ENVIRONMENTAL MANAGEMENT & MAINTENANCE PROGRAMME

for

ATKV DUNE STABILISATION & COASTAL EROSION CONTROL MEASURES

along

Remainder of Erf 3, Remainder of Erf 5 and Remainder of Erf 2872, ATKV Hartenbos, Mossel Bay Municipal District

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations (as amended)

Prepared for Applicant: Afrikaanse Taal en Kultuurvereniging (ATKV)

Date: 28 July 2026

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PURPOSE OF THIS REPORT:

Environmental Management & Maintenance Programme

APPLICANT:

Afrikaanse Taal en Kultuurvereniging (ATKV)

CAPE EAPRAC REFERENCE NO:

MOS509b/07

SUBMISSION DATE

28 July 2026

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&
Coastal Erosion Control Measures

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In terms of the

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Submitted for:

Stakeholder Review & Comment

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ORDER OF REPORT

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ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS

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

Table 1: Checklist in terms of Appendix 4 of Regulation 982 of 2014 EIA Regulations

Requirement	Description
Details and expertise of the EAP who prepared the EMPr; including curriculum vitae.	Louise-Mari van Zyl & Mariska Byleveld for *Cape Environmental Assessment Practitioners*. See Appendix 4.
A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Section 1
A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that must be avoided, including buffers	Appendix 1
A description of the impact management objectives, 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 the 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.	Section 4 – Environmental Impacts & Mitigations Section 5 – Responsibilities Section 6 – Pre-Construction Design Section 7 – Construction Phase Section 8 – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	Section 4
A description of the proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above 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 provisions for rehabilitation, where applicable.	Section 4 Section 6 Section 7 Section 8
The method of monitoring the implementation of the impact management actions contemplated above.	Section 9 Section 11
The frequency of monitoring the implementation of the impact management actions contemplated above.	Section 9

Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 5
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	Section 9
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	Section 9
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.	Section 5 Section 6 Section 7 Section 8 Section 9
Any specific information that may be required by the competent authority.	Not Applicable.

ABBREVIATIONS AND ACRONYMS

BSP Biodiversity Sector Plan - to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity.

CARA Conservation of Agricultural Resources Act (Act 43 of 1983) - provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

CBA Critical Biodiversity Area - areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.

DFFE National Department of Forestry, Fisheries & the Environment – the national authority responsible for the sustainable environmental management and integrated planning.

DEA&DP Department of Environmental Affairs and Development Planning – the provincial authority for sustainable environmental management and integrated development planning. The competent authority is this case.

DWS Department of Water & Sanitation Affairs – National authority mandated to enforce the National Water Act (NWA).

EA Environmental Authorisation – Authorisation obtained on completion of an Environmental Impact Assessment in terms of the National Environmental Management Act (NEMA).

ECA Environment Conservation Act, 1989 - To provide for the effective protection and controlled utilization of the environment and for matters incidental thereto.

ECO Ecological Control Officer – independent site agent appointed to observe and enforce the implementation of environmental policies and principles on a development site.

EIA Environmental Impact Assessment - a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

EMPr Environmental Management Programme – 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 positive benefits of the projects are enhanced.

GIS Geographic Information System - system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.

GPS Global Positioning System - a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world.

NEMA National Environmental Management Act (Act 107 of 1998, as amended) – national legislation that provides principles for decision-making on matters that affect the environment.

NEM:BA National Environmental Management: Biodiversity Act (Act No.10 of 2004) – provides for the management and conservation of South African biodiversity within the framework of NEMA.

NFA National Forestry Act (Act No.84 of 1998) - provides for the protection of forests, as well as specific tree species within South Africa.

NSBA National Spatial Biodiversity Assessment – aims to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors.

NWA National Water Act (Act No.36 of 1998) - ensures that South Africa's water resources are protected, used and managed.

1. INTRODUCTION

The **Afrikaanse Taal en Kultuurvereniging** (ATKV, Hartenbos), hereafter referred to as the Applicant, proposes the installation of sand-filled geotextile containers as coastal revetment structures along three (3) sections of the foredune (Phases 2, 4 and 6) on the Hartenbos beachfront, situated within Remainder of Erf 3, Remainder of Erf 5 and Remainder of Erf 2872 in the Mossel Bay Municipal District, Western Cape Province (Figure 1).

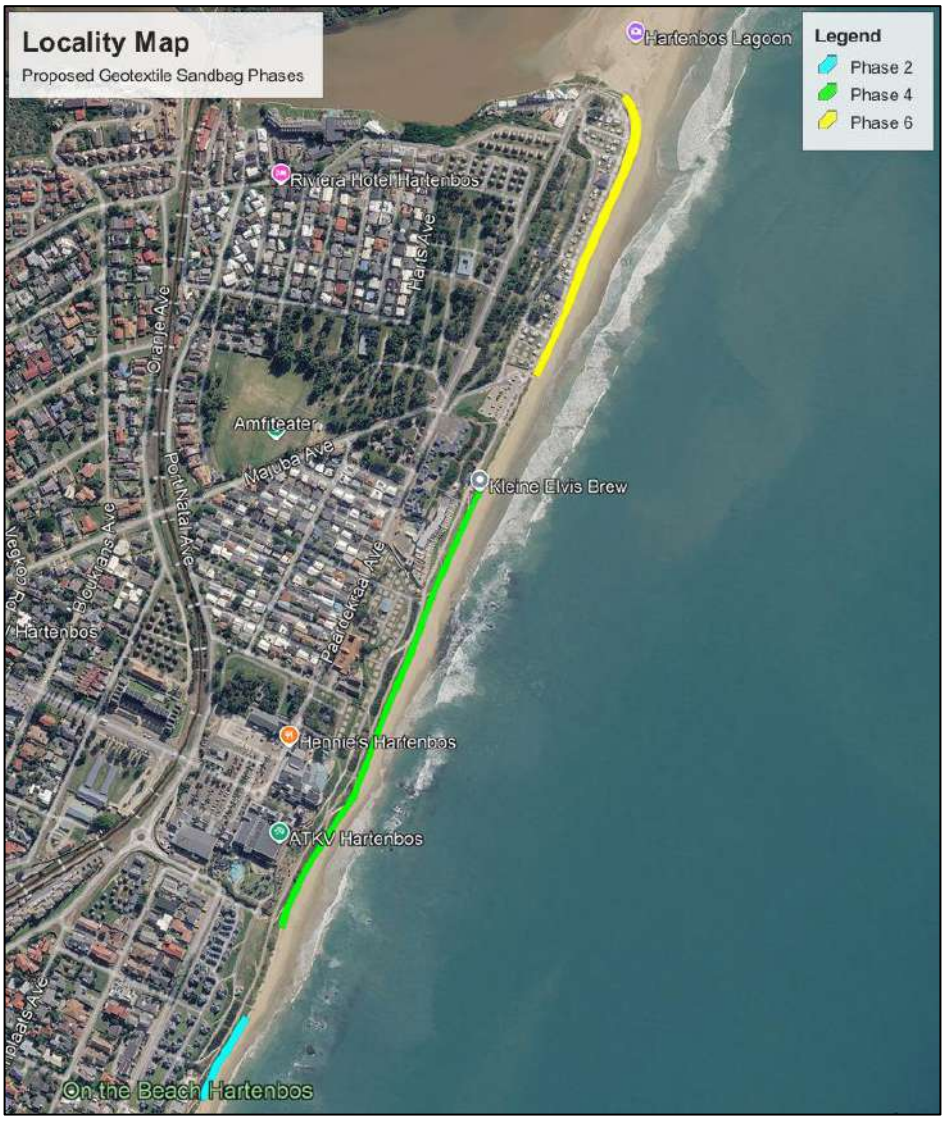


Figure 1: Locality Map of the Proposed Project Phases (2, 4 and 6).

These foredune sections are currently stabilised with historic gabion structures. Over time, however, these gabions have deteriorated significantly and are now regarded as unsafe and ineffective under dynamic coastal conditions and ongoing erosion.

The compromised gabion sections face a heightened risk of failure, which could result in repeated damage to adjacent structures (i.e., AKTKV walkway) and municipal infrastructure along this stretch of coastline. To address these risks, the Applicant proposes the installation of an improved **revetment** system to provide continued coastal erosion protection, enhance health and safety conditions, and avoid the substantial long-term costs associated with maintaining the existing gabion revetments. This approach is aligned with the same interventions already successfully implemented along other sections of the same ATKV beachfront (Phases 1, 3 and 5 – already implemented) (Figure 2).

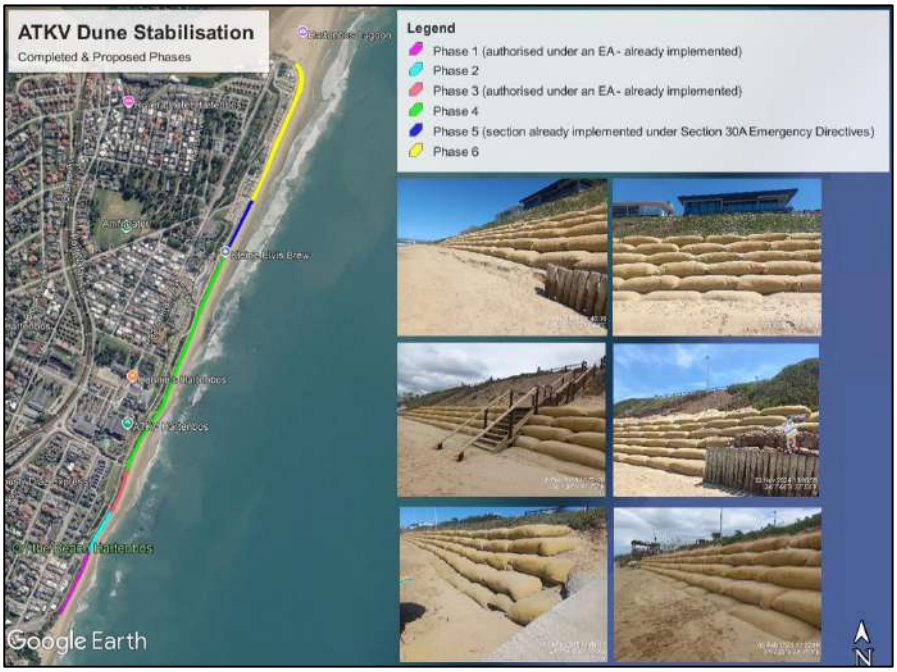


Figure 2: Completed Phases (EA & S30A Emergency Directive – Phases 1, 3 and 5) & Proposed Phases (New Basic Assessment – Phases 2, 4 and 6).

The intention is to provide the Applicant with a **consolidated Environmental Management and Maintenance Programme** that enables future, long-term maintenance of the entire coastal revetment structure (Phases 1 – 6). It is proposed that a comprehensive Environmental Management and Maintenance Programme be submitted, including all phases (Phases 1 – 6), for consideration as part of this Basic Assessment process to ensure a holistic management and maintenance approach for the ATKV to implement (Figure 3).

This EMMPr, if adopted, will replace the following approved document:

- The EMPr, MMP and the addendum to the EMPr and MMP dated October 2026 (DEA&DP Ref: 16/3/3/1/D6/18/0003/15) for Phases 1 & 3.

This EMMPr covers all existing and proposed revetment structures along the ATKV Beachfront with the following start and end co-ordinates:

Start co-ordinate	34°7'57.25"S	22°6'55.46"E
End co-ordinate	34°7'4.87"S	22°7'22.22"E

The proposed activity requires an Environmental Authorisation in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) before commencing. This document provides part of a series of documents that is being circulated for public and stakeholder input as part of the Environmental Impact Assessment (EIA) process, before being provided to the provincial competent authority, the provincial Department of Environmental Affairs & Development Planning (DEA&DP) for decision-making.

This EMMPr contains **management requirements** and **recommendations** made by *Cape EAPrac*, the appointed specialist as well as in terms of the regulations contained in the **National Environmental Management Act** (NEMA, Act 107 of 1998), and best practice principles. The EMMPr must be updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

1.1 PURPOSE OF THE EMMPR

The purpose of this EMMPr is to ensure that the environmental impacts and management of the various phases, of the proposed activity, on the receiving environment are managed, mitigated and kept to a minimum (i.e. the **outcome** of implementing the EMMPr). The EMMPr must provide easily understood and clearly defined **actions** that must be implemented during each phase of the proposed activity. The EMMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

The document is binding on the Applicant (ATKV), all contractors and sub-contractors to the site. It must be included as part of any documents / agreements, as well as contractual documents between the Applicant and any contractors. Copies of this EMMPr must be kept on site and all **senior personnel** are expected to familiarise themselves with the content of this EMMPr.

Any changes or deviations to this EMMPr must be authorised by the competent authority.

1.2 STATUS OF THE EMPR

It is of utmost importance that this EMMPr be read in conjunction with any legally obtained authorisations such as an Environmental Authorisation (EA). This EMMPr is viewed as a dynamic document that must be reviewed and updated on a continual basis.

The EMMPr is valid for the duration of the project with each applicable phase corresponding to the identified requirements.

2. EMMPR PHASING

2.1 PRE-CONSTRUCTION PHASE

The pre-construction phase refers to the detailed design phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning / design phase to be developed in the construction and operational phase. In terms of this application, the pre-construction can be considered as the detailed engineering designs.

2.2 CONSTRUCTION PHASE

The construction phase refers to the actual installation of the coastal revetment.

2.3 OPERATIONAL PHASE

The Operational Phase of this project relates to the ongoing management and maintenance required to ensure sustainable development. In terms of this application, this phase includes management & maintenance of all Coastal Revetment Phases (Phases 1 – 6).

The Applicant must ensure that the Operational Phase maintains the underpinning principles ‘Duty-of-Care-to-the-Environment’ and ideals of sustainable development.

Maintenance of the structure, once installed, must be undertaken in accordance with this management & maintenance plan.

2.4 CLOSURE AND DECOMMISSIONING PHASE

Decommissioning refers to the process of removing the operating assets of any development after completion of the operating life cycle.

The decommissioning phase is not applicable.

3 LEGISLATIVE REQUIREMENTS

The Applicant is required to comply with all necessary legislation and policies applicable to development and management of the development. These include but are not limited to:

3.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998)

The National Environmental Management Act (**NEMA**, Act 107 of 1998, as amended), makes provision for the identification and assessment of **activities** that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the provincial Department of Environmental Affairs & Development Planning (DEA&DP)) based on the findings of an Environmental Impact Assessment (EIA).

NEMA embraces the notion of sustainable development as contained in the Constitution of South Africa (Act 106 of 1996) in that everyone has the right:

- to an environment that is not harmful to their health or wellbeing; and
- to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

NEMA aims to provide for cooperative environmental governance by establishing principles for decision-making on all matters relating to the environment and by means of Environmental Implementation Plans (EIP) and Environmental Management Plans/Programmes (EMPr), of which this EMPr is one.

Principles contained in Section 2 of the NEMA, amongst other things, prescribe that environmental management must:

- In order of priority aim to: avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment and avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

It is incumbent upon the landowner, to ensure that the abovementioned principles, entrenched in this EMPr are upheld and complied with.

3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

The EIA regulations contained in the Environmental Conservation Act (ECA) have been replaced by NEMA. However, property owners must comply with the draft regulations pertaining to noise as

published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA), as well as Section 24 of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

3.3 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (NEM:BA) (ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No. 32689, 6 November 2009) was gazetted in 2014. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (NSBA) 2004 & 2011.

3.4 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for integrated waste management for South Africa.

It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

It is advisable that an integrated waste management system be adopted, which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact of the health of the environment and human health.

All waste must be collected and disposed of at a waste facility.

3.5 NATIONAL WATER ACT (NWA, ACT 36 OF 1998)

The National Water Act (NWA) gives effect to the constitutional right of access to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and environmental protection.

The NWA makes persons who own, control, occupy or use land responsible for taking measures to prevent pollution of water resources, and empowers Government authorities to take measures to enforce this obligation.

Not Applicable.

3.6 NATIONAL FOREST ACT (ACT 84 OF 1998)

The NFA provides for the **protection of forests**, as well as **specific tree species**, quoting directly from the Act: "no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any

protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated". The Department of Agriculture, Forestry & Fisheries (DAFF) is responsible for the implementation and enforcement of the NFA, which includes **prohibition of damage to indigenous trees in any natural forest without a licence** (Section 7 of the NFA), as well as the prohibition of the cutting, disturbing, damaging destroying or removing **protected trees** without a licence (Section 15 of the NFA).

The proposed activity is not applicable to the National Veld and Forest Fire Act.

3.7 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The purpose of the National Heritage Resources Act is to:

- Introduce an integrated and interactive system for the management of the national heritage resources;
- Promote good government at all levels,
- Empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- To lay down general principles for governing heritage resources management throughout South Africa;
- To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- To establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level;
- To set norms and maintain essential national standards for the management of heritage resources in South Africa and to protect heritage resources of national significance;
- To control the export of nationally significant heritage objects and the import into South Africa of cultural property illegally exported from foreign countries;
- To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources;
- To provide for the protection and management of conservation-worthy places and areas by local authorities; and
- To provide for matters connected therewith.

The proposed development triggers the following activity set out in Section 38(1) of the National Heritage Resources Act:

38. (1)(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.

Perception Planning submitted a Notice of Intent to Develop to Heritage Western Cape who confirmed that no additional studies are required.

3.8 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at

work against hazards to health and safety arising out of or in connection with the activities of persons at work.

In terms of this Act, a Health and Safety Officer and Protocol must be implemented on any sites. The appointment of a Health and Safety Officer is the responsibility of the proponent and contractor and is included in this report to ensure due diligence on construction sites. It is the responsibility of the appointed to HSO to conduct any required audits and as such only the appointment of an HSO will be auditable in terms of this document.

4 ENVIRONMENTAL IMPACTS & MITIGATIONS

The following specialist impact assessments / studies were undertaken for the proposal:

- Aquatic Compliance Statement
- Heritage Background Information Document
- Terrestrial Biodiversity, Plant Species and Animal Species Compliance Statement
- Coastal Engineering Impact Assessment

4.1 MITIGATIONS

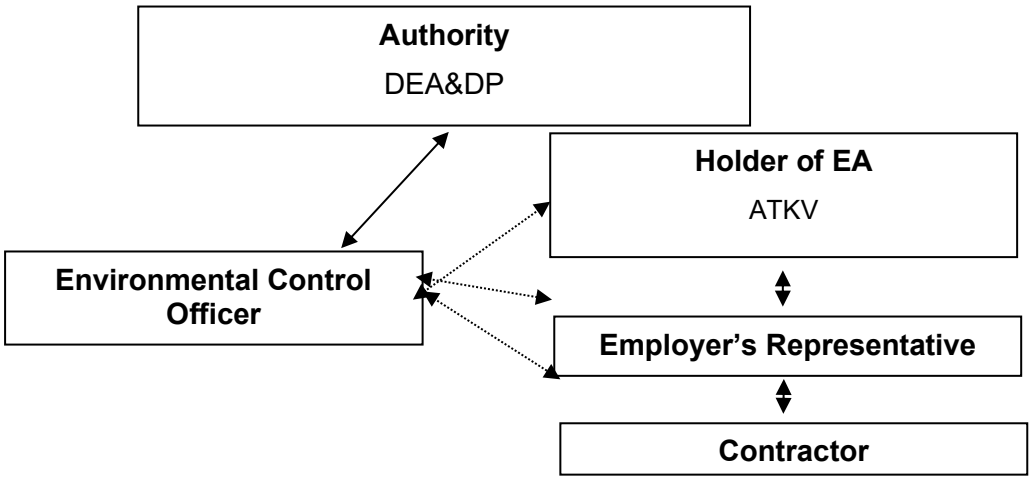
Table 2: List of Mitigation Measures & Associated Management Requirements

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Mitigations / Recommendations					
If any palaeontological materials, human remains or significant archaeological materials are exposed during development activities, then such find(s) must be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned and completed before construction continues in the affected area and will be at the expense of the developer.		✓	✓	✓	
All new staff must receive environmental awareness training (ECO Environmental Inductions), especially in terms of areas to be avoided as well as No-Go areas (if applicable and have been established).		✓	✓	✓	
Limit vegetation clearance and disturbance strictly to the approved project footprint; no clearance or disturbance should occur outside these boundaries.		✓	✓	✓	
Minimise the development footprint to the absolute area necessary for construction and operational activities.		✓	✓	✓	
Confine temporary construction facilities to previously disturbed areas.		✓	✓	✓	
No equipment or machinery may be stored on the beach.		✓	✓	✓	
Clearly demarcate and enforce "no-go" zones for vehicles and personnel, including all areas outside the direct construction influence zone.		✓	✓	✓	
Equip construction vehicles and machinery with noise-suppression systems to minimise acoustic disturbances if necessary (i.e., noise complaints from the public).		✓	✓	✓	

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Ensure that emergency response equipment, including fire suppression and spill containment supplies, is readily available at each proposed development location on the property.		✓	✓	✓	
All construction materials, equipment, and any foreign objects introduced to the area by contractors must be removed immediately upon completion of construction activities.		✓	✓	✓	
Maintain general waste storage areas in a manner that does not attract nuisance or opportunistic wildlife. Dispose of all food waste (e.g., leftovers, bones, fruit cores) in sealed, designated waste bins; under no circumstances should food waste be discarded into the surrounding environment.		✓	✓	✓	
Use tamper-proof lids on all waste bins to prevent access by wildlife.		✓	✓	✓	
Construction vehicles must be inspected before being brought onto site and every day while on site for leaks and other faults.		✓	✓	✓	
No leaking construction vehicle will be allowed on site.		✓	✓	✓	
Protection against accidental leaks must be present on site.		✓	✓	✓	
Erect temporary barriers around open trenches and excavations to prevent fauna from becoming trapped within development area.		✓	✓	✓	
Prior to the commencement of any new earthworks, a walk-through must be conducted by the ECO of all demarcated construction areas and access roads to identify and safely relocate fauna with limited mobility.		✓	✓	✓	
During construction activities, any observation of immobile or slow-moving fauna must be reported. Construction in that area must be temporarily halted until all fauna have been removed from harm's way.		✓	✓	✓	
Maintain an incident register throughout all project phases, documenting any incidents that occur on site.		✓	✓	✓	
Only individuals with appropriate training are permitted to handle fauna encountered on-site.		✓	✓	✓	
Limit construction activities to daylight hours to allow for effective monitoring of fauna presence and movement.		✓	✓	✓	
If night lighting is essential, all lights must be directed downward and shielded to prevent light spill into the surrounding natural environment.		✓	✓	✓	
An alien and invasive plant management plan must be developed and implemented, to ensure that the ongoing control of invasive plant species throughout the construction phase.		✓	✓	✓	
Invasive plant species removed during development activities must be disposed of at a licensed landfill site in a manner that prevents the spread of seeds, both during transport and at the point of disposal.		✓	✓	✓	
Search and rescue of indigenous plants and trees that transplant easily, must be undertaken ahead of any construction work.		✓	✓	✓	

5 RESPONSIBILITIES

This section deals with the responsibilities of various parties during the Construction Phase of any development.



5.1 HOLDER OF THE EA

The holder of the EA / property owner is the overseeing entity responsible for ensuring that all activities undertaken on the property comply with the Environmental Authorisation (EA) and associated Environmental Management Programme (EMMPr) (& any other approval / licence / permit), as well as the management and maintenance of the open space areas (protected vegetation).

The responsibilities of the holder of the EA / property owner include, but are not limited to the following:

- Ensure that **all tender documentation** include reference to, and the need for compliance with, the EA and EMMPr as well as any other legally binding documentation, which include and are not limited to:
  - the Municipal Approval/s.
- Be conversant with, and ensure that all Contractors, Sub-contractors, Engineers (and future senior site managers / personnel) are made aware of, and understand the conditions and recommendations, contained in the abovementioned documentation;
- Ensure that all Contractors, Sub-contractors and Engineers (during construction activities) are made aware of their 'Duty of Care to the Environment' and that any damage or degradation of the natural environmental within the bounds of the property will be not be tolerated and must be dealt with / remedied at the cost of the perpetrator;
- Take remedial and/or disciplinary action in circumstances where persons are found to be in contravention of the abovementioned legally binding documentation.

5.2 ENGINEERS AND CONTRACTORS

The Engineers and Contractors are often the parties responsible for physically carrying out the activities for which majority of the recommendations in this EMMPr are intended. Service providers and Contractors include: services, building contractors, 'handy-men' and engineers overseeing the installation and maintenance of services etc. The responsibilities indicated here are also relevant to Sub-Contractors.

The responsibilities of these parties include but are not limited to the following:

- Be conversant and compliant with the EA, the EMMPr, and any relevant License, Permit or any legally binding documentation relevant to their operations;

- Have a responsibility to adhering to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;
- Be responsible for any remedial activities in response to an environmental incident within their scope of influence;
- Liaise with the holder of the EA in complying with the EMMPr, and in the event that any industry regulated standards are in contradiction with the EMMPr or any other authorisations.
- Review and amend to any construction activities to align with the EMMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the EMMPr and any other authorisations.

Contractors are responsible to ensure that all sub-contractors are compliant with the EA, the EMPr, and any relevant licence, permit or any legally binding documentation relevant to their operations.

5.3 ECOLOGICAL CONTROL OFFICER (ECO)

It is recommended that a suitably qualified Environmental Control Officer (ECO) be appointed to oversee all activities for the duration of the construction phase (i.e. construction activities, services, road works) as well as any maintenance work that must be undertaken that will involved earthworks or machine works. The ECO must have at least 3 years' experience and proven competency as an ECO.

The responsibilities of the ECO include but are not limited to the following:

- Provide environmental induction training to Contractors on site prior to construction activities commencing
- Provide maintenance, update and review of the EMMPr if necessary;
- Liaison between the Project Holder of the EA, Contractors, Authorities and other lead stakeholders on all environmental concerns, including the implementation of the EMPr;
- Compilation of Environmental Control Reports (ECR) to ensure compliance with the EA, EMPr and duty of care requirements, where necessary;
- Compilation of the Environmental Audit Report or Environmental Completion Statement, after completion of construction (or as otherwise defined in the Environmental Authorisation), where necessary;
- Ensuring / guiding and monitoring compliance with the EA and EMPr and any legally binding documentation;
- Facilitating consultation with relevant environmental authorities (e.g. DEA&DP, DFFE, CapeNature or Municipality);
- Facilitating the application for any required environmental authorisation, permit or licence;
- Provide guidance and interpretation of the EA and EMMPr where necessary;
- Issuing site instructions to the contractor for corrective actions required;
- The ECO is required to conduct regular site visits for the duration of the construction period, in order to ensure the Contractor receives the necessary induction and that all procedures are in place. Additional visits may be undertaken in the event of any unforeseen environmental accidents;
- The duration and frequency of these visits may be increased or decreased at the discretion of the ECO;
- Attendance of site meetings if required;

- Maintain a record of environmental incidents (e.g. spills, impacts, legal transgressions etc.) as well as corrective and preventative measures taken. This information must also be included in the ECR;
- Maintain a public complaints register in which all complaints and action taken must be recorded. This information must also be included in the ECR.

5.4 ECO SITE VISIT FREQUENCY

The following site frequency for ECO site visits has been determined:

a. Weekly during the installation of revetment structures;
b. Weekly during rehabilitation.
c. Maintenance activities must be monitored on an ad hoc basis depending on the type of maintenance/repair.

Ad hoc site visits may be undertaken in the event of any incidents or specific requests from the project holder of the EA or project team.

5.5 ONGOING POST-CONSTRUCTION MAINTENANCE

a. Ongoing post-storm maintenance.
    - Replacing the soil and dune vegetation.
    - Like-for-like replacement of revetment structures when damaged / deteriorated.

5.6 ENVIRONMENTAL INDUCTION & TRAINING

The holder of the EA in consultation with the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr. The presentation shall be conducted, as far as is possible, in the employees' language of choice. The Contractor must provide a translator from their staff for the purpose of translating, if this is deemed necessary.

As a minimum, training must include:

- Explanation of the importance of complying with the EA and EMPr and the employees accountability;
- Discussion of the potential environmental impacts of construction activities;
- The benefits of improved personal performance;
- Employees' roles and responsibilities, including emergency preparedness ;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.);
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

Where staff turnover is high and with additional appointment of sub-contractors, it may be necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.

6 PRE-CONSTRUCTION CONSIDERATIONS

It is recommended that sustainable design considerations are implemented during the planning phase to ensure that the impacts associated with the development are avoided, minimised or managed before construction commences.

6.1 DESIGN PARAMETERS FOR COASTAL REVETMENT (PHASES 2, 4 AND 6)

Management Outcome	Impacts & Risks Avoided
To seamlessly tie into the existing structures and to maintain the integrity of the chosen revetment.	To avoid risks such as structure failure.

Management Actions

a. The seaward toe of the revetment must be located landward of the long-term average of the non-storm HWM (2026) and in line with adjacent structures.
b. The top of the collapsible toe unit at the bottom of the revetment structure is to be at an elevation of +0.0 m MSL.
c. The top elevation of the revetment structure is to be at a minimum of +5.5 m MSL at the identified high energy places.
d. A 0.3 to 0.5 m thick layer of soil/sand cover over the revetment should be maintained to allow dune vegetation to establish over the chosen revetment structure. This protects the structure from vandalism and the elements and softens the visual impact.
e. Storm-water outlets should be constructed to allow the storm water to enter a 'plunge pool' behind the revetment and excess water allowed to cascade over the structure. This prevents the erosion of the beach during high rainfall events that often coincides with high energy waves. (See SWO2 in the Frontispiece).

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Engineering detailed designs	Once-off	Contractor	Prior to construction	Engineer to Monitor Compliance	Monthly

6.2 PRE-CONSTRUCTION WALK-THROUGHS & SEARCH-AND-RESCUE

Management Outcome	Impacts & Risks Avoided
To safely relocate fauna and plant species.	To avoid impact on fauna and plant species.

Management Actions

a. ECO to identify plants that can be collected for replanting / used for rehabilitation of the exposed areas over/behind the revetment structures once implementation / maintenance activities are finished.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	As required	ECO / Contractor	Prior to construction	Audit	As required

6.3 DEMARCATE WORK AREAS & NO-GO AREAS

Management Outcome	Impacts & Risks Avoided
To seamlessly tie into the existing structures and to ensure that the toe is located landward of the non-storm HWM.	To avoid work below the HWM of the sea.

Management Actions

a. Appointed Coastal Engineer to stake out the seaward toe of the new revetment (Phases 4, 6 and 8) and the high water mark of the sea (2026).

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	As required	Engineer / Contractor	Prior to construction	ECO to monitor Compliance	Monthly

7 CONSTRUCTION CONSIDERATIONS

These Construction Phase requirements are aimed at using Best Practise Principles and / or specialist recommendations to manage the impacts on the environment during the construction of the development.

7.1 DEMARCATION OF WORK AND NO-GO AREAS

Management Outcome	Impacts & Risks Avoided
To clearly define the work area and avoid impacting on non-works areas.	Negative construction impacts on natural and rehabilitated areas

Management Actions

a. Clearly demarcate “no-go” areas for vehicles and personnel, including all areas outside the direct construction influence zone.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Developer / contractor	Pre implementation	Audit	Once off

b. Fuel and chemicals may only be stored in a designated and demarcated work area. No storage of fuel and chemicals on the beach.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Developer / contractor	Pre implementation	Audit	Once off

c. Provide on-site sanitation and rest areas for personnel within a designated and demarcated area.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Developer / contractor	Pre implementation	Audit	Once off

7.2 STOCKPILE MANAGEMENT

Management Outcome	Impacts & Risks Avoided
To manage soil stockpiles so that dust and sediment in run-off are minimised.	Pollution due to dust and sediment run off

Management Actions

a. Minimise the number of stockpiles, and the area and the time stockpiles are exposed. Excavated soil should be placed on the northern side of the trench.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	As required	Contractor	As required	Audit	Records

b. Keep topsoil, if present, and underburden stockpiles separate.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records

c. Ensure that stockpiles and batters are designed with slopes no greater than 2:1 (horizontal/vertical).

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly

d. Stabilise stockpiles and batters that will remain bare for more than 28 days by covering with mulch or anchored fabrics or seeding with sterile grass.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
e. Establish sediment controls around unstabilised stockpiles and batters.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
f. Suppress dust on stockpiles and batters, as circumstances demand.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly

7.3 STORING FUELS & CHEMICALS

Management Outcome	Impacts & Risks Avoided
To ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage.	Avoid hydrocarbon pollution to soil and watercourses / coastal environments

Management Actions

a. Minimise fuels and chemicals stored on-site. No equipment or machinery may be stored on the beach.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

b. Install bunds and take other precautions to reduce the risk of spills.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

c. Implement a contingency plan to handle spills, so that environmental damage is avoided. Ensure that emergency response equipment including fire suppression and spill containment supplies is readily available at each proposed development location.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

d. All construction materials (topsoil, subsoil, building sand) must be stockpiled as far from the Estuary or as practically possible.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Monthly

7.4 MINIMISING EROSION

Management Outcome	Impacts & Risks Avoided
To minimise the quantity of soil lost during construction due to land-clearing.	• Avoid overland flow by capture and store water from roof • Avoid siltation by installing silt traps

Management Actions

a. Schedule measures to avoid and reduce erosion by phasing the work program to minimise land disturbance in the planning and design stage.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

b. Keep the areas of land cleared to a minimum, and the period areas remain cleared to a minimum

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

c. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Method statement	As required	Contractor	As required	Audit	Method statement records
d. Mulch, roughen and seed cleared slopes and stockpiles where no works are planned for more than 28 days, with sterile grasses.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
e. Keep vehicles to well-defined haul roads.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site plan	As required	Contractor	As required	Audit	Final site plan
f. Rehabilitate cleared areas promptly.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously during construction	Audit	Final Rehabilitation statement

7.5 FAUNA MANAGEMENT

Management Outcome	Impacts & Risks Avoided
To ensure that impacts to native faunal species is minimised and / or avoided.	To minimise the impact to fauna
Management Actions	

a. General recommendation and best practice guidelines should be followed for all animal species encountered (regardless of whether they are SCC or not).

b. Erect temporary barriers around open trenches and excavations to prevent fauna from becoming trapped within development area.

c. During construction activities, any observation of immobile or slow-moving fauna must be reported. Construction in that area must be temporarily halted until all fauna have been removed from harm's way.

d. Only individuals with appropriate training are permitted to handle fauna encountered on-site.

e. Limit construction activities to daylight hours to allow for effective monitoring of fauna presence and movement.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Ad hoc	As required	Contractor	Continuously	Audit	Visual / photographic

7.6 SOCIAL REQUIREMENTS

Management Outcome	Impacts & Risks Avoided
To ensure equitable, fair and safe social interaction on construction sites	Loss of employment opportunities to the region

Management Actions

a. It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off

b. Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the Developer and the Contractor.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

Targets

- The contractor should endeavour to source local suppliers.
- The contractor must ensure that suitable procurement policies are in place that supports local economic growth.
- Locally manufactured products must be used as far as possible.

Site Security

Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the developer and the contractor.

Considering this, contractors need to be proactive in order to curtail theft and crime on and resulting from the construction site. It is recommended that the contractor develop a jobsite security plan prior to commencement of construction. This jobsite security plan should take into account protection of the construction site from both internal and external crime elements as well as the protection of surrounding communities from internal crime elements. All incidents of theft or other crime should be reported to the South African Police Service, no matter how seemingly insignificant.

7.7 METHOD STATEMENTS

Management Outcome	Impacts & Risks Avoided
To ensure efficient communication mechanisms in the implementation of environmental performance requirements	Prevention of potential impacts are avoided during construction by means of correct communication

Management Actions

a. Method statements are written submissions by the Contractor to the ECO in response to the requirements of this EMPr or to a request by the ECO. The Contractor shall be required to prepare method statements for several specific construction activities and/or environmental management aspects.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	Ad hoc	Contractor	As required	Audit	Once off

Based on the specifications in this EMPr, the following method statements are required as a minimum (more method statements may be requested as required at any time under the direction of the ECO):

- Demarcation of No-Go areas
- Site clearing
- Hazardous substances and their storage.
- Materials requirements & Sourcing.

- Solid waste control system.
- Fire control and emergency procedures
- Petroleum, chemical, harmful and hazardous materials storage, if any.
- Beach work schedule and duration.
- Stormwater Management and Erosion Control.

7.8 POST-CONSTRUCTION REHABILITATION

Management Outcome	Impacts & Risks Avoided
To protect the revetment structure from vandalism and the elements and softens the visual impact.	To avoid negative impacts on the revetment structure

Management Actions

a. A 0.3 to 0.5 m thick layer of soil/sand cover over the revetment should be established and maintained to allow dune vegetation to grow over the chosen revetment structure. This protects the structure from vandalism and the elements and softens the visual impact. It will also naturally manage the influx of windblown sand off the dry upper beach area.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	Continuously	Audit	Visual / photographic

8 OPERATIONAL/MAINTENANCE PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

The Operational/Maintenance Phase of this EMMPr refers to the day-to-day management activities that are required to ensure sustainability and the achievement of the principles and objectives of the development. The requirements are applicable to the Applicant.

8.1 REPAIRS AND MAINTENANCE TO THE REVETMENT STRUCTURE

Management Outcome	Impacts & Risks Avoided
To mitigate renewed wetland disturbance and potential sedimentation.	• To prevent renewed wetland disturbance.

Management Actions

a. Following severe storm events and exceptionally high tides, inspections are crucial to evaluate the condition of the revetment structure. Regular inspections of the revetment must aim to identify any shifts in the position of the sandbags. Any bags that are damaged, and any erosion or scouring at the toe of the structure must be noted.

   Ongoing Maintenance:

   - Replacing the soil and dune vegetation over the revetment if washed away.
   - Like-for-like replacement of revetment structures when damaged / deteriorated.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / Photographic	Ongoing	Developer / Contractor	As required	Audit	Audit

8.2 SYSTEMATIC INVASIVE ALIEN VEGETATION CLEARING

Management Outcome	Impacts & Risks Avoided
To prevent opportunistic invasive and exotic species from outcompeting and displacing recovering vegetation	• To prevent impact on recovering natural vegetation.

Management Actions

a. Systematic invasive alien vegetation clearing along the full length of ATKV coastal property must be undertaken to ensure that no listed invasive alien vegetation remains that can spread or detract from natural succession along the revegetated areas.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / Photographic	Ongoing	Holder	As required	Audit	Audit

9 MONITORING

Monitoring is an important tool in determining the effectiveness of management actions by measuring changes in the environment. These could be in the form of fixed point photography where an area is photographed on a regular / seasonal basis to ascertain changes, monitoring of a particular aspect such as landscape integrity parameters, recordings of animal movement from fixed point etc. The most important aspect of any monitoring programme is **consistency and continuity**. This will ensure a level of scientific accuracy to determine baselines / thresholds and measure changes / deviations, which then drive management reactions.

Any required monitoring reports must be made available to the competent authority as required.

The type and frequency of monitoring must include:

- During construction photographs must be taken from pre identified fixed points and a comprehensive record maintained;
- Incident Reports;
- Site meeting minutes.

9.1 MONITORING TIMEFRAMES SUMMARY

Table 3: Monitoring Timeframe Summary

MONITORING TIMEFRAMES		
Type	Frequency	Criteria
ECO visits	As per section 5.4	Site photographs / site diary
Record keeping	Monthly	Site photographs, method statements, site meeting minutes (if applicable)
	3 month post construction	Completion Statement
Auditing	One year post construction	Compliance with the EA, EMPr, municipal permits and any other approvals

9.2 ENVIRONMENTAL AUDITS

A final construction phase Completion Statement must be submitted within 3 months of completion of construction / site handover.

This Completion Statement must include the monitoring results as above, where applicable to construction.

An Environmental Audit should be undertaken one (1) year post construction.

9.3 AUDIT REPORTS FREQUENCIES AND FORMAT

The table below provides a summary of the timeframes for the various Audit Reports specified in the EA.

Table 4: Audit Reports Timeframe Summary

ENVIRONMENTAL AUDIT TIMEFRAMES		
Type	Frequency	Criteria
Final Construction Audit	Two years post construction	Audit on operational aspects of the EA and EMPr

In terms of the 2014 EIA Regulations, Audit Reports must be submitted to the registered Interested & Affected Parties within 7 days of submission to the competent authority.

In order to comply with the 2014 EIA Regulations, any audits must be undertaken using the following format:

Table 5: Environmental Audit Requirements

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	**Description**
The objective of the environmental audit report is to -	
(a) Report on – (i) the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and (ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr, and closure plan.	
(b) Identify and assess any new impacts and risks as a result of undertaking the activity.	
(c) Evaluate the effectiveness of the EMPr, and where applicable, the closure plan.	
(d) Identify shortcomings in the EMPr, and where applicable, the closure plan.	
(e) Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.	
Requirement	**Description**
(1) An Environmental audit report prepared in terms of these Regulations must contain -	
(a) Details of – (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report.	

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	**Description**
(b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority.	
(c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared.	
(d) A description of the methodology adopted in preparing the environmental audit report.	
(e) An indication of the ability of the EMPr, and where applicable the closure plan to – (i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis; (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.	
(f) A description of any assumptions made, and any uncertainties or gaps in knowledge.	
(g) A description of an consultation process that was undertaken during the course of carrying out the environmental audit report.	
(h) A summary and copies of any comments that were received during any consultation process.	
(i) Any other information requested by the competent authority.	

Any other requirements of the EA or any other authorisations must be incorporated into an Audit where necessary.

10 DECOMMISSIONING PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

Not Applicable.

11 NON-COMPLIANCE

Any person is liable on conviction of an offence in terms of regulation 49(a) of the National Environmental Laws Second Amendment Act (Act 30 of 2013) to imprisonment for a period not exceeding ten (10) years or to a fine not exceeding R10 million or an amount prescribed in terms of the Adjustment of Fines Act, 1991 (Act No. 101 of 1991).

It is the responsibility of the ECO to report matters of non-compliance to the Employer's Representative or the Holder of the EA if no representative is in place. It is the responsibility of the Holder of the EA, and not the ECO, to report such matters of non-compliance to the competent Authority.

11.1 PROCEDURES

The Holder of the EA shall comply with the environmental specifications and requirements of this EMPr, any Approval / License issued and Section 28 of NEMA, on an on-going basis and any failure on his part to do so will entitle the authorities to **impose a penalty**[1].

In the event of non-compliance the following recommended process shall be followed:

- The competent authority shall issue a **Notice of Non-compliance** to the Holder of the EA, stating the nature and magnitude of the contravention.
- The Holder of the EA shall **act to correct the transgression** within the period specified in by the authority.
- The Holder of the EA shall provide the competent authority with a **written statement** describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Holder of the EA failing to remedy the situation within the predetermined time frame, the competent authority may recommend halting the activity.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the competent authority shall be entitled to undertake or to cause to be undertaken such **remedial works** as may be required to make good such damage at the cost of the Project applicant.
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMPr, disagreement regarding the implementation or method of implementation of conditions of the EMPr, etc. any party shall be entitled to require that the issue be referred to **specialists and / or the competent authority** for determination.
- The competent authority shall at all times have the right to **stop work** and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

[1] A penalty may not necessarily be a monetary fine but could also be a stoppage in work time, additional mechanisms to prevent pollution or degradation at the cost of the proponent or even a directive to cease activities from the competent authority.

12 REFERENCES

Aquanotion, 2008. www.twoflush.com/conservbody.htm. Aquanotion Ltd, Alberta, Canada.

Cape EAPrac, 2026. *Basic Assessment Report for ATKV Dune Stabilisation and Coastal Erosion Control Measures*, South Africa.

Eartheasy, 2008. www.eartheasy.com - Solutions for Sustainable Living.

eHow Home, 2011. www.eHow.com - *How to Safely Dispose of Energy Efficient Light Bulbs*.

Lochner, P. 2005. *Guideline for Environmental Management Plans.* CSIR Report No ENV-S-C 2005-053H, Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.

Appendix 1: Locality Plans

Locality Map

Proposed Geotextile Sandbag Phases

Legend

- Phase 2
- Phase 4
- Phase 6

Hartenbos Lagoon

Riviera Hotel Hartenbos

Harts Ave

Oranje Ave

Amfiteater

Port Natal Ave

Bloukrans Ave

Paardekraal Ave

Kleine Elvis Brew

Hennie's Hartenbos

ATKV Hartenbos

On the Beach Hartenbos

Google Earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

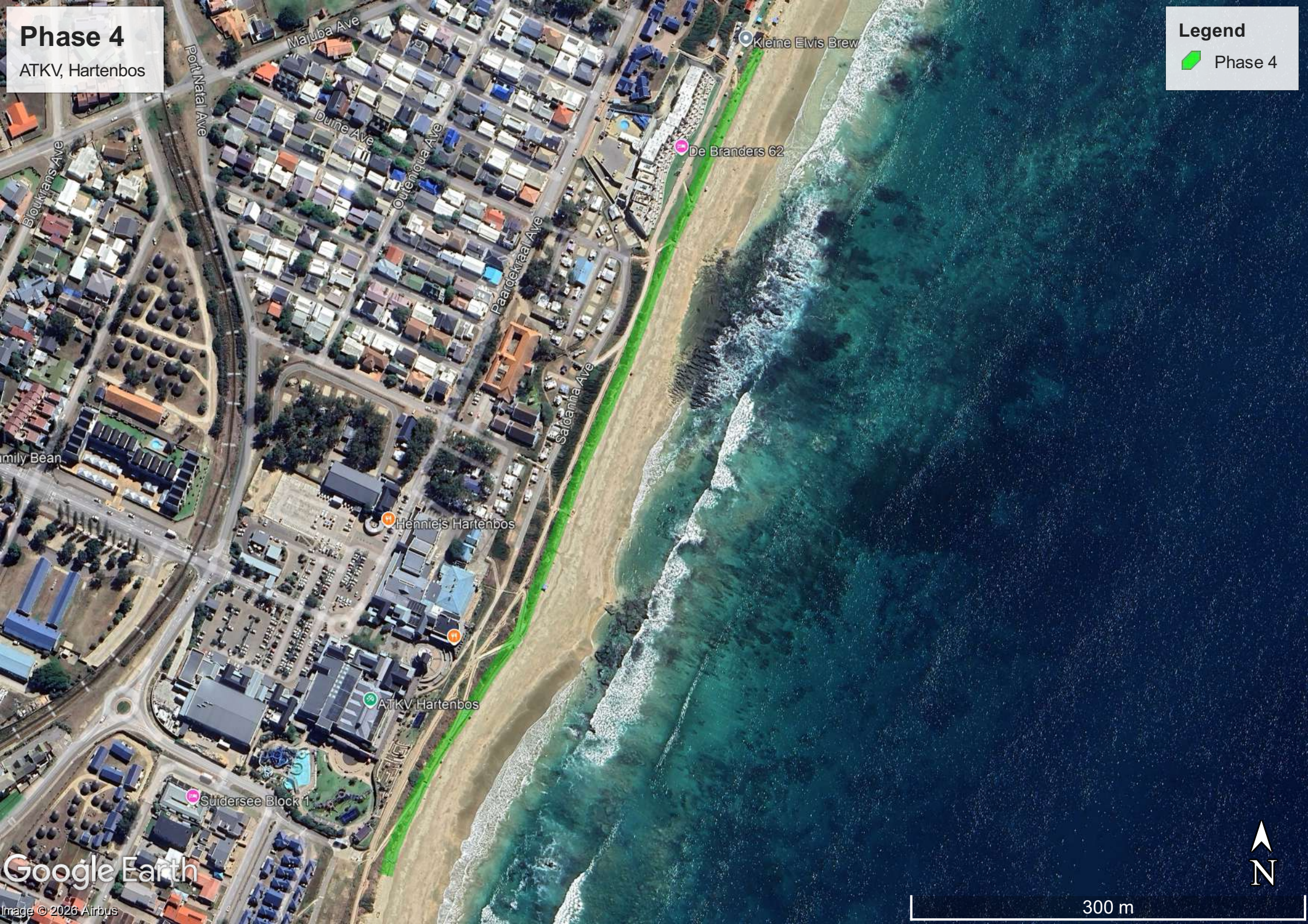
Image © 2026 Airbus

N

400 m

Appendix 2: Site Plans

Phase 2
ATKV, Hartenbos
Legend
Phase 2
NG Kerk Jeugsentrum Hartenbos
Paardekraal Ave
On the Beach Hartenbos
Google Earth
Image © 2026 Airbus
N
70 m


Phase 4
ATKV, Hartenbos
Legend
Phase 4
Majuba Ave
Port Natal Ave
Duine Ave
Outeniqua Ave
Boukrans Ave
Paardekraal Ave
Saldanha Ave
Kleine Elvis Brew
De Branders 62
Hennie's Hartenbos
ATKV Hartenbos
Suidersee Block 1
Google Earth
Image © 2026 Airbus
N
300 m

Phase 6
ATKV, Hartenbos
Legend
Phase 6
Sandkorrel Self Catering Beach House
Port Natal Ave
Paardekraal St
Melkhout Ave
Harts Ave
Damma Lekka
Google Earth
Image © 2026 Airbus
N
100 m

Appendix 3: Environmental Guidelines

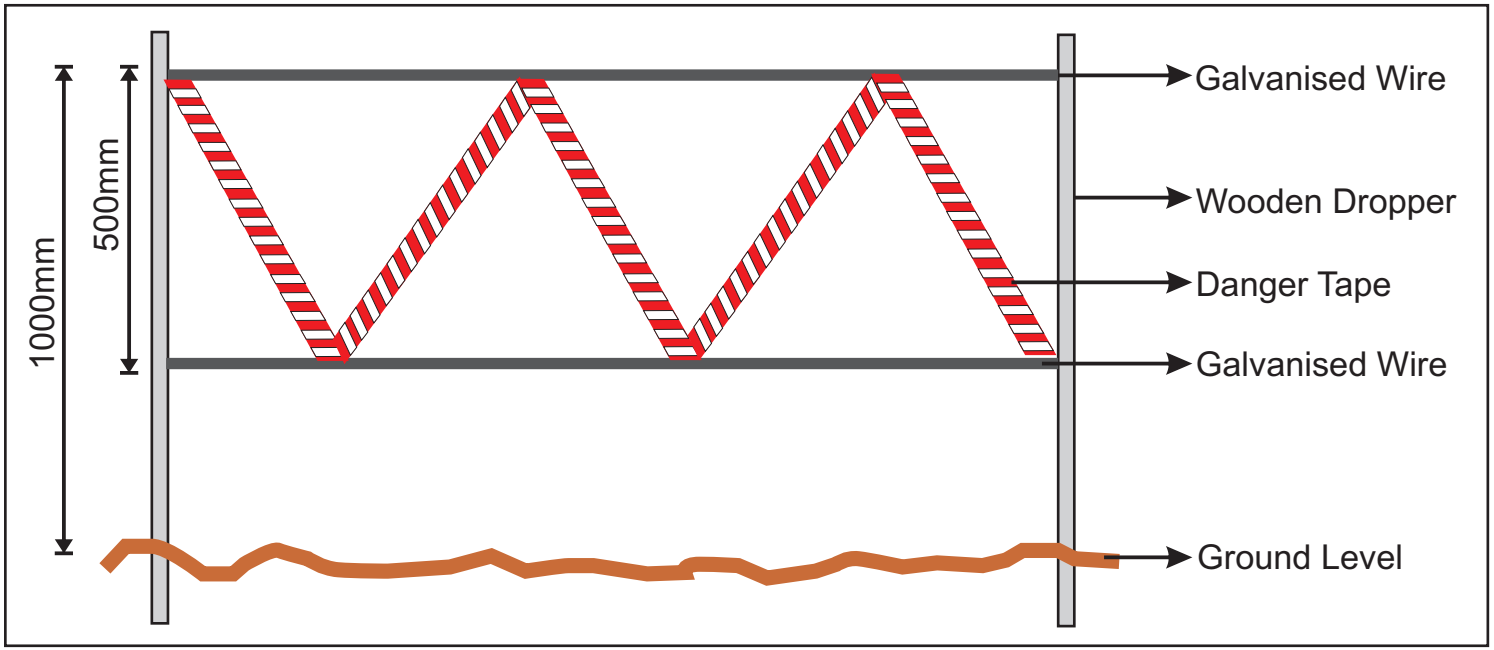


Plate A: Showing a cross section of a typical method of demarcation of no-go areas.

Where demarcation is required on a down slope, it can be more cost effective to include the required silt protection mechanisms on the same support structure as the demarcation. This is detailed in **Plate B** below and must be read in conjunction with the details on erosion control included in the previous diagram.

GENERAL CONSIDERATIONS FOR DEMARCATION OF NO GO AREAS

- The demarcation must include all areas that are going to be disturbed in the total construction (including all service lines)
- The no -go areas may not be accessed by any person (including lunch, tea breaks etc.). Without the explicit written permission from te ECO.
- Maximum fines will be issued for any non compliance with regards to the no go policy.

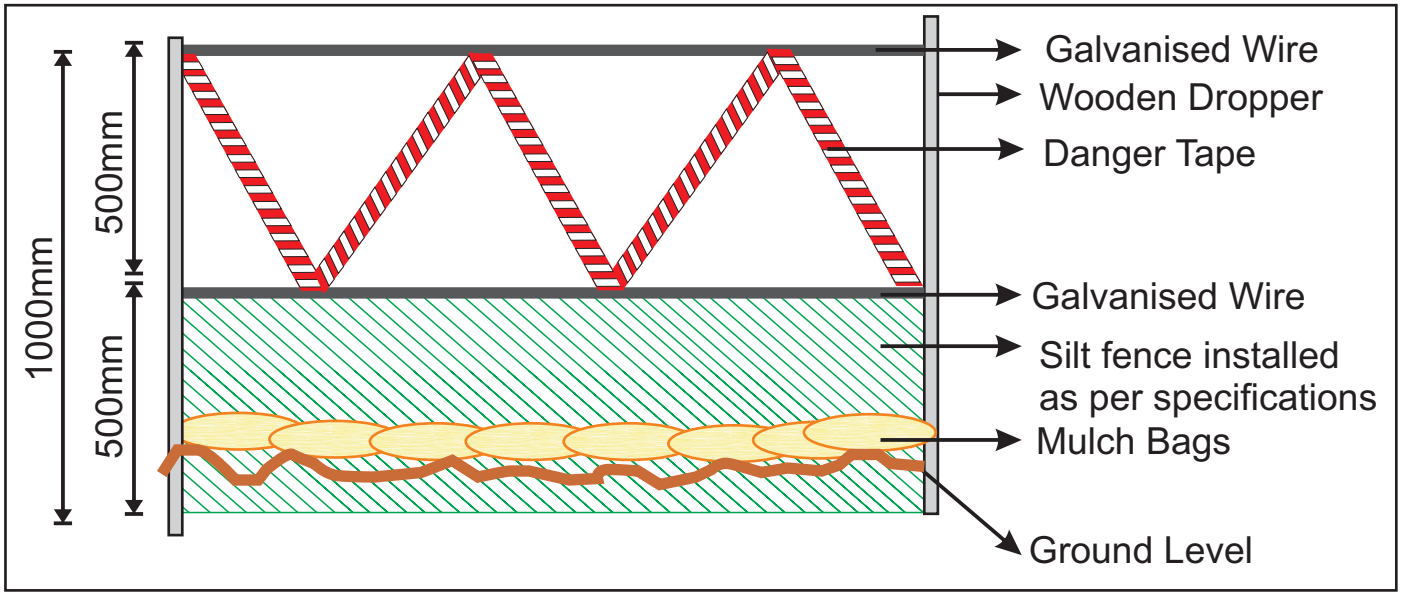


Figure 1: Demarcation of No - Go Areas During Construction

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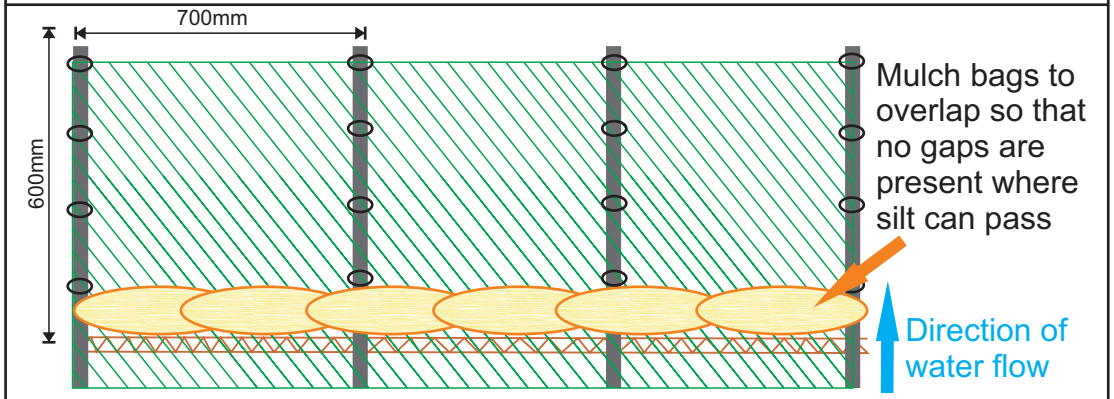
Frontal View



The purpose of a silt fence is to create a temporary barrier to maintain sediment on a construction site in order to prevent soil erosion and pollution through sediment and nutrient loading. Silt fences are designed to detain sediment from the disturbed construction area and also prevent sheet erosion by decreasing the velocity of the run off.

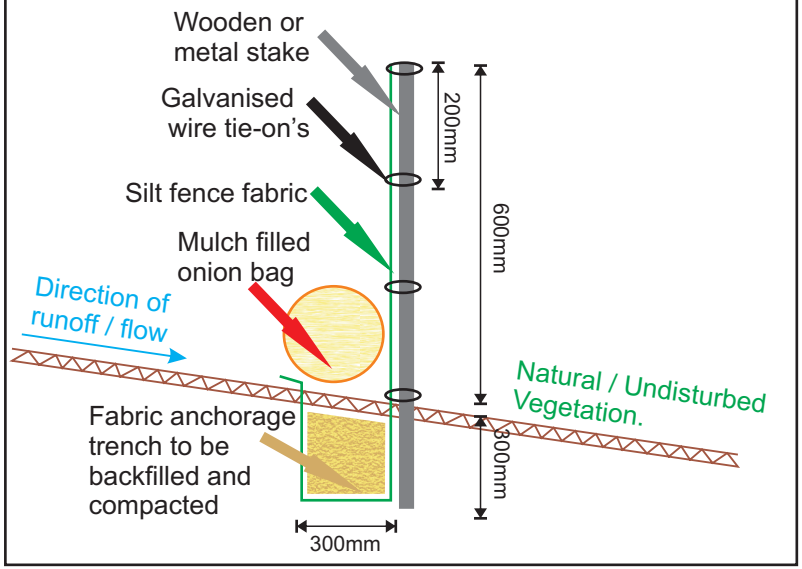
Technical Specifications

- Silt fence fabric to consist out of 50% shade cloth or a geotextile such as biddim (if biddum is used, it is not necessary to place mulch bags).
- Wooden droppers are suitable for the stakes. If the construction program takes place over an extended time frame it may be necessary to use treated droppers or metal stakes.
- The support stakes should not be placed further than 700mm apart on the down slope side of the fabric.
- The fabric should be secured to the stakes using galvanised wire ties not further than 200mm apart.
- The fabric anchorage trench should be at least 300mm deep.

Planning, Placing and Maintenance

- The silt fence is to be installed on all disturbed slopes where sheet erosion may take place.
- This type of silt fence is not suitable for areas where water is concentrated. i.e. gulleys and storm-water outlets.
- The silt fences should be along the contour lines
- The rows of silt fences should be bowed to prevent erosion and loss of silt on the ends of the fence line.
- Silt fences should be inspected weekly and before every forecast rainfall event. Any damage must be repaired immediately.
- Silt deposits should be cleared after each rainfall event. CLEARED SILT MUST NOT BE PLACED DOWN SLOPE OF THE FENCE.

Cross-section View



Top View

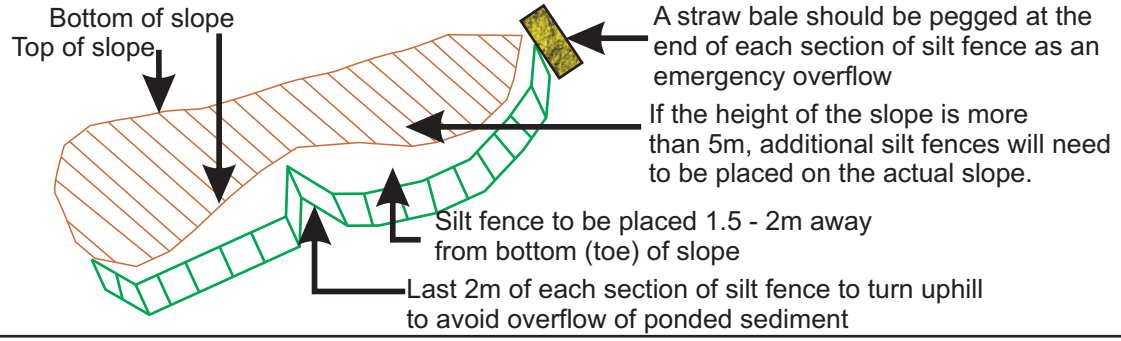


Figure 2: Specifications for Silt Fences

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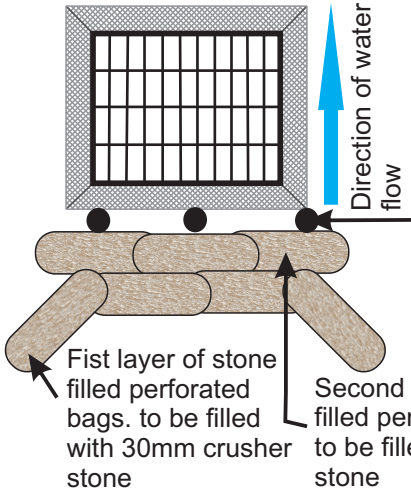
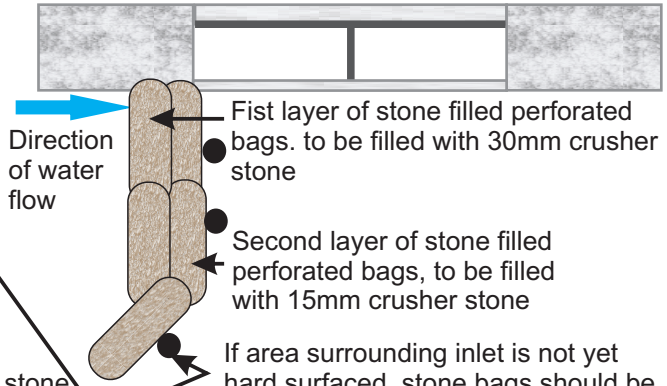
Inlet Protection

Drop Inlets



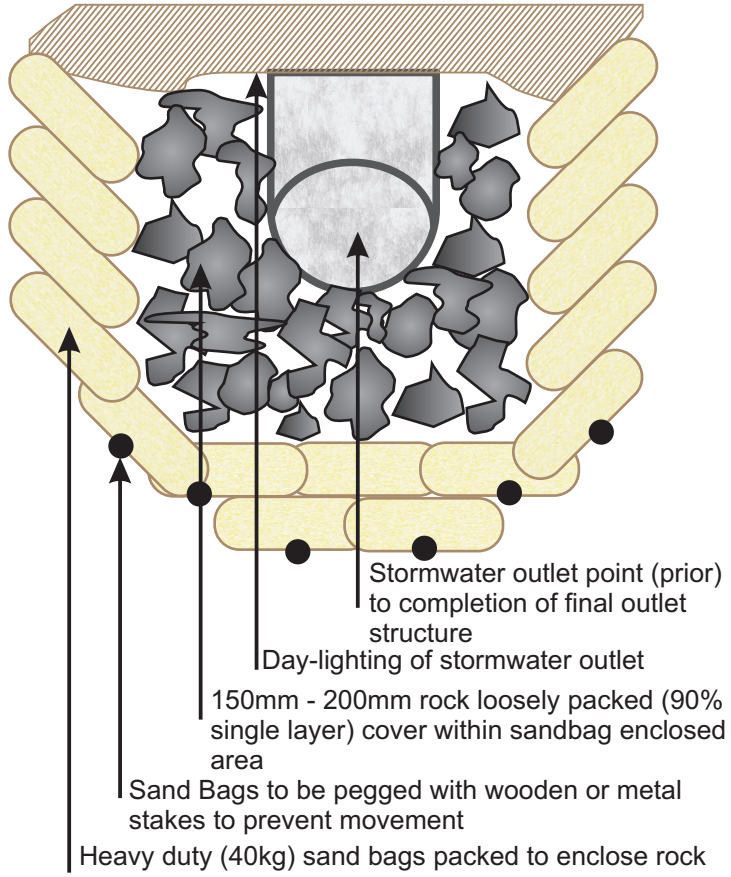
Kerb Inlets



- Should the inlet be positioned at a low point with water entering from a number of sides, a double row of stone bags (as detailed above) should be placed at each side where water enters.

- In low flow, high sediment areas, consideration should be given to cover the inlet structures with biddum (this will only work in low flow areas.)

Outlet Protection



- The methodology referred to above is effective as a temporary measure to be used during construction and is in no way intended to replace the permanent measures that must be installed. These permanent measures must be constructed as per the engineers specifications.
- Stormwater systems should ideally be constructed during low rainfall periods in order to allow for permanent protection measures to be put in place before the rainy season.
- Consideration should be given to encase the outlet structure with a geo-fabric such as biddum. This should first be clarified with the site engineer to ensure compatibility with the stormwater system.

Figure 3: Specifications for Temporary Stormwater Management During Construction

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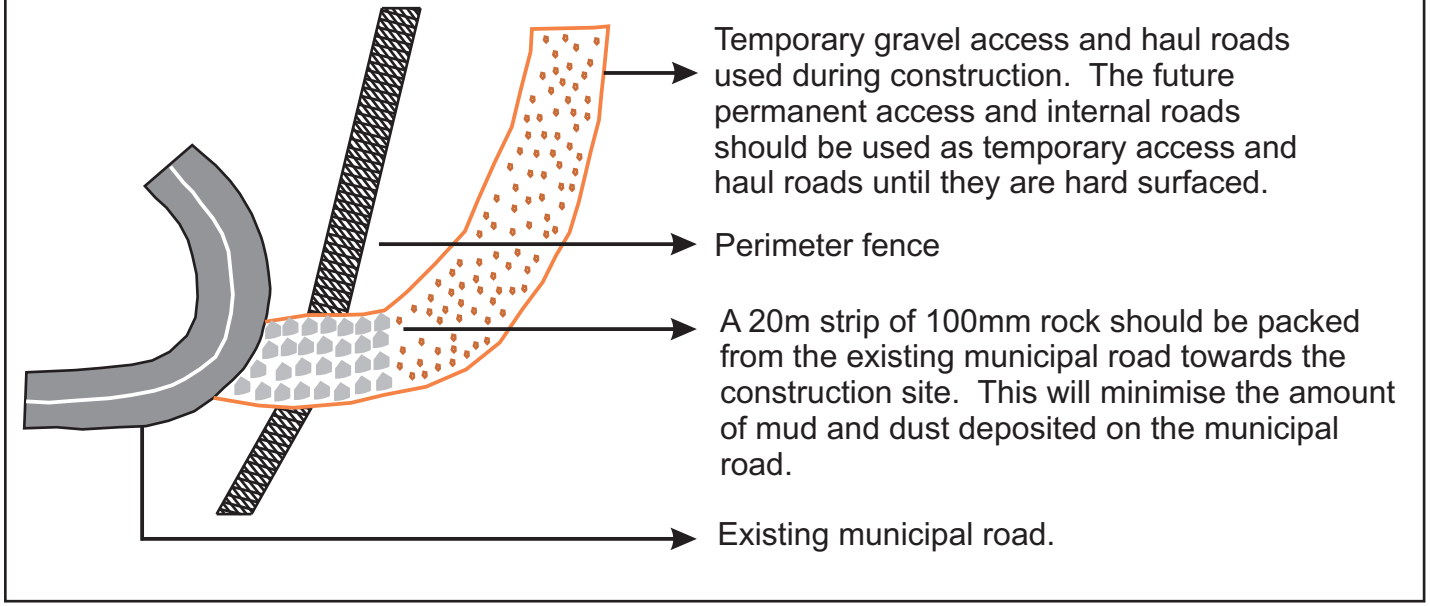
Key Environmental Considerations for Haul Roads

The most important environmental factor to be considered regarding access and haul roads, is the location thereof. Haul roads should be designed to make use of future permanent internal roads and access points.

The haul roads should never be construction in areas that will not be permanently transformed with the development. Nor should they be constructed in any sensitive area.

Another safety and environmental hazard caused by haul road surface is dust problems. Roads should be designed with enough fines to act as binders for the larger particles. However, an excess of fines will result in these particles being released to the atmosphere when repeated stress is applied by the equipment tires. All haul roads that do not have a "sealed" surface, will create dust. The dust problem is mainly dealt with by application of water.



Minimisation of Dust on Haul Roads

- Every effort to minimize dust pollution on the site must be undertaken.

- Construction vehicles must adhere to speed limits and minimization of haul roads must be implemented. During dry, dusty periods haul roads should be kept dampened to prevent excess dust.

- No potable water may be used for damping haul roads.

- As an alternative, products such as road environment dust suppressants (Reds) would be recommended in order to minimize the use of water for controlling dust pollution. This is to be determined by the ECO during construction as required.

Figure 4: Management of Haul and Access Control During Construction

Cape Environmental Assessment Practitioners (Pty) Ltd

Appendix 4: EAP Company Profile

The Team

Doug Jeffery - Director

Doug Jeffery obtained a Bsc with majors in Botany and Zoology at the University of Cape Town (UCT) and went on to obtain his MSc in Botany also at UCT. He has worked extensively in the Western-, Southern- and Eastern Cape both as a professional Botanist and co-ordinating EIA processes for over 20 years. He is registered with the South African Council for Natural Scientific Professions since 1990. He is also registered with the Environmental Assessment Practitioners Association of South Africa.

email: doug@dougjeff.co.za

Dale Holder

Senior Environmental Practitioner

Dale graduated from the Technicon Pretoria in 1999 with a National Diploma in Nature Conservation. He worked as a Socio-Ecologist for SANParks and as Project Manager for the Department of Marine and Coastal Management. He started working as an environmental practitioner in 2002. His focus is currently on Renewable Energy Infrastructure Assessment, but is also involved with assessments in various other industries.

Registered as a Professional Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA). (Reg. No. 2019/301)

email: dale@cape-eaprac.co.za

Siân Holder - Consultant / ECO

Siân completed a National Diploma Nature Conservation (Pta Tech), B-tech Nature Con. (NMMU) and a Masters Degree in Environmental Education (Rhodes University). She joined our team in 2008. She worked as Environmental Assessment Practitioner for many years, but her current focus is on Environmental Control and Monitoring, Rehabilitation and Alien Invasive Management.

email: sian@cape-eaprac.co.za

Carin Naudé

Business Administrator

Carin obtained a BBA degree through UNISA. She gained extensive experience in business management and administration since 1988. She joined *Cape EAP*rac in June 2008 and is responsible for the day to day administrative functions of the business. Her acquired knowledge and leadership skills enables the rest of the team to function efficiently in their respective fields.

email: carin@cape-eaprac.co.za

Louise-Mari van Zyl

Director / Principal Environmental Practitioner

Louise-Mari van Zyl holds a Masters degree in Geography & Environmental Sciences from the University of Stellenbosch. She worked as an Environmental Assessment Practitioner (EAP) since 2002 on projects in the Eastern, Southern, Western & Northern Cape provinces. She is registered as and EAP with the Environmental Assessment Practitioners Association of South Africa.

email: louise@cape-eaprac.co.za

Mariska Byleveld

Candidate Environmental Practitioner

Mariska joined Cape EAPrac in April 2022 . She completed her BSc in Geology in 2016, BSc Honours in 2017 and holds a MSc in Geology from the University of the Free State (2020). She worked as a Geologist for two years before joining our team. She is registered as a Candidate Environmental Practitioner.

email: mariska@cape-eaprac.co.za

Francois Byleveld

Candidate Environmental Practitioner

Francois graduated from the University of the Free State in 2020 with a MSc in Geology. After working in the petroleum industry, he joined our team in May 2023 to train as an Environmental Assessment Practitioner. He is registered as a Candidate EAP.

email: francois@cape-eaprac.co.za

On-Site ECOs

We have three full-time, on-site ECOs, working on PV Solar construction sites in the Northern Cape:

- Onke Nandipha - BSc in Environmental Sciences (2017) and a BSc Honours in Geography (2018) from Walter SisuluUniversity. He is registered as a Candidate EAP with EAPASA.
- Charmaine Mudau - BA in Geography and Environmental Management from the University of the Free State (2014) and a BSc Honours in Geography from UNISA (2020).

Their knowledge and understanding of environmental management make them a valuable asset on site.

email: onke@cape-eaprac.co.za &
email: charmaine@cape-eaprac.co.za

Louise-Mari van Zyl

2023

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Tel- 044 8740365
Cell – 071 603 4132
Fax – 044 875 0432
louise@cape-eaprac.co.za
www.cape-eaprac.co.za

EDUCATION

University of Stellenbosch

Masters: Geography & Environmental Studies
2006

BA Honours: Geography & Environmental Studies with GIS
2001

BA Geography & Environmental Studies
2000

PROFESSIONAL REGISTRATION

Registered Environmental Assessment Practitioner (EAP)with the Environmental Assessment Practitioners Association of South Africa (EAPASA) – Reg. No: 2019/1444

PROFESSIONAL SOCIETIES

Member of International Association of Impact Assessments South Africa (IAIAsa)

WORK EXPERIENCE

Managing Director | Cape EAPrac, George

2008 – Present

Temporary Lecturer: Environmental Management | Nelson Mandela University, George campus

2019 – Present

Senior Environmental Consultant & Public Participation Facilitator | Doug Jeffery Environmental Consultants, Paarl

2007 - 2008

Senior Environmental Consultant & Public Participation Facilitator | HilLand Associates, George

2002 – 2007

CORE COMPETENCIES

Practicing as an EAP since 2002 I have gained experience with a variety of projects working in the **Eastern Cape, Western Cape, Kwazulu Natal, Gauteng and Northern Cape Provinces**.

My work requires of me to be acquainted with relevant local and international conservation / environmental, as well as planning management policies and legislation, least of which are the National Environmental Management Act, National Environmental Management Waste Act, National Environmental Management Air Quality Act, National Environmental Management Biodiversity Act, Integrated Coastal Management Act, Protected Areas Act, Outeniqua Sensitive Coastal Areas Regulations, the 2014 Environmental Regulations, National Water Act, National Heritage Resources Act and numerous conservation related regulations and guidelines that form the basis of environmental management.

In addition to being the senior EAP on various applications, I am also responsible for overseeing applications handled by all of *Cape EAPrac's* staff, as well as the review of reports prior to submission for consideration by the competent authorities.

Management of and liaison with a variety of specialists, Clients, Organs of State and Authorities form a large component of my daily responsibilities in the form of project management to ensure quality and time/cost management.

It is my responsibility to ensure training and orientation of all incoming staff at *Cape EAPrac.*

As temporary lecturer at the NMU George campus I lecture Environmental Management I (Nature Conservation). In additional to facilitating classes, I am responsible for compiling, as well as marking, of all tests, summary assessments, exam papers and tutorials. Integrating field work and practicals with students, as part of my permanent occupation as an environmental assessment practitioner, creates opportunities for practical experience for the students in environmental management.

PROFFESIONAL PORTFOLIO

ENVIRONMENTAL IMPACT ASSESSMENT, BASIC ASSESSMENT & EMP'S

- **Infrastructure:** Overhead transmission lines with associated substations (standalone or associated with renewable energy projects), construction and expansion of roads, flood damage road rehabilitation, stormwater retention facilities, sewage works, potable water supply networks.
- **Human Settlements:** Facilitate various scale residential developments with associated infrastructure. Environmental expert on the Eden PRT project team from 2012 (ongoing) facilitating various scale subsidised housing projects (upgrades and green fields) for Knysna Municipality, Oudtshoorn Municipality, George Municipality and Mossel Bay Municipality.
- **Renewable Energy:** Facilitating various applications for Wind Farms, Solar Farms, Biogas Waste-to-Energy and Composting applications.
- **Agricultural:** Applications for the construction and expansion of abattoirs of various scales, feedlots, piggeries and orchard establishments.
- **Integrated environmental management:** Environmental management and maintenance plans, environmental monitoring & control functions, environmental auditing.

WASTE MANAGEMENT LICENCES

- **Waste Management Licenses:** Facilitating applications for feedlots, dairy's, waste water discharge for the handling/treatment and disposal;
- **Applications for** composting and anaerobic biogas waste-to-energy projects with organic material at dairies, feedlots, abattoirs and fruit juice factories.

WATER RELATED

- **Desalination**: Application for 1.5Mgl beach intake desalination plant for Knysna Municipality and 300kl reverse osmosis desalination plant at Witsand. Including impact assessment, construction monitoring as well as operational and maintenance control functions since installation.
- **Dams:** Various applications for the construction of new storage dams and reservoirs for Municipal water supply and agricultural irrigation practices.
- **Water supply and storage infrastructure**: Installation of gabions, pipelines and reservoirs for water storage.

AIR EMISSION LICENSES

- **Air Emission Licenses:** Facilitating applications for sawmills, wood drying facilities, tanneries, brick manufacturing (clamp & vertical shaft kilns), asphalt manufacturing (macadam processes), rendering plants, coal dust fallout management, bitumen emulsion, creosote processes, as well as renewal of existing licenses and conversion of old APPA permits..

SECTION 24G RECTIFICATION APPLICATIONS

- **S24G processes:** Facilitating rectification assessment processes for listed activities that commenced unlawfully ito NEMA, NEMWA and NEMAQA (ranging from roads, storm water infrastructure, vegetation clearing, construction activities, air emission generation activities, waste management activities, wetland/riparian disturbances, dams).

ACADEMIA

- **Part-time lecturer** at the Nelson Mandela University (George Campus) teaching Environmental Management.

OTHER

- **Coastal Discharge permits:** Applications for various existing commercial factories in the Mossel Bay Harbour and Witsand Desalination Plan ito the Integrated Coastal Management Act (ICMA) for discharge of their effluent.
- **Environmental Control & Management:** (ECO) Management of construction activities to ensure compliance with environmental approvals and environmental management plans.
- **Rehabilitation:** Rehabilitation plans for disturbed areas and rivers/riparian areas.
- **Norms & Standards:** Assisting the South African National Biogas Industry Association (SABIA) and GIZ with the development of the **Norms & Standards for Organic Waste** in South Africa; as well as
- Assistance to the **National Red Meat & Abattoir Association (RMAA)** with formulating Norms & Standards for Red Meat Abattoir waste, focusing specifically on anaerobic digestion through biogas, composting, alkaline hydrolysis and micro-rendering.
- **Environmental awareness & training**: Induction of contractor teams and labourers associated with alien clearing projects, rehabilitation projects, construction projects, as well as school groups for site inspection and environmental awareness outings.

Mariska Byleveld

May 2023

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www.cape-eaprac.co.za

EDUCATION

Jim Fouché High School
Matric 2013

University of the Free State
MSc Geology 2018 - 2020

BSc Honours Geology 2017

BSc Geology 2014 - 2016

PROFESSIONAL REGISTRATION

Candidate Environmental Assessment Practitioner (EAP)with the Environmental Assessment Practitioners Association of South Africa (EAPASA)
Reg. No: 2023/6593

Registered Scientist at SACNASP (Candidate Natural Scientist)

WORK EXPERIENCE

Candidate Environmental Assessment Practitioner (EAP) | Cape EAPrac
January 2023 - Present

Project Assistant | Cape EAPrac
April 2022 – December 2022

Junior Geologist | EVS Civil Services
July 2020 – February 2022 (fixed term contract)

Student Assistant | University of the Free State
2016 - 2019

CORE COMPETANCIES

Renewable Energy Infrastructure Assessment, Public Participation & Stakeholder Engagement, GIS & Mapping, Biophysical Inventories, Retrospective Damage Assessment, Air Quality License Applications, Waste Management License Applications, Environmental Impact Assessments, Environmental Management Policies and Plans, Environmental Control, Monitoring and Auditing, Environmental Awareness and Training Programs, Environmental Education and Interpretation and Environmental Feasibility Assessments.

PROFESSIONAL PORTFOLIO

ENVIRONMENTAL IMPACT ASSESSMENTS, BASIC ASSESSMENTS & EMPs

As part of her training to become a registered EAP, Mariska is taking responsibility for various applications for environmental authorisation.

ENVIRONMENTAL CONTROL & MANAGEMENT (ECO)

Acting, under supervision, she acts as Environmental Control Officer during the construction of various residential, retail and services development projects and associated infrastructure.

OTHER:

- Geotechnical Investigation
- DCP (Dynamic Cone Penetrometer) testing
- Troxler Nuclear Gauge testing
- Laboratory Management