on behalf of the Department of Rural Development and Land Reform, Eastern Cape (2014).
- New Largo Colliery: EIA process, state of the environment report, closure and rehabilitation plan and waste management license on behalf of Anglo American Inyosi Coal, Mpumalanga (2011 to 2015).
- Mobile Water Treatment Plant: Waste management license for a mobile water treatment plant to supply water to the Phola-Kusile Coal Conveyor, on behalf of Anglo American Inyosi Coal, Mpumalanga l (2011 to 2015).
- Monitoring Weirs: Basic assessment process and Environmental Management Programme for monitoring weirs as part of reserve determination required by DWA, for Anglo American Inyosi Coal, Mpumalanga (2012 to 2014).
- Phola-Kusile Coal Conveyor: Environmental impact assessment and environmental management programme on behalf of Anglo American Inyosi Coal, Mpumalanga (2011 to 2014).
- St Albans: Public Participation Process carried out on behalf of Department of Public Works, Eastern Cape (2014).
- Grootegeluk Mine Backfill Conveyor System: Environmental impact assessment and EMP amendment, on behalf of Exxaro Coal, Limpopo (2011).

ECO, Monitoring, Auditing Environmental Management Systems

- Addo citrus Eb en Vloed Farm 171, ECO for construction phase (May 2024)
- Kingsway Development, Gamtoos River, Compliance audit to ROD (April 2024 to current)
- Expansion Fuel storage facilities, Motherwell: ECO for construction phase (February 2024 to current)
- ECO and Compliance audit for non-compliant start of business development on erf 4256, Fairview; ongoing ECO for start of construction phase (February 2024 to current)
- Upgrading of Clarkson WWTW: ECO for construction phase (2023 – current)
- Addo Ecolodge: ECO for construction phase (2023 – current)
- Upgrading of Pumpstations, Motherwell and Stanford, NMBM: ECO for construction phase (2022 – 2024)
- St Francis Bay Residential Development, Kouga Local Municipality: ECO for construction phase (2022 – current)
- The Edge Hospital, NMBM: ECO for construction phase (2021 – 2022)
- River Oaks Residential Development, NMBM: ECO for construction phase (2021 – 2023)
- Coegakop Wellfield, NMBM: ECO for construction phase (2021 – current)
- Erf 3783, Summerstrand: ECO for construction phase (2019 – current)
- Sardinia Bay Public Access Facilities: ECO for construction of parking area (2018)
- Sardinia Bay Public Access Facilities: ECO for demolition of structures within 100m of HWM (2016 – 2017)
- Coega Manganese Terminal Air Quality Monitoring: Coordination of PM10, PM2.5 and dustfall baseline monitoring for the proposed Manganese Terminal at Coega, Eastern Cape (2013 - 2015).
- Tharisa Mine: External Compliance audit in terms of WUL and EA, North-West (2013).

- Formalchem: Land Contamination Monitoring and Assessment: Coordination of Land contamination Assessment for mothballed glue manufacturing company in Berlin, Eastern Cape (2012-13).
- Formalchem: Remediation plan and progress report prepared for DEA on behalf of client, Eastern Cape (2012-2014).
- Elitheni Coal Mine: Compilation of legal audit protocol (EMP, Water use license, waste management license, environmental authorisation), Eastern Cape (2013).
- Pikitup Roodepoort Waste Site: Site audit and report compilation, Gauteng (2009).
- Sun International: Compilation of aspects / impacts register and environmental management system for entire Sun International Group, all SA provinces (2006 - 2007).
- Sun International: Environmental management system training for the environmental managers, all SA provinces (2006 - 2007).
- Lonmin Platinum: Compilation of aspect impact register and environmental management system, North West (2006).

Fauna screening assessments

- Ebb en Vloed Farm 717, Addo, Eastern Cape, 2022
- Eco-Lodge and supporting facilities, Addo, Eastern Cape, 2022
- Portion 32 of Farm Goedgeloof No.745 and Erf 1382 in St Francis Bay, 2021
- Africamps, Portion 0 of Farm Hayterdale No. 406, Addo, 2019
- Clarkson Sewage Network and Waste Water Treatment Works, 2018

Guidelines, Environmental Awareness, Education and Training

- Part of team responsible for development of Albany Thicket Ecosystem Guidelines on behalf of SANBI (2017 – 2019)
- Part of team responsible for development of Savanna Ecosystem Guidelines on behalf of SANBI (2017 – 2019)
- Development of sustainable educational programmes (2009 - 2014).
- ZAMA: Coordination of corporate social sponsorships, Eastern Cape (2012 - 2013).
- Environmental Education: Coordination and development of environmental education programmes, Limpopo (2007-09).
- Richards Bay Minerals: Basic environmental awareness training at Richards bay Minerals, kwaZulu Natal (2005).
- Dairybelle: Environmental awareness training for employees of all Dairybelles, all SA provinces (2006 - 2007).
- Tiger Brands: Environmental awareness training for employees of all Tiger brands, all SA provinces (2006 - 2007).

Administration and engagement

- Engagement with relevant government authorities, stakeholders and clients
- Management of specialist teams
- Compilation of tenders and proposals for Environmental services
- Report writing, GIS and map compilation, Presentations and Training

Environmental Studies (BSc and BSc Honours)

- Undergraduate - Animal Behaviour: Behaviour of the Marsh Owl. Achieved 100 % (2003).
- Honours - The abundance of the South African Lepidopteran pest organism, *Busseola fusca*, found on genetically modified Bt maize, conventional pesticide- sprayed maize, and polyculture-farmed maize, to determine the best practice farming method with regards to pest control. Achieved 97 % (2011)