

ENVIRONMENTAL MANAGEMENT PROGRAMME

for

RESIDENTIAL DEVELOPMENT

on

Remainder of Erf 2833, Great Brak River, Mossel Bay

In terms of the

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



Prepared for Applicant:
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Date: 7 March 2024

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PURPOSE OF THIS REPORT:

Environmental Management Programme

APPLICANT:

New Care Innovations (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

MOS788/07

SUBMISSION DATE

07 March 2024

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Submitted for:

Stakeholder Review & Comment

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ORDER OF REPORT

Environmental Management Plan

- Appendix 1 : Locality Plans
- Appendix 2 : Site Plans
- Appendix 3 : Environmental Guidelines for construction
- Appendix 4 : EAP Company Profile
- Appendix 5 : Environmental Authorisation (Pending)

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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.	Ms Louise-Mari van Zyl 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.	<u>Section 1</u>
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.	<u>Section 4</u> – Environmental Impacts & Mitigations <u>Section 5</u> - Responsibilities <u>Section 6</u> – Pre-Construction Design <u>Section 7</u> – Construction Phase <u>Section 8</u> – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	<u>Section 4</u>
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.	<u>Section 4</u> <u>Section 6</u> <u>Section 7</u> <u>Section 8</u>
The method of monitoring the implementation of the impact management actions contemplated above.	<u>Section 9</u> <u>Section 11</u>
The frequency of monitoring the implementation of the impact management actions contemplated above.	<u>Section 9</u>

Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	<u>Section 5</u>
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	<u>Section 9</u>
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	<u>Section 9</u>
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.	<u>Section 5</u> <u>Section 6</u> <u>Section 7</u> <u>Section 8</u> <u>Section 9</u>
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

Cape Environmental Assessment Practitioners (Cape EAPrac) was appointed by the Applicant, **New Care Innovations (Pty) Ltd** to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring and control during all relevant phases (construction, operational and possible decommissioning) associated with the proposed residential development on Remainder of Erf 2833, Great Brak River (Mossel Bay, Western Cape Province) (Figure 1).

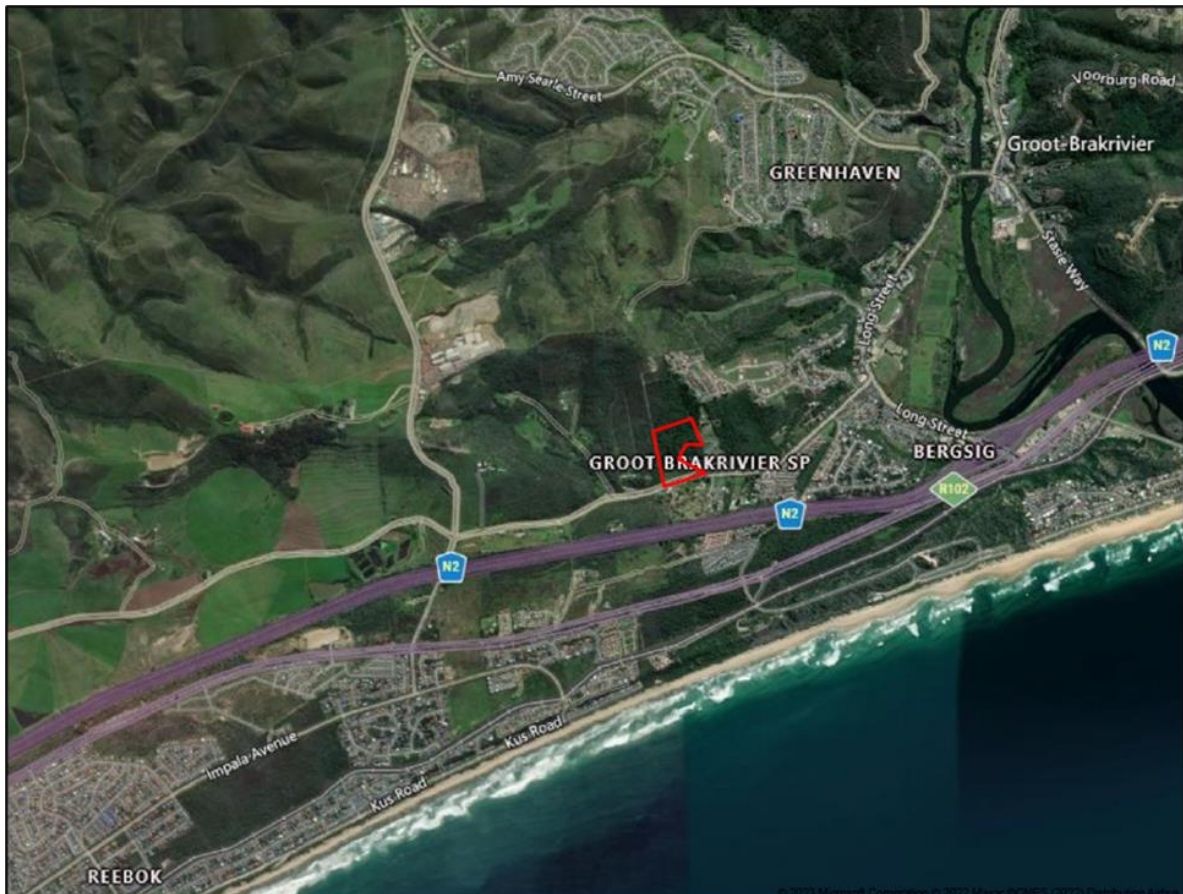


Figure 1: Locality Map of RE/2833 Great Brak River (CapeFarmMapper, 2023).

New Care Innovations (Pty) Ltd, hereinafter referred to as the Applicant, proposes to develop a residential estate on Remainder of Erf 2833 (RE/2833), Great Brak River (Mossel Bay Municipal District, Western Cape Province) (Figure 1).

RE/2833 is ± 6 ha in size and currently zoned Agriculture I. The site is located in Sandhoogte Road and is accessible via a narrow servitude on the property's western boundary. The property is located inside the urban edge of Great Brak River and is bounded by residential dwellings to the east and across Sandhoogte road to the south.

The Applicant's initial proposal was to rezone and subdivide the property to accommodate for the following (Figure 2):

- 14 x Single Residential Zone I erven on ± 1.44 ha,
- 37 x General Residential Zone II erven on ± 0.83 ha,
- 3 x Open Space III erven on ± 2.28 ha,
- 2 x Transport Zone III erven on ± 1.14 ha, and
- 1 x Transport Zone II erf on ± 0.35 ha.

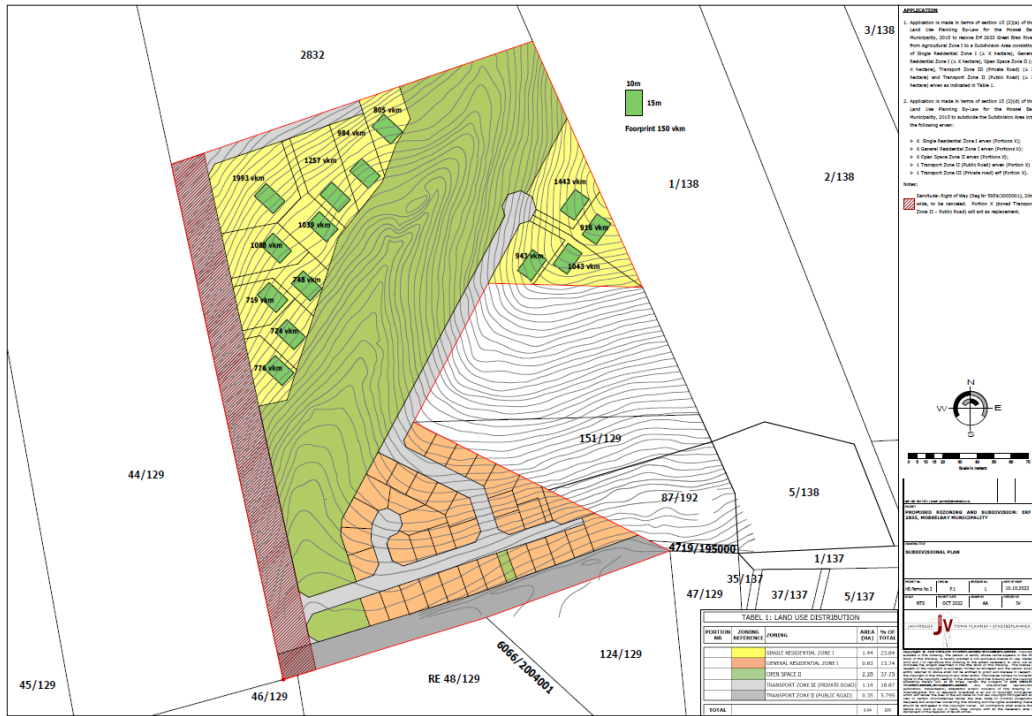


Figure 2: Non-Mitigated Site Development Plan (source: Jan Vrolik Town Planners).

Based on the outcome of the Site Sensitivity Verifications (fauna, biodiversity, botany & aquatic) the layout was revised to remove erven from highly sensitive areas by reducing the development footprint. The mitigated SDP entails the following (Figure 5):

- 12 x Single Residential Zone I erven on ±0.32ha,
- 31 x General Residential Zone I erven on ±0.83ha,
- 2 x Transport Zone III erven (Private Road) on ±0.95ha,
- 1 x Transport Zone II erf (Public Road) on ± 0.35ha,
- 1 x Utility Zone on ±0.03ha (Conservancy Tank),
- 3 x Open Space II erven on ±3.56ha.



Figure 3: Mitigated Site Development Proposal for RE/2833 (Preferred Alternative) (source: Jan Vrolik Town Planner).

This 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 EMPr 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 EMPr should be updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

1.1 PURPOSE OF THE EMPR

The purpose of this EMPr 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 (ie. the **outcome** of implementing the EMPr). The EMPr must provide easily understood and clearly defined **actions** that must be implemented during each phase of the proposed activity. The EMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

The document is binding on the Applicant, 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 EMPr must be kept on site and all **senior personnel** are expected to familiarise themselves with the content of this EMPr.

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

1.2 STATUS OF THE EMPR

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

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

2 EMPR PHASING

2.1 PRE-CONSTRUCTION PHASE

The pre-construction phase refers to the 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 term of this application, the pre-construction can be considered as the site selection and engineering designs and mitigations.

2.2 CONSTRUCTION PHASE

The construction phase refers to the actual construction of the development on the property, and includes all earthworks and installation of bulk services (water, sewerage, roads, stormwater, electricity etc.). In terms of this application, this phase relates to the construction of the civil engineering services and infrastructure.

2.3 OPERATIONAL PHASE

The Operation Phase of this project relates to the ongoing management required to ensure sustainable development within designated urban areas. In terms of this application, this refers to all activities that are undertaken once the site is handed over for residential use. Construction of houses undertaken during the operational phases must still apply the principles provided in terms of the Construction Phase of this EMPr.

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

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 development is for a residential village which by its nature has a long lifespan, as such it is not possible to provide a specific decommissioning timeframe. However, if this does take place, the legislation applicable at that time must be applied. As a minimum the following should be considered:

- Correct demolition and removal of building structures.

3 LEGISLATIVE REQUIREMENTS

The project 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 above-mentioned principles, entrenched in this EMP 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.

In addition to the management of ecosystems, this Act makes provision for the management and control of alien invasive vegetation. This includes the listing of invasive species that are a threat to natural ecosystems. These species must be strictly controlled and / or eradicated.

The Mitigated Site Development Plan is designed to avoid highly sensitive biodiversity areas (Valley Thicket). Development will be within areas consisting of secondary fynbos, senescent Erica Peltata dominated fynbos, black wattle dominated thicket, grass dominated field and black wattle stand. The proposal is within a CBA which cannot be avoided. Therefore, the mitigation hierarchy has been applied through the appointment of specialists to inform the layout through site sensitivity verification. The layout was mitigated to avoid the impacts on the loss of highly sensitive thicket.

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.

Operational phase: Erf 15 (Utility erf) will be the collection point for all household waste. The municipal refuse truck will access Erf 15 via the internal private road (Kwikstertjiesstraat) on RE/2833.

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.

Since no water resources are being affected by this development, this Act is 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 highly sensitive valley thicket contains Cheesewood trees and there is also a high probability that it also contains Milkwood trees. No development will take place within the highly sensitive thicket. These trees are protected under the National Forest Act. It is a requirement that a permit be obtained if any protected tree species be trimmed/removed.

3.7 NATIONAL VELD AND FOREST FIRE ACT (ACT 101 OF 1998)

The purpose of the National Veld and Forest Fire Act is to **prevent and combat veld, forest and mountain fires** throughout the RSA and to provide institutions, methods and practices for achieving this purpose. Institutions include the formations of such bodies as **Fire Protection Associations** (FPA's) and **Working on Fire**. The Act provides the guidelines and constitution for the implementation of these institutions as well as their functions and requirements.

3.8 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.

No buildings and/or ruins were noted during fieldwork and from early imagery much of the property surface area had been previously transformed through cultivation/agriculture. Therefore, the proposed development would not impact on heritage resources of cultural significance for both design alternatives.

3.9 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.

3.10 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

The application of the National Building Regulations contains performance parameters relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives

3.11 NATIONAL BUILDING REGULATIONS

The National Building Regulations and Building Standards Act as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

4 ENVIRONMENTAL IMPACTS & MITIGATIONS

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

- Faunal Impact Assessment (Willem Matthee)
- Botanical & Biodiversity Impact Assessment (Bianke Fouche)
- Agricultural Compliance Statement (Johann Lanz)
- Integrated Heritage Impact Assessment (Perception Planning)
- Aquatic Compliance Statement

The following positive & negative environmental impacts of the proposed activity were identified and considered during the EIA process, based on which the associated mitigation measures were recommended for implementation (to reduce negative impacts & enhance positive ones):

Positive	Negative
The property currently has no land use other than being vacant. It does not contribute to any socio-economic aspects. The proposed development on the preferred property will therefore optimize vacant land in an urban context.	Temporary noise, dust and safety impacts associated with the movement of heavy vehicles. These impacts can be mitigated by implementing the mitigation measures as described in the Environmental Management Programme.
The location of the preferred alternative does not have potential impacts on view corridors, ridgelines and landscape assets.	Development on the preferred property will result in the loss of approximately ±2.5ha of indigenous vegetation including senescent <i>Erica peltata</i> dominated fynbos, secondary fynbos and black wattle dominated thicket.
Development will result in temporary employment opportunities during construction (to semi-skilled and unskilled workers mostly).	Temporary risk of increase crime during construction.
Development will result in permanent and temporary employment opportunities during the operational phase (to skilled and semi-skilled workers mostly).	Temporary increase in construction vehicular traffic.
The development will make use of existing Municipal services - additional income to the local Municipality through municipal rates and taxes.	Additional pressure on non-renewable services.
The remaining natural vegetation on site will be actively monitored and maintained. The homeowner's association will implement ongoing alien clearing on the property.	Continued maintenance cost (alien clearing, access control, clearing of dumped materials).
No / Negligible Impact: <ul style="list-style-type: none"> • No impact on Heritage Resources. • No impact on highly sensitive areas (Thicket). • No impact on butterfly-friendly fynbos vegetation. 	

4.1 MITIGATIONS

Table 2: List of Mitigation Measures & Associated Management Requirements

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decommissioning Phase
Mitigations / Recommendations					
An ECO should be appointed prior to construction.	✓	✓	✓	✓	
Should fossil bones and teeth be encountered in the deposits, work must cease at the site and the works foreman and the ECO for the project must be informed immediately. Scattered, unearthed parts/fragments of the find must be retrieved and returned to the main find site which must be protected from further disturbance. Heritage Western Cape must be informed and supplied with contextual information: <ul style="list-style-type: none"> • A description of the nature of the find. • Detailed images of the finds (with scale included). • Position of the find (GPS) and depth. • Digital images of the context. i.e. the excavation (with scales). 		✓	✓	✓	
If during ground clearance or construction, any archaeological material or human graves are uncovered, work in that area should be stopped immediately and the ECO should report this to Heritage Western Cape (Tel: 021 483 9689). The heritage resource may require inspection by the heritage authorities, and it may require further mitigation in the form of excavation and curation in an approved institution.		✓	✓		
Plant search and rescues must be conducted whenever a new dwelling or structure is being constructed on any of the new sub-divided erven within Erf 2833. <ul style="list-style-type: none"> • The construction area of influence must be clearly defined, and a nursery spot for rescued plants must be identified and used for each proposed development. • Any additional SCC plants that are observed at any point during the construction of any of the proposed dwellings must be reported to the ECO. • Naturally occurring plants that are rescued from the development footprints must be re-planted after construction within the disturbance envelope. 		✓	✓	✓	
Protection and re-use of topsoil <ul style="list-style-type: none"> • The topsoil on the site contains valuable seeds and characteristics that will be vital for the success of rehabilitation of the site following construction processes. Topsoil in new excavation areas must be stripped to a depth of ca. 30cm and kept in designated piles on site within the footprint of the proposed development(s). • Topsoil may not be removed from the site at all, to avoid contamination with any other material. Equipment used to 		✓	✓	✓	

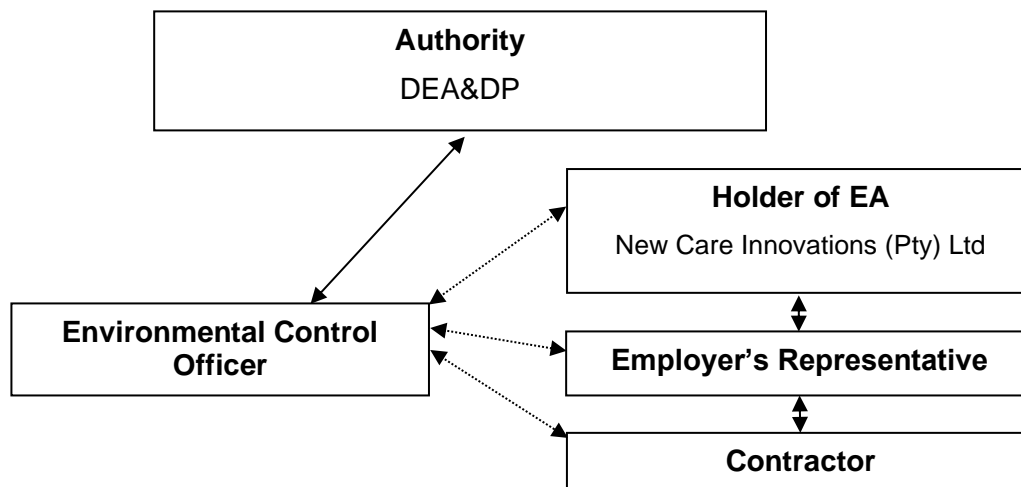
Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decommissioning Phase
<p>handle and excavate the soil must be clean of any foreign material.</p> <ul style="list-style-type: none"> The topsoil piles must be clearly labelled so that it does not mix with subsoils excavated or any other construction material for the site. Topsoil piles must be covered with plastic sheeting for the duration of the construction phase. 					
Staff must be informed about the sensitivity of the remaining natural area on the site (ECO Environmental Inductions).		✓	✓	✓	
Ongoing monitoring and clearing of invasive alien plants during the construction phase & operational phase.		✓	✓	✓	
No kikuyu grass will be allowed anywhere, especially within riparian areas, as this is a listed invasive species.		✓	✓	✓	
Development and sub-divided erven to be developed must be outside of the sensitive valley vegetation with thicket on Erf 2833.		✓	✓	✓	
<p>Materials used during the construction phase must be sourced responsibly.</p> <ul style="list-style-type: none"> No waste (including cleared invasive slash) dumping or burning may occur on the site, and especially not in the valley. Regular cleaning of the construction site must take place (at the end of every day). Bins must be available on the construction site. Refuse must be disposed of at the appropriate waste disposal facility. Danger tape that is broken or that is starting to crumble must be disposed of and replaced. This applies to any construction material that has broken or become weathered. Stockpiles and soil must all be placed within areas that will remain permanently/temporarily transformed and must be covered by a geotextile or plastic covering, which must also be bunded (e.g., sandbags) when the piles are not in use on the site. This will prevent the material from washing away and contaminating the substrate of the site which likely still contains useful seeds and soil organisms. 		✓	✓		
<p>Construction vehicles should be checked daily at the start of the day for leaks and other faults.</p> <ul style="list-style-type: none"> Sandbags or sawdust should be available on the site to ensure that any accidental oil or toxic material spills can be contained and stopped quickly / Spill Kit Any contaminated soil on the site must be removed by a registered hazardous waste service provider (Spill Tech, Interwaste, EnviroServ etc.). Vehicles with leaks must not be allowed to operate on the site until they have been repaired. 		✓	✓	✓	

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decommissioning Phase
<p>Adequate ablution facilities must be provided for every construction project.</p> <ul style="list-style-type: none"> Toilets must be placed on a level platform before construction starts. Ablution facilities must be regularly maintained and cleaned. At least one toilet per ten to fifteen construction staff should be available. 		✓	✓	✓	
<p>Additional gardening should be avoided and limited to a maximum of 100m² per dwelling. This area includes gardens and lawns. Landscaped gardens are to be planted with naturally occurring species from the area.</p>		✓	✓	✓	
<p>Only the rehabilitation of natural fynbos and thicket vegetation rescued from the site around the proposed developments in the disturbance envelope is allowed.</p>		✓	✓	✓	
<p>Landowners are responsible to maintain their gardens, so that plants do not overgrow. No garden waste may be dumped in any remaining natural area and must be disposed of in a responsible manner.</p>		✓	✓	✓	
<p>Fertilisers and pesticides must be avoided, and only where absolutely necessary can they be used with due caution to avoid killing indigenous species and natural pollinators in the surrounding landscape.</p>		✓	✓	✓	
<p>Gardens can be designed to be water wise (avoid erosion).</p>		✓	✓	✓	
<p>Conservation of some intact fynbos vegetation with larval food plants.</p> <ul style="list-style-type: none"> Planting suitable larval host plants and butterfly feeding plants in resident's gardens and promoting planting of indigenous flowering plants in resident's gardens. Reducing the use of pesticides in gardens would also benefit the two butterfly species of conservation concern that could occur at the site. Ensuring that some fynbos vegetation with suitable larval food plants will also potentially benefit these (and other) species. 		✓	✓	✓	
<p>Using a fence that allows movement of Sensitive Species 8.</p> <ul style="list-style-type: none"> It is also recommended that mammal-funnels are placed in the fenceline, at places where there is a high likelihood of species such as Sensitive Species 8 moving through the landscape. These mammal-funnels should be monitored (with camera traps, or the ECO visiting each funnel). 		✓	✓	✓	
<p>No free-roaming domestic cats are allowed within the valley thicket as they might disturb the Knysna Warbler during its breeding season.</p> <ul style="list-style-type: none"> Additionally, putting up signage to inform homeowners of the impact their pets could have on the Knysna Warbler, could increase awareness and environmental consciousness of those living on the property. Dogs that are not housebound 		✓	✓	✓	

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decommissioning Phase
should be enclosed in a fenced area, to prevent access to more sensitive areas on the property.					
If trails on the estate are planned, care should be taken when crossing through the thicket vegetation. Exotic plants in this vegetation is removed, and the trail follow the section that previously had the highest density of AIPs.		✓	✓	✓	
Use of swales to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site.		✓	✓	✓	
Use of permeable paving to encourage infiltration into the soil.		✓	✓	✓	
Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.		✓	✓	✓	
Reduce transport of sediment using structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.		✓	✓	✓	
Ensure that vegetation clearing is conducted in parallel with the construction process to minimise erosion and runoff.		✓	✓	✓	
Revegetate exposed areas once construction has been completed.		✓	✓	✓	
Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas, to avoid concentrated runoff and associated erosion.		✓	✓	✓	
Best Practise					
Rainwater harvesting should be implemented.		✓	✓	✓	
Construction work must take place during normal work hours.		✓	✓		
Traffic management must be in place during construction.		✓	✓		

5 RESPONSIBILITIES

This section deals with the responsibilities of various parties during the Construction Phase of any development (see below chart).



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 (EMPr) (& any other approval / licence / permit), as well as the management and maintenance of the open space areas.

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 EMPr 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 environment within the bounds of the property will 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, CONTRACTORS & SERVICE PROVIDERS

The Engineers, Contractors and Service Providers are often the parties responsible for physically carrying out the activities for which majority of the recommendations in this EMPr 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 EMPr, 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 EMPr, and in the event that any industry regulated standards are in contradiction with the EMPr or any other authorisations.
- Review and amend to any construction activities to align with the EMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the EMPr 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. It is recommended that contractors and sub-contractors use colour codes for easy identification by the Environmental Control Officer (i.e., colour coded hard hats or vests).

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). The ECO must have a minimum of a tertiary level qualification in the natural sciences field. 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 EMPr 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 EMPr 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:

- **weekly** during specific site clearing and demarcation activities for bulk earth works and installation of civil services (water, roads, electricity, sewage),
- **weekly** during bulk earth works and installation of civil services for the greater development,
- **bi-weekly** (every two weeks) during earthworks and construction of individual homes/top structures,
- **3 months post construction** completion (of civil services) and site handover to inform the first Completion Statement.
- **3 months post construction** completion (of all the individual homes/top structures) to inform the second Completion Statement.
- **Annual** site inspection of the open space areas to ensure that the Managing Agent/Homeowners Association/Holder complies with the requirement for these areas to not be transformed over time (also monitor rehabilitation, alien clearing and fire management). These annual monitoring inspections must continue till the EA validity period lapses.

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 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 DESIGN 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 <u>STORMWATER MANAGEMENT PREPARATION</u>					
Management Statement			Impacts & Risks Avoided		
To prepare the site to minimise the negative impacts of stormwater			Damage to the environment caused by stormwater runoff		
Management Actions					
a) Apply the principles of Low Impact Development (LID) in the design of the drainage systems.					
b) Stormwater must be managed according to Sustainable Drainage System (SUDS) approach. *Source Controls (rainwater tanks, permeable driveways and soakaways). * Local Controls (incorporate swales in the detailed design of the internal roads).					
c) Final design of the stormwater system must take place prior to construction to ensure timeous implementation.					
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 Plans	Once off	Architect / Engineer	Prior to construction	Audit	Once off

6.2 <u>WATER RESOURCE PROTECTION</u>	
Management Statement	Impacts & Risks Avoided
To minimise the use of scarce water resources by improving consumption methods	Unsustainable or wasteful use of water for construction and operation purposes
Management Actions	

a. Rainwater harvesting must be incorporated into the designs. All rainwater tanks must be shown on building plans.					
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 Plans	Once off	Architect / Engineer	Prior to construction	Audit	Once off
b. Water efficiency must be incorporated into the design of the units.					
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 Plans	Once off	Architect / Engineer	Prior to construction	Audit	Once off
<p>Dual Flush Toilets</p> <p>Conservative estimates have shown that a saving of more than 22 000 liters per household can be achieved annually with the installation of dual flush toilets (Aquanotion, 2008). All households and ablution facilities should be fitted with dual flush systems.</p> <p>Low flow shower heads</p> <p>The installation of low flow shower heads can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008).</p> <p>It has been estimated that a saving of up to 57 000 liters of water per annum per household can be achieved through the installation of low flow shower heads. Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the individual owner, but must have a flow of less than seven liters per minute.</p> <p>Low flow Taps</p> <p>Low flow tap use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 liters per minute.</p> <p>It is not necessary to install aerators in kitchen sinks as they are seldom run without a plug. All bathroom basins must be fitted with low flow faucets.</p> <p>Washing machines</p> <p>It is recommended that all washing machines that are to be installed in houses and shared facilities should be front loading washing machines as opposed to top loading washing machines. Apart from much lower energy and water requirements, front loader washing machines have a number of advantages that make them a better environmental choice:</p> <ul style="list-style-type: none"> - Less wear and tear on washed materials – Washed materials therefore last longer and result in a net resource saving; - Faster drying times - Because of the horizontal axis and faster spin speeds, more water is removed and the materials dry faster which results in energy saving if a clothes dryer is used.; - Quieter operation – Therefore less noise pollution; and - Less detergent - Far less is required compared to top loaders. Fewer chemicals therefore reach treatment plants and ultimately waterways. <p>Geyser and pipe insulation</p>					

Apart from the savings in terms of energy as detailed below, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required.

All structures should have insulation on geysers and all hot water pipes.

Waterwise Landscaping

Waterwise landscaping principles must be incorporated into the detailed landscaping plans. The following principles apply to waterwise gardening:

- Grow water-wise plants – generally the best suited plants are those indigenous to the area, as they seldom need additional watering;
- Group plants according to their water needs – this avoids wasting water on plants that don't need it;
- Consider the quality and type of the lawn. Lawns use unacceptable amounts of water, so consider reducing lawn areas to a minimum. Use tougher, low-water lawn types such as Buffalo (coastal areas) or Kweek (inland) rather than Kikuyu.
- Maintain the garden – remove unwanted plants, plant more perennials than summer annuals, as they have deeper root systems and so need less watering.
- Improve the soil and mulch. Soil water-holding capacity is improved by higher organic matter content. Mulching (covering the soil with a thick layer of bark, compost, straw etc.) keeps the soil much more moist.
- Plant in the right season – For winter rainfall areas this is in autumn and early winter so the plants have a chance to develop their root systems before the dry season. In summer rainfall areas it is spring and early summer for the same reason.
- Water correctly – avoid watering during the heat of the day or in windy conditions.
- The best irrigation system is drip irrigation – it uses 25% of water used by normal irrigation systems with the same effect, and can even be placed under lawns.

Grey Water

Grey water is the water that comes from the bath, shower, basins, laundry and the kitchen sink. It is not to be confused with Black water, which is sewage that comes from the toilet. Black water is toxic and requires very specific methods of treatment in order to be safe for re-use. Grey water, however, can easily be recycled and re-used for a variety of uses. These include:

- Irrigation of gardens;
- Water for flushing toilets;
- Any outdoor use;
- Dampening dusty areas or roads.

Grey water systems require precise methods to clean the water. There are various companies and organizations that can assist with implementing a grey water system.

6.3 ENERGY RESOURCE PROTECTION

Management Statement	Impacts & Risks Avoided
To minimise the use of energy resources by improving consumption methods	Excessive and unnecessary energy consumption
Management Actions	
a. Incorporate energy efficiency into the design of the facility	

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Energy saving checklist	Once off	Owner / Architect	Ad hoc	Audit	Once off

Solar heating water systems

Solar heated water systems are an innovative way of producing hot water without putting additional pressure on gas or municipal power supply. There are many different types available on the market, and homeowners should consider all their requirements (number of people using facility, location of house, angles of roof) before making a choice.

Energy Efficient Lighting

In terms of Best Practice, it is required that energy saving lighting fixtures be used throughout the entire development. It is therefore specified that Light Emitting Diode (LED) or Compact Fluorescent (CF) lighting be used as opposed to incandescent lighting. This is required for all internal and external lighting, including street lighting. Proximity switches should be used in areas where lighting for pedestrians is required.

NO external High-Pressure Sodium (HPS) or Metal Halide (MH) spot or floodlights should be installed.

CF lighting uses quantities of mercury in the bulbs and tubes which pose serious environmental hazards. The mercury from one CF bulb can pollute many thousand litres of water if not treated correctly (Eden District Municipality, 2011). CF lighting (energy saving bulbs and tubes) must be correctly disposed of at registered Hazardous waste sites. Companies like Pick n Pay and Woolworths offer facilities to collect CF bulbs for recycling and disposal. The following should be considered when handling CF bulbs (eHow Home, 2011):

Energy Efficient Appliances

Energy efficient appliances are becoming widely available. Follow the Energy Guide labels on appliances to help selection of correct models. Any appliance that has to heat up water or air will use more energy, as will an appliance that boasts additional extras such as ice making, dispensing and auto defrosting on fridges or heat drying on dishwashers.

Solar Cooling Systems

Where required by homeowners, the home owner should consider the use of solar cooling systems such as absorption or adsorption chillers as opposed to conventional air conditioning units.

Evaporative Cooling Systems

Consideration should be given to evaporative cooling systems as these cut down considerably on energy usage for appliances such as air conditioners. Furthermore, the system ensures that fresh air circulates within housing units, which improves on environmental health risks.

Fresh air is drawn from outside the house (the hotter the better) and passes through moistened pads which cools it down and filters it before flowing through outlets in the house.

There are certain parameters required for evaporative cooling systems, which should be thoroughly investigated prior to installation.

Geyser and pipe insulation

Apart from the savings in terms of energy as detailed below, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required.

All structures should have insulation on geysers and all hot water pipes.

6.4 <u>DEMARCATATION OF WORK AND NO-GO AREAS</u>					
Management Statement			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 identify and demarcate the development area, area of works and spoiling 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
Method Statement	Once off	Developer / contractor	Pre implementation	Audit	Once off
b. Fuel and chemicals may only be stored in a designated work 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
c. Provide on-site sanitation and rest areas for personnel.					
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 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 SITE CLEARANCE PLAN

Site clearance should be undertaken in a systematic manner within the demarcated areas to minimise the impacts of construction on the site. The following table provides a methodology to implementing site clearance according to this EMPr and the EA.

Table 3: Site Clearance Methodology.

No	Action	Scheduling
1	Survey approved layout on site.	Prior to construction
2	Establish site camp and material stockpile sites (incl. waste disposal area, portable toilets etc. The construction camp and necessary ablution facilities meant for construction workers must not be in any of the delineated watercourses or wetland areas (including 20m buffer).	Prior to construction.
3	Demarcate work areas using correct demarcation methods.	Prior to construction.
4	Demarcate protected areas as no-go areas .	Prior to construction.
5	Erosion control measures must be put in place prior to any construction activities that would result in soil being exposed.	Prior to construction.
6	Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil, works or materials during a storm event. This must be considered in conjunction with tide tables for beach construction work.	Construction
7	Commence with mechanical vegetation clearing within the demarcated work areas only.	Construction
8	Vegetation clearing should occur in parallel with the construction progress to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.	Construction
9	Any biomass from the clearing activities must be stockpiled within the development footprint at an area / areas approved by the ECO. It is recommended that the biomass must be chipped in situ and stockpiled within designated areas within the footprint. Alternatively, it must be removed and taken to an approved disposal site for biomass. NO DUMPING IS ALLOWED.	Construction
10	Any cleared areas that will not be immediately constructed or planted, must be covered with the wood chips or other mulch to prevent wind erosion.	Construction

7.2 <u>STORMWATER MANAGEMENT</u>					
Management Statement			Impacts & Risks Avoided		
To minimise the generation of contaminated stormwater.			Minimise sedimentation, erosion and / or undercutting		
Management Actions					
a) Minimise the quantity of stormwater entering cleared areas.					
b) Reduce transport of sediment using structures such as silt fences / biodegradable logs / strawbale check dams.					
c) Ensure that vegetation clearing is conducted in parallel with the construction process.					
d) Ensure that stormwater and runoff generated by hardened surfaces is discharged into retention areas to avoid concentration runoff and associated erosion.					
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
<p>Any areas that are identified by the ECO as being prone to erosion must be suitably protected. During construction, the Contractor shall protect all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent stormwater from concentrating in streams and scouring slopes, banks, etc.</p> <p>Any erosion channels developed during construction on steep slopes must be backfilled, compacted and restored to an acceptable condition.</p> <p>Stabilisation of cleared areas to prevent and control erosion and/or sedimentation shall be actively managed. Consideration and provision shall be made for the following methods (or combination thereof): brush cut packing, mulch or chip cover, straw stabilising, watering, planting/sodding, soil binders and anti-erosion compounds, mechanical cover or packing structures (including the use of geofabric, log/pole fencing, etc.). Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained.</p> <p>In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation should commence as soon as possible. A suitable rehabilitation method statement must be submitted to the ECO for approval.</p>					
7.3 <u>DUST CONTROL</u>					
Management Statement			Impacts & Risks Avoided		

To ensure there is no health risk or loss of amenity due to emission of dust to the environment.			Ensure land coverage with biomass chips / vegetation / damping to minimise dust		
Management Actions					
a. Implement a dust prevention strategy, developed at the project planning 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	Once off	Developer / contractor	Pre implementation	Audit	Once off
<p>The strategy should include the following amongst others:</p> <ul style="list-style-type: none"> • Speed control to minimise dust on site. • During dry, dusty periods haul roads should be kept dampened to prevent excess dust. No potable water or seawater may be used for damping haul roads. • Exposed stockpile materials must be adequately protected against wind (covered), and should be sited taking into consideration the prevailing wind conditions. • Trucks bringing in materials must be covered to prevent dust and small particles escaping and potentially causing damage to people and property. 					
7.4 <u>NOISE & VIBRATION</u>					
Management Statement			Impacts & Risks Avoided		
To ensure nuisance from noise and vibration does not occur.			Nuisance impacts to neighbours and visitors.		
Management Actions					
a. Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction and operation	Audit	As required

b. Enclose noisy equipment such as generators and pumps.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
c. Provide noise attenuation screens, where appropriate.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
d. Where an activity is likely to cause a noise nuisance to nearby residents, restrict operating hours to between 7 am and 6 pm weekdays and 7 am to 1 pm Saturday, except where, for practical reasons, the activity is unavoidable.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required
7.5 <u>TRAFFIC CONTROL</u>					
Management Statement			Impacts & Risks Avoided		

To manage and minimise the nuisance effect created by construction traffic.			The development entrance access will be via Grens Street and construction traffic is likely to temporarily affect users.		
Management Actions					
a. Implement a traffic management strategy during construction.					
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	Daily	Contractor	During construction	Audit	As required
<ul style="list-style-type: none"> Construction-related activities should be timed where possible to avoid peak periods. No construction workers, apart from security personnel, should be allowed to stay on site overnight. Contractors appointed by the developer must ensure that workers are transported to and from the site daily. Construction-related activities should comply with all relevant building regulations. In this regard activities on site should be restricted to between 07h00 and 18h00 during weekdays and 08h00 and 13h00 on Saturdays. No work should be permitted after 13h00 on Saturdays and on Sundays. 					
7.6 <u>WASTE MANAGEMENT</u>					
Management Statement			Impacts & Risks Avoided		
To minimise the waste load discharged to the environment.			Improve waste disposal methods during construction Reduce waste volumes to landfill sites		
Management Actions					
a. Reduce waste by selecting, in order of preference, avoidance, reduction, reuse and recycling.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Record of volumes of material removed	As required	Contractor	As required	Audit	Records
b. Maintain a high quality of housekeeping and ensure that materials are not left where they can be washed or blown away to become litter.					
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	Weekly	Contractor	As required	Audit	Records
c. Provide bins for construction workers and staff at locations where they consume food.					
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	Weekly	Contractor	As required	Audit	Records
d. Conduct ongoing awareness with staff of the need to avoid littering.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Induction	Once off	Contractor	As required	Audit	Attendance register
7.7 <u>STOCKPILE MANAGEMENT</u>					
Management Statement			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. Stockpiles must be placed within areas that will remain permanently / temporarily disturbed.					
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

<p>b. Keep topsoil and underburden stockpiles separate (clearly label topsoil). Topsoil in new excavation areas must be stripped to a depth of 30cm. Topsoil may not be removed from site to avoid contamination. If possible, cover topsoil with plastic sheeting for the duration of the construction phase.</p>					
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
<p>c. Ensure that stockpiles and batters are designed with slopes no greater than 2:1 (horizontal/vertical).</p>					
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
<p>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.</p>					
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
<p>e. Establish sediment controls around unstabilised stockpiles and batters.</p>					
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
7.8 <u>STORING FUELS & CHEMICALS</u>					
Management Statement			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 onsite.					
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.					
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

7.9 MINIMISING EROSION

Management Statement	Impacts & Risks Avoided
To minimise the quantity of soil lost during construction due to land-clearing.	<ul style="list-style-type: none"> 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
7.10 REHABILITATION & BOTANICAL MANAGEMENT					
Management Statement			Impacts & Risks Avoided		

To ensure that degradation to existing botanical components are minimised and that any rehabilitation is undertaken with conservation orientated approach.			To minimise the disturbance to existing flora To minimise the introduction and/or spread of weed species		
Management Actions					
a. Demarcate sensitive areas to avoid damage during construction.					
b. Plant search and rescue must be conducted whenever a new dwelling is constructed.					
c. Any SCC plants that are observed must be reported to the ECO.					
d. No kikuyu grass will be allowed.					
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 / Owner	Continuously	Audit	Visual / photographic
e. Rehabilitation and landscaping may only make use of indigenous vegetation. Naturally occurring plants that are rescued from the development footprints must be re-planted after construction within the disturbance envelope.					
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 / Owner	Continuously	Audit	Visual / photographic
7.11 FAUNA MANAGEMENT					
Management Statement			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. Prevent unnecessary mortalities of indigenous fauna					
b. Place mammal-funnels in the fence line to allow Sensitive Species 8 to move through the landscape. ECO to monitor the funnels for any signs of Sensitive Species 8.					
c. If trails on the estate is planned, care should be taken when crossing through the thicket vegetation. The trails should follow the section that previously had the highest density of AIPs.					
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
7.12 SOCIAL REQUIREMENTS					
Management Statement			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	Program 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 that are BEE compliant.					

- 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.

7.13 METHOD STATEMENTS

Management Statement	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 EMP 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 EMP, 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.
- Stormwater Management and Erosion Control.

7.14 CEMENT BATCHING					
Management Statement			Impacts & Risks Avoided		
Cement powder has a high alkaline pH that may contaminate and adversely affect both soil pH and water pH negatively. A rapid change in pH can have consequences on the functioning of soil and water organisms as well as on the botanical component.			Minimises negative impacts to vegetation and soils on areas that will not be hard surfaced.		
Management Actions					
a. All concrete batching must take place on an area that is to be hard surfaced as part of the development.					
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. Concrete mixing areas must have bund walls or a settling pond in order to prevent cement run off. Once the settling ponds dry out, the concrete must be removed and dispatched to a suitable disposal site.					
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. When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading. This form of batching is preferable for large constructions as no on-site batching is required and there is a lesser likelihood of accidental spills and run off. Trucks may not be washed out on site.					
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
7.15 HERITAGE REQUIREMENTS					

Management Statement			Impacts & Risks Avoided		
To minimise the impacts of development, operation and maintenance of the Project on the heritage values in the Project area.			Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided.		
Management Actions					
a. No disturbance of heritage values outside of the approved disturbance 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
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off
<ul style="list-style-type: none"> Should any heritage remains of potential cultural value be exposed during excavations, these must be immediately reported to the ECO and the Provincial Heritage Resource Authority of the Western Cape, namely Heritage Western Cape in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary approval has been obtained from Heritage Western Cape. Should any archaeological remains including (but not limited to) fossil bones, fossil shells, coins, indigenous ceramics, colonial ceramics, marine shell heaps, stone artefacts, bone remains, rock art, rock engravings and any antiquity be discovered during construction, they must be immediately reported to the ECO and Heritage Western Cape and not disturbed further until the necessary approval has been obtained. Should any human remains be uncovered, they must immediately be reported to the ECO and the HWC archaeologist, who can be contacted on (021) 483 9685. Construction in the area must cease immediately and the site may not be disturbed further until the necessary approval has been obtained. 					

8 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

The Operational Phase of this EMPr 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 proponent, any HOA that is put in place, all employees and all visitors to the property.

8.1 <u>STORMWATER MANAGEMENT</u>					
Management Statement			Impacts & Risks Avoided		
To ensure management of stormwater during operation phase			<ul style="list-style-type: none"> To prevent erosion due to stormwater impact 		
Management Actions					
a. No stormwater runoff should be allowed to concentrate onto open spaces and roadways downstream of the property .					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Ensure soft landscaping	Ongoing	Developer / HOA	As required	Audit	Audit
<ul style="list-style-type: none"> Concentration of stormwater runoff will be minimised through the application of landscaping techniques, i.e. by creating grass lined swales, undulations and depressions. Ensure rainwater harvesting takes place. 					

8.2 <u>BOTANICAL / LANDSCAPING</u>	
Management Statement	Impacts & Risks Avoided
To ensure that indigenous vegetation is encouraged within urban areas.	<ul style="list-style-type: none"> Ongoing spread of alien invasive species. Ensure protected species are taken into consideration.
Management Actions	

a. Homeowners must practice ongoing alien invasive management.					
b. Additional gardening should be avoided and limited to a maximum of 100m ² per dwelling.					
c. Only the rehabilitation of natural fynbos and thicket vegetation rescued from the site around the development footprint in the disturbance envelope is allowed.					
d. Landowners are responsible to maintain their gardens, so that plants do not overgrow. No garden waste may be dumped in any remaining natural area and must be disposed of in a responsible manner.					
e. Fertilizers and pesticides must be avoided, and only where absolutely necessary can they be used, with due caution, to avoid killing indigenous species and natural pollinators in the surrounding landscape.					
f. Gardens must be designed to be water wise to avoid erosion.					
g. Retain and manage protected and indigenous vegetation.					
h. Alien vegetation must be removed from the valley thicket & landscaped gardens. Alien removal must be ongoing.					
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	HOA / Developer	As required	Audit	Audit
<ul style="list-style-type: none"> Rehabilitate with appropriate indigenous vegetation to promote soft landscaping. Replace vegetation if it dies off. Obtain permits for any pruning or removal of protected species, notably <i>Sideroxylon inerme</i> (Milkwoods) & Cheesewoods. 					

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 4: 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 6 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 two (2) years 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 5: 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 6: 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.	
(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	

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
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

It is not likely that decommissioning of this facility will take place in the near future. However, in the event that decommissioning does occur, all relevant legislation and policies must be complied with for the given period.

In general, in the future event that the facility be decommissioned, the following must be undertaken:

- Demolition of buildings and removal of rubble must be undertaken without impacting on areas outside of the development area.
- Rubble must be disposed of correctly and to a registered site if not reused on site.
- Decommissioning must comply with any relevant legislation valid at that time.

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.

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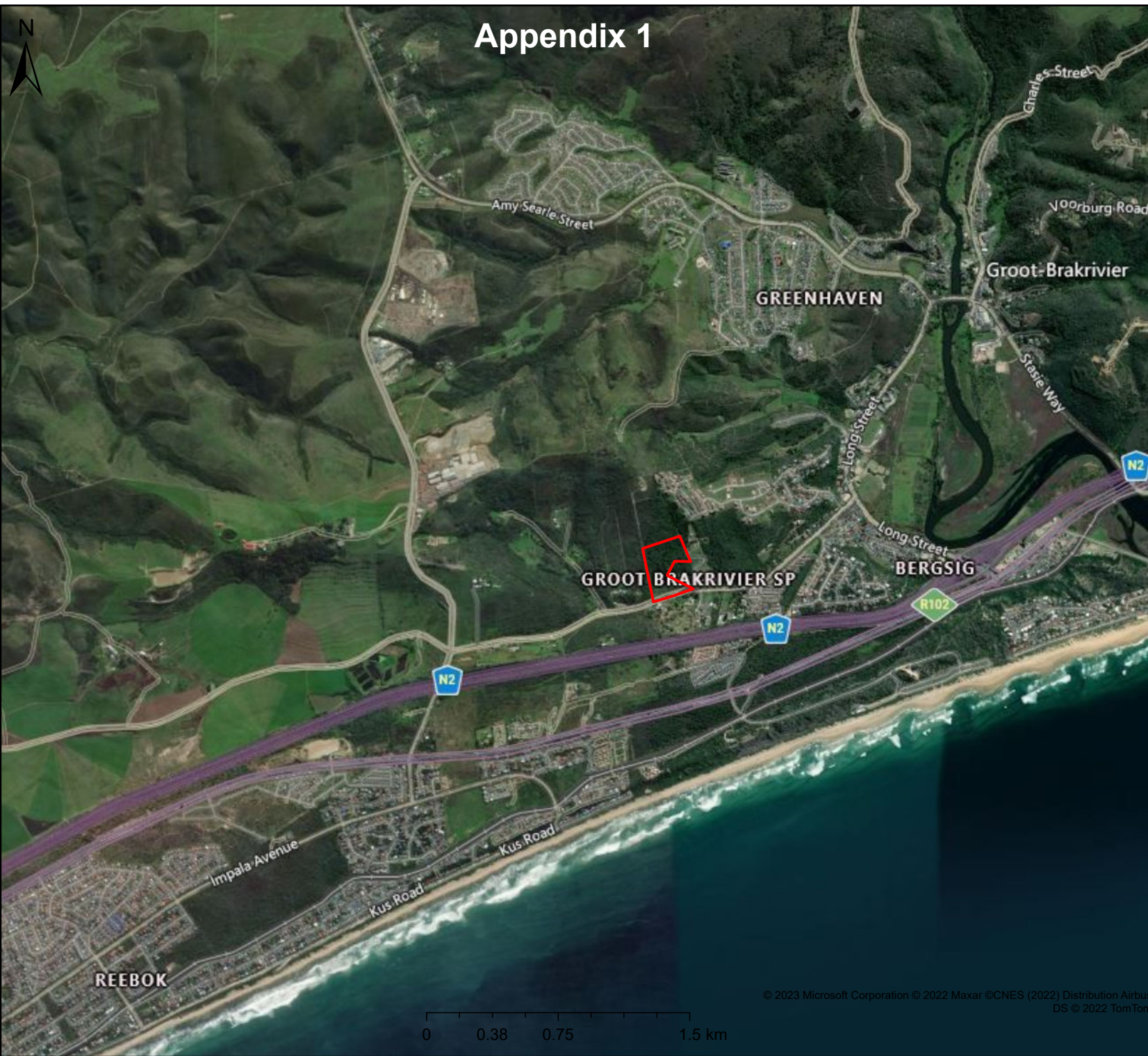
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Appendix 1

Locality Map



Legend

Map Center: Lon: 22°11'51.8"E
Lat: 34°3'12.1"S

Scale: 1:36 112

Date created: March 1, 2023



Western Cape
Government

FOR YOU

Agriculture



Appendix 1

Locality Map

Legend

Map Center: Lon: 22°12'6.2"E
Lat: 34°3'20.3"S

Scale: 1:9 028

Date created: March 1, 2023



Western Cape Government
FOR YOU
Agriculture

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Appendix 1

Locality Map

Legend

 Erf

Map Center: Lon: 22°12'7.3"E
 Lat: 34°3'22.1"S

Scale: 1:4 514

Date created: April 11, 2023



Western Cape Government
 FOR YOU
 Agriculture


Surveyor General WC, Department of Rural Development and Land Affairs
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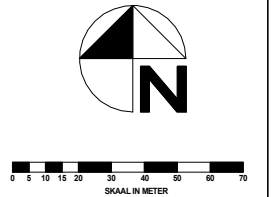


AANSOEK:

- Aansoek word in terme van Artikel 15(2)(a) van die Verordening op Grondgebruikbeplanning vir Mosselbaai Munisipaliteit, 2021 gedoen vir die hersenering van die Restant van Erf 2832 Groot Brakrivier vanaf Landbouzone I na 'n Onderverdelingsgebied bestaande uit Enkel Residensiële Sone I erwe (± 0,32 hektaar), Algemene Residensiële Sone I erwe (± 0, 83 hektaar), 1 Nutssone erf (± 0, 03 hektaar), 3 Oopruimtesone II erwe (± 3, 56 hektaar), 'n Vervoersone III erf (Privaat Straat) (± 0, 95 hektaar) en 'n Vervoersone II erf (Publieke straat) (± 0, 35 hektaar).
- Aansoek word in terme van Artikel 15(2)(d) van die Verordening op Grondgebruikbeplanning vir Mosselbaai Munisipaliteit, 2021 gedoen vir die onderverdeling van die Onderverdelingsgebied in die volgende erwe:
 - 12 Enkel Residensiële Sone I erwe (Gedeeltes 33 tot 44);
 - 31 Algemene Residensiële Sone I erwe (Gedeeltes 1 tot 14 en 16 tot 32);
 - 3 Oopruimtesone II erf (Gedeelte 45 - 47);
 - 1 Vervoersone III (Privaat Straat) erf (Gedeelte 48); en
 - 1 Vervoersone II (Publieke Straat) erf (Gedeelte 49).

NOTA

 Serwituit: Reg van Weg (Landmeter Generaal - Diagram - Nommer 5859/2003), 20 meter wyd. Serwituit word gehandhaaf om vrye toegang tot Erf 2832 Groot Brakrivier te verseker.



PROJECT NO: 2023-04-001 | email: jvanvrijl@jvownplanner.co.za

VOORGESTELDE HERSENERING EN ONDERVERDELING: RESTANT VAN ERF 2832 GROOT BRAKRIVIER

DOORVAL TITEL: HERSENERING EN ONDERVERDELINGSPLAN

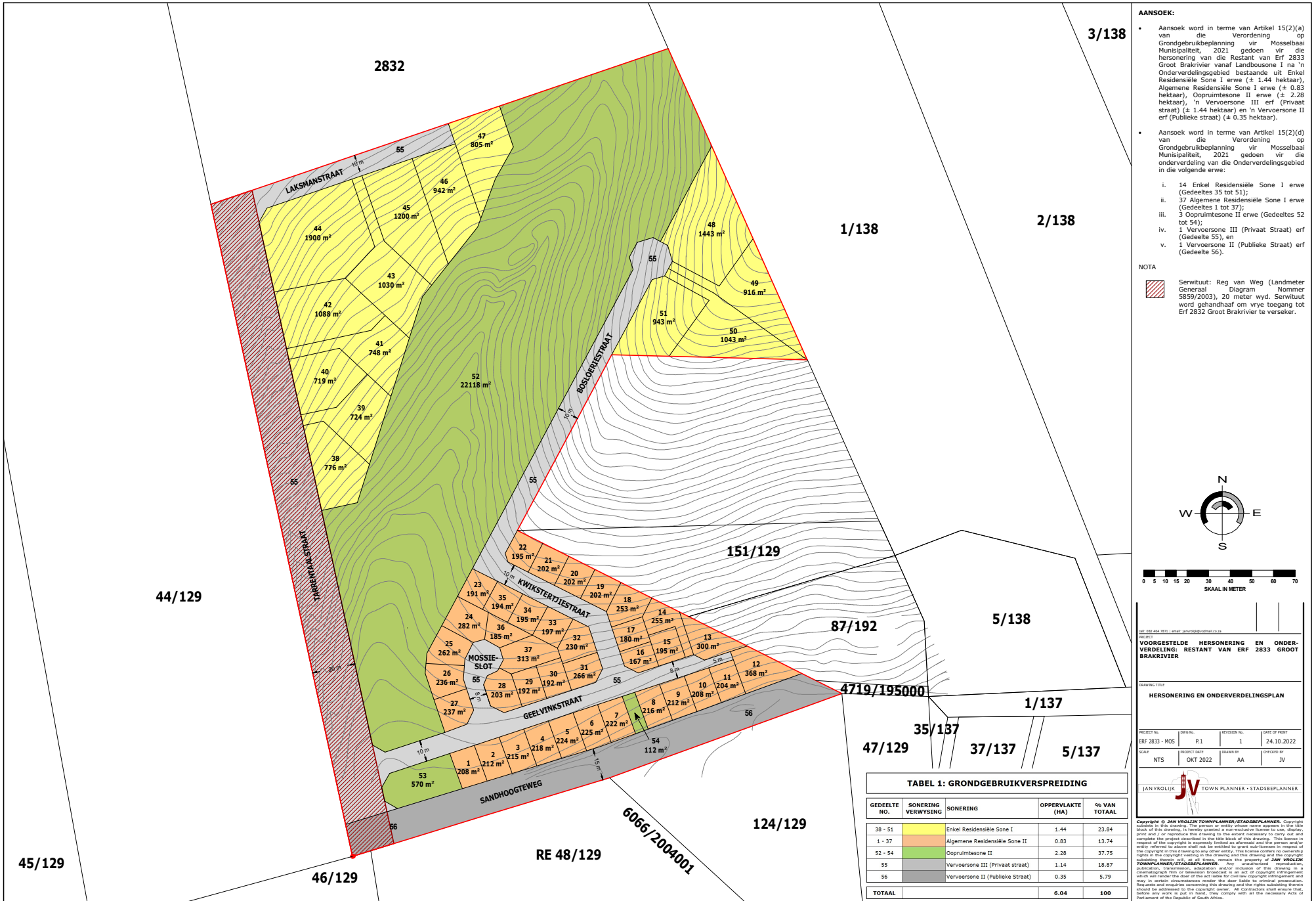
PROJECT NO:	DWG NO:	REVISIE NO:	DATE OF PRINT:
ERF 2832 G BRAX	P.2	3	06.02.2024
SCALE:	PROJECT DATE:	DRAWN BY:	CHECKED BY:
NTS	SEPT 2023	AA	JV

JAN VRIJLIJK JV TOWN PLANNER - STADSBEPLANNER

TABEL 1: GRONDGEBUIKVERSPREIDING


GEDEELTE NO.	SONERING VERVYSING	SONERING	OPPERVLAKTE (m²)	% VAN TOTAAL
33-44		Enkel Residensiële Sone 1	0,32	5,30
1-14, 16-32		Algemene Residensiële Sone II	0,83	13,74
15		Nutssone	0,03	0,50
45-47		Oopruimtesone II	3,56	58,94
48		Vervoersone II (Privaat Straat)	0,96	15,73
49		Vervoersone II (Publieke Straat)	0,35	5,78
TOTAAL			6,04	100

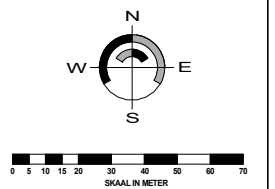
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- AANSOEK:**
- Aansoek word in terme van Artikel 15(2)(a) van die Verordening op Grondgebruikbeplanning vir Mosselbaai Munisipaliteit, 2021 gedoen vir die hersonering van die Restant van Erf 2832 Groot Brakrivier vanaf Landbouzone I na 'n Onderverdelingsgebied bestaande uit Enkel Residensiële Sone I erwe (± 1.44 hektaar), Algemene Residensiële Sone I erwe (± 0.83 hektaar), Oopruimtesone II erwe (± 2.28 hektaar), 'n Vervoersone III erf (Privaat straat) (± 1.44 hektaar) en 'n Vervoersone II erf (Publieke straat) (± 0.35 hektaar).
 - Aansoek word in terme van Artikel 15(2)(d) van die Verordening op Grondgebruikbeplanning vir Mosselbaai Munisipaliteit, 2021 gedoen vir die onderverdeling van die Onderverdelingsgebied in die volgende erwe:
 - 14 Enkel Residensiële Sone I erwe (Gedeeltes 35 tot 51);
 - 37 Algemene Residensiële Sone I erwe (Gedeeltes 1 tot 37);
 - 3 Oopruimtesone II erwe (Gedeeltes 52 tot 54);
 - 1 Vervoersone III (Privaat Straat) erf (Gedeelte 55), en
 - 1 Vervoersone II (Publieke Straat) erf (Gedeelte 56).

NOTA

 Servituut: Reg van Weg (Landmeter Generaal Diagram Nummer 5859/2003), 20 meter wyd. Servituut word gehandhaaf om vrye toegang tot Erf 2832 Groot Brakrivier te verseker.



PROJ: 2832-2022-001

NOORGEESTELDE HERSONERING EN ONDERVERDELING: RESTANT VAN ERF 2832 GROOT BRAKRIVIER

HERSONERING EN ONDERVERDELINGSPLAN

PROJECT NO:	DWG NO:	REVISIE NO:	DATE OF PRINT:
ERF 2832 - MOS	P.1	1	24.10.2022
SCALE:	PROJECT DATE:	DRAWN BY:	CHECKED BY:
NTS	OCT 2022	AA	JV

JAN VROLIJK
TOWN PLANNER • STADSBEPLANNER

TABEL 1: GRONDGEBUIKVERSPREIDING

GEDEELTE NO.	SONERING VERWYSING	SONERING	OPPERVLAKTE (HA)	% VAN TOTAAL
38 - 51		Enkel Residensiële Sone I	1.44	23.84
1 - 37		Algemene Residensiële Sone II	0.83	13.74
52 - 54		Oopruimtesone II	2.28	37.75
55		Vervoersone III (Privaat straat)	1.14	18.87
56		Vervoersone II (Publieke Straat)	0.35	5.79
TOTAAL			6.04	100

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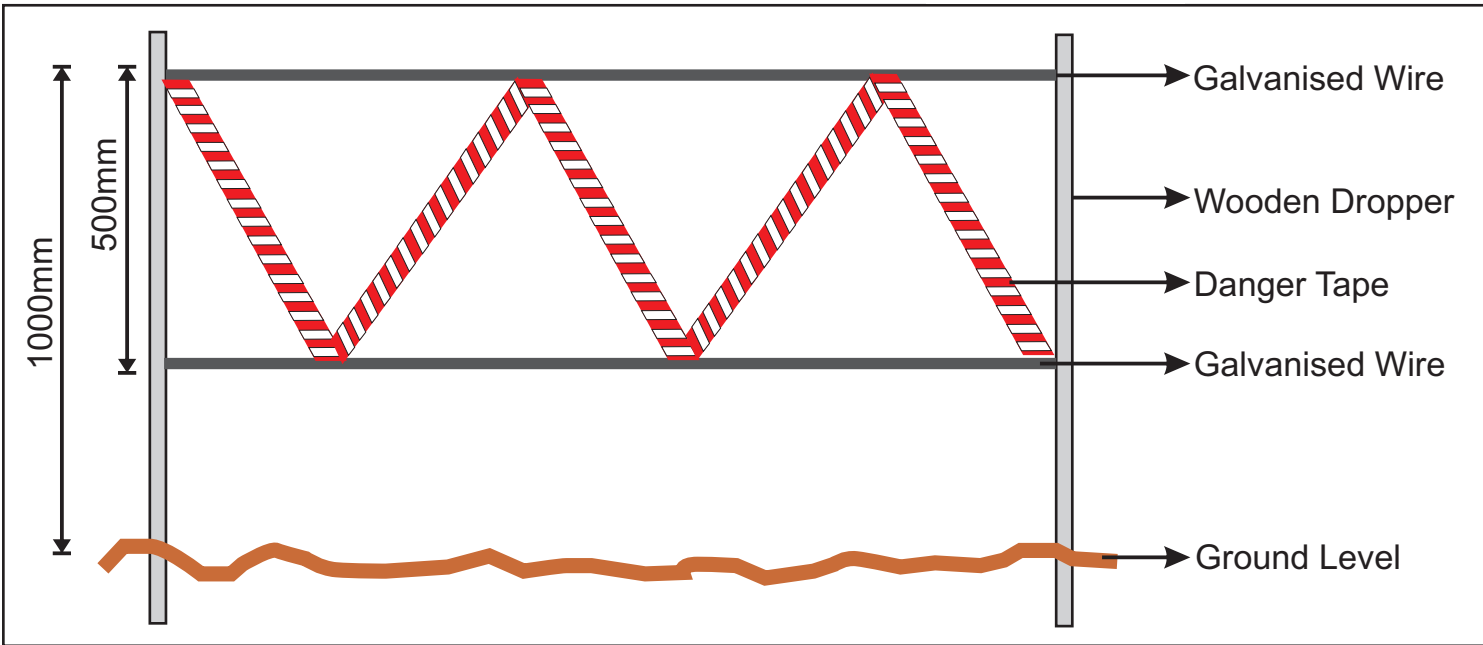


Plate A: Showing a cross section of a typical method of demarcation of no-go areas.

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.

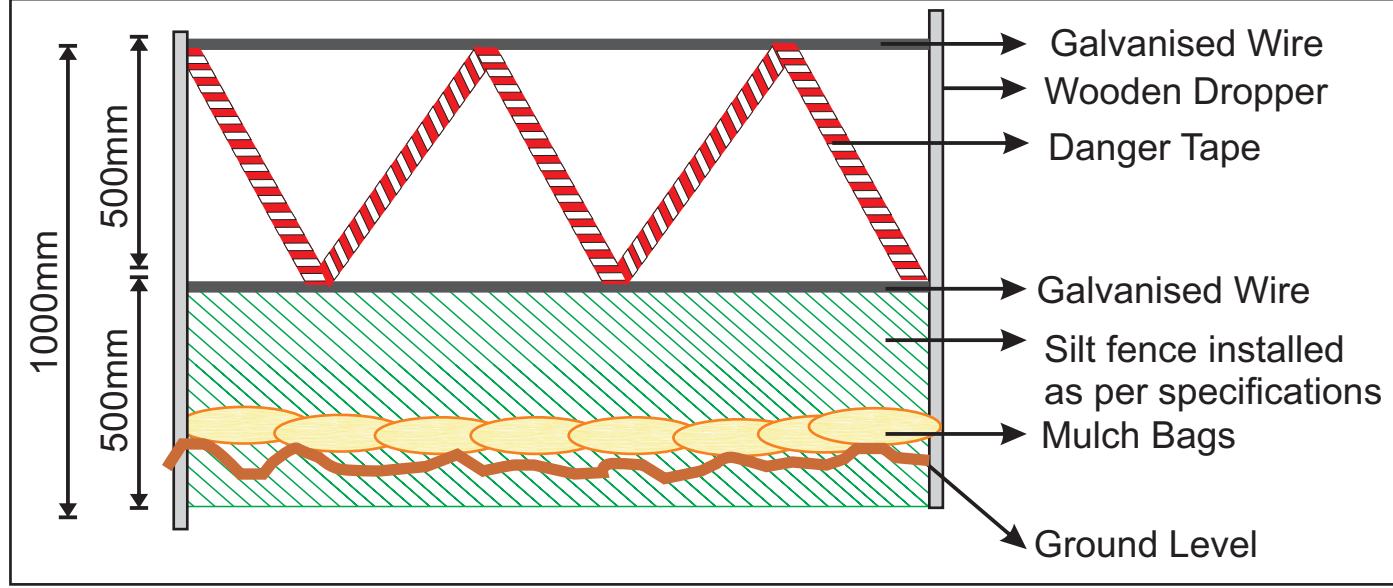
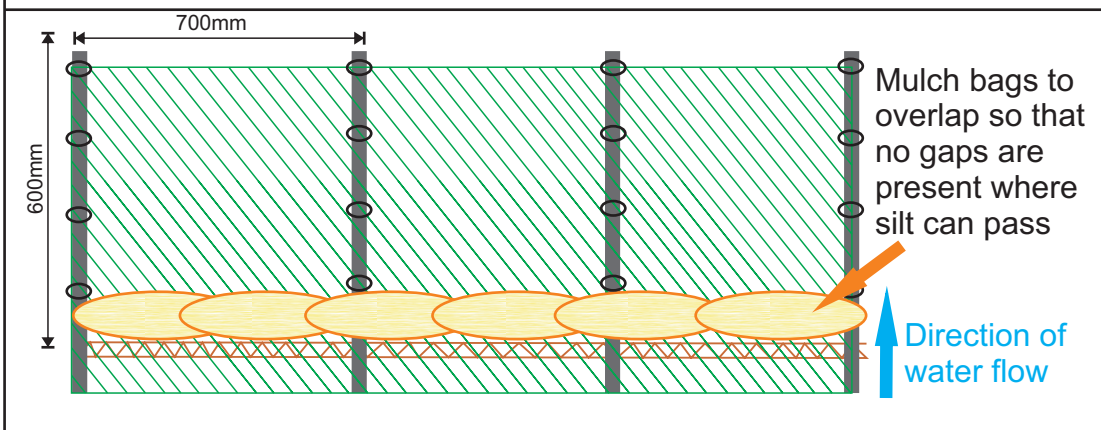


Figure 1: Demarcation of No - Go Areas During Construction



Cape Environmental Assessment Practitioners (Pty) Ltd

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.

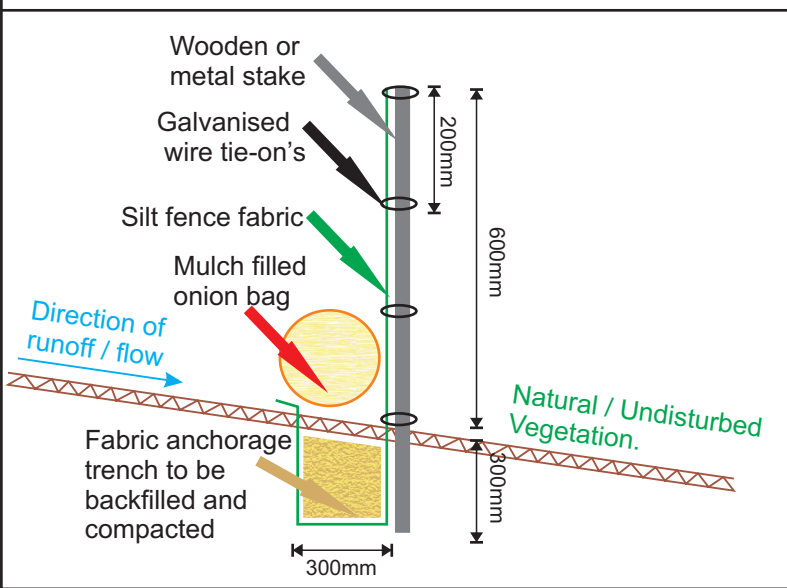
Technical Specifications

- Silt fence fabric to consist out of 50% shade cloth or a geotextile such as biddim (if biddim 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

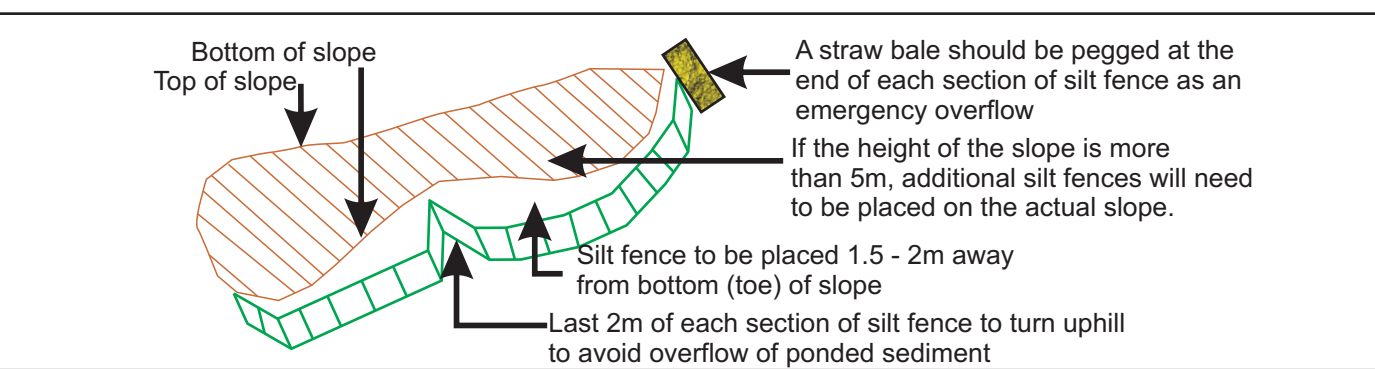
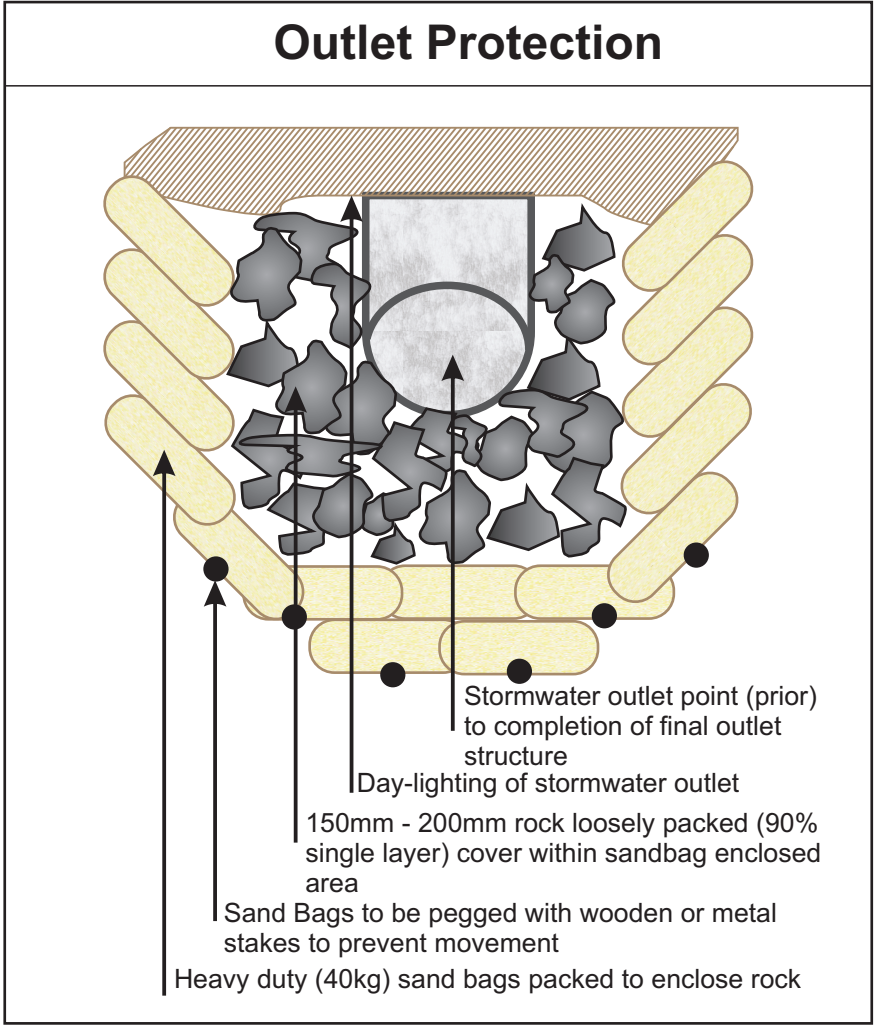
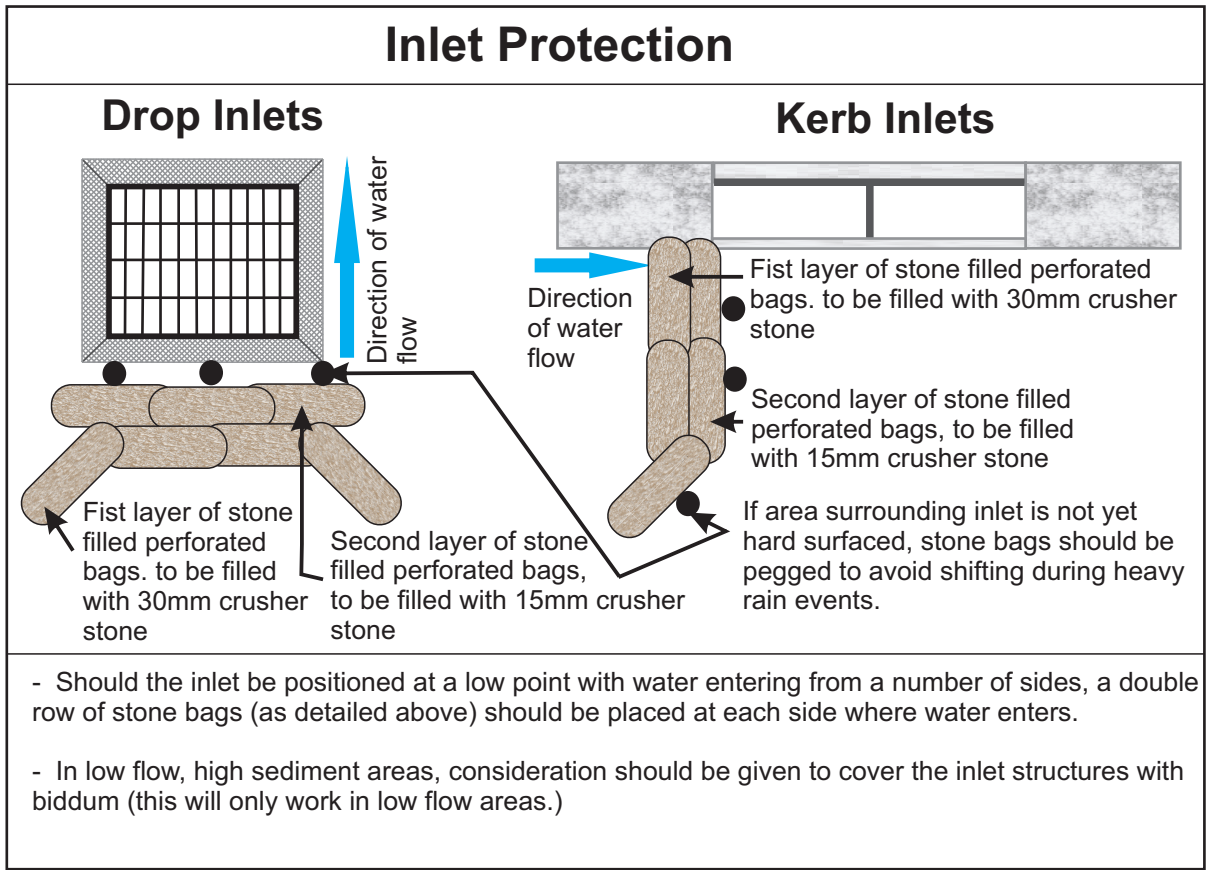


Figure 2: Specifications for Silt Fences





- 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

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.

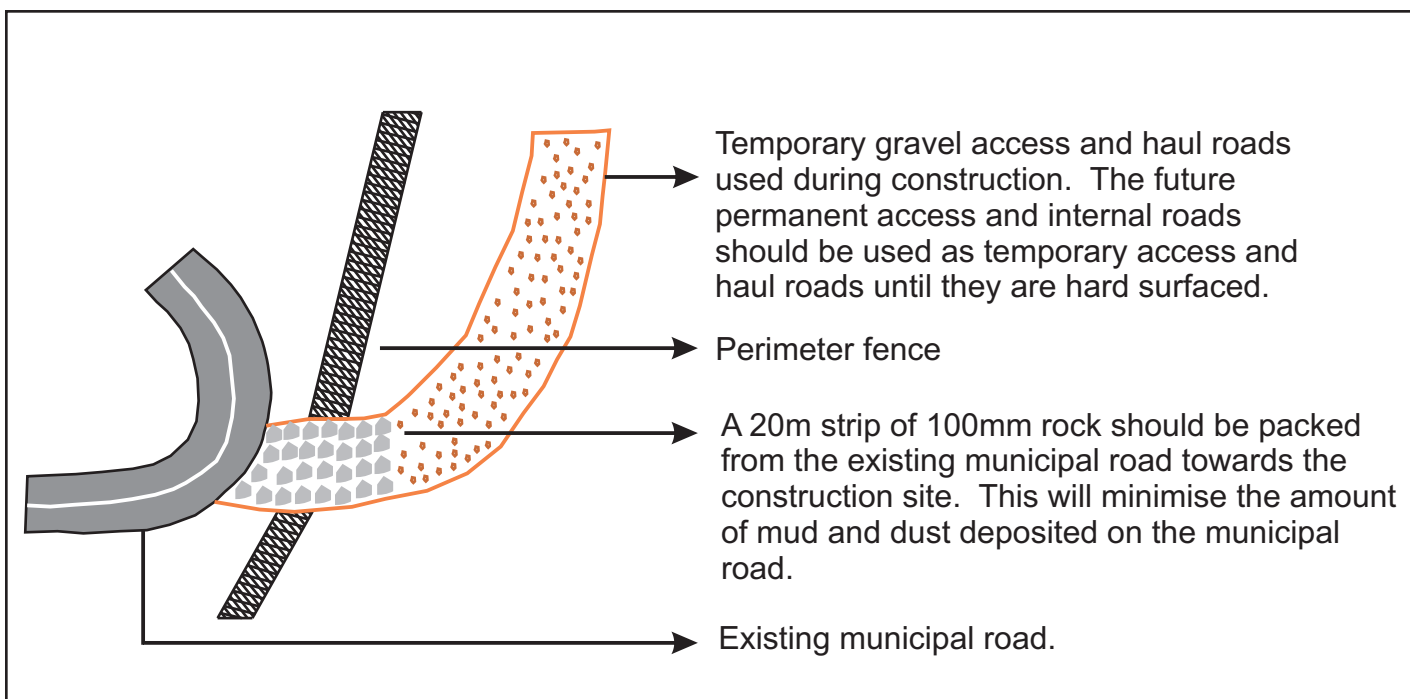


Figure 4: Management of Haul and Access Control During Construction



Cape Environmental Assessment
Practitioners (Pty) Ltd



Cape EAPrac Company Profile

Cape Environmental Assessment Practitioners (Pty) Ltd was established in March 2008 by Directors **Doug Jeffery** (EAPASA Reg. No 2019/1746) and **Louise-Mari van Zyl** (EAPASA Reg. No. 2019/1444). The full time professional team includes: **Dale Holder** (Senior Environmental Practitioner (EAPASA Reg.No 2019/301)/GIS/ECO), **Siân Holder** (Practitioner/ECO/Environmental Education), **Paul Buchholz** (Environmental Consultant/Professional GIS Practitioner), **Mariska Nicholson** (Intern Environmental Consultant), **Onke Nandipha** (Junior Consultant/ECO), **Charmaine Mudau** (Environmental Consultant/ECO) and **Carin Naudé** (Business Administrator).

The firm implements legislation under the National Environmental Management Act (NEMA), National Environmental Management: Waste Act (NEM:WA) and the National Environmental Management: Air Quality Act (NEM:AQA).

Our main services include:

- Environmental Impact Assessments (EIA's & Basic Assessments)
- Environmental Management Policies & Plans (EMMP's)
- Environmental Control & Monitoring (ECO)
- Environmental Audits
- Environmental Education & Interpretation
- Environmental Constraints Analysis
- Public Participation & Stakeholder Engagement
- Outeniqua Sensitive Coastal Area Permits (OSCA)
- Forestry Applications (for removal/pruning of protected species)
- GIS & Mapping
- Retrospective Damage Assessment (Section 24G)
- Rehabilitation Plans
- Coastal Water Discharge Permits
- Air Quality Licence Applications (AEL's)
- Waste Management Licence Applications (Waste Licence)

PROJECT EXPERIENCE INCLUDES

Reverse Osmosis Desalination; Sensitive Environmental Management including National Parks/Conservation Areas & World Heritage Sites; Renewable Energy Projects (Solar & Wind); Waste Management License Applications for Waste Disposal Sites, Sewerage Plants & Abattoirs; Waste-to-Energy Projects including Biogas Facilities; Marine Aquaculture; Filling Stations; Air Emission Processes for Sawmills, Brick Works & Processing Plants; ECO responsibilities on Private & State Housing Developments, Provincial & Municipal Roads and Infrastructure, Private, Provincial & Municipal applications for development of infrastructure, housing & commercial components

LIST OF ONGOING **CAPE EAPRAC**
PROJECTS IS AVAILABLE
ON REQUEST.
PLEASE VISIT OUR
WEBSITE FOR MORE DETAILS

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 has been registered with the South African Council for Natural Scientific Professions as a Natural Scientist since 1990. He is also registered with the Environmental Assessment Practitioners Association of South Africa.

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Dale Holder

Senior Practitioner / GIS / ECO

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 other 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. He is registered as an EAP with the Environmental Assessment Practitioners Association of South Africa.

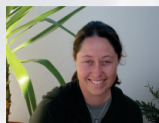
email: dale@cape-eaprac.co.za



Sian Holder - Consultant / ECO

Sian has a National Diploma in Nature Conservation, a BTech Nature Con (NMMU) and a Masters Degree in Environmental Education (Rhodes University). She worked at Tsitsikamma National Park as an Environmental Education Officer on environmental education programmes for Wilderness Foundation SA. She then served as the Experiential Education Manager and wilderness guide for Wilderness Foundation. She joined the environmental consulting vocation in 2008.

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Onke Nandipha - ECO

Onke obtained a BSc in Environmental Sciences (2017) and a BSc Honours in Geography in 2018. He joined Cape EAPrac in July 2019, as an intern, and after gaining experience on various projects, has taken on the responsibility as full time On-Site Environmental Control Officer for a renewable energy development in Kenhardt, Northern Cape. His excellent communication skills in both English and Xhosa, combined with his knowledge and understanding of environmental management makes him a valuable asset on projects where language barriers are a constraint.

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Louise-Mari van Zyl

Director / Principal 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 an EAP with the Environmental Assessment Practitioners Association of South Africa.

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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 EAPrac 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.

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Paul Buchholz

GIS Practitioner / Environmental Consultant

Paul joined Cape EAPrac in September 2022. He holds a MA in Environmental Management from the University Stellenbosch (2009). He is an experienced Geoinformatics and Environmental Specialist who has worked on multidisciplinary environmental and engineering projects in Africa since 2002. Paul is Registered GIS Practitioner with the South African Council for Professional & Technical Surveyors.

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Mariska Nicholson

Project Assistant /
Trainee Environmental Consultant

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). After working as a Geologist for two years, she joined our team as Project Assistant and is training to become an Environmental Assessment Practitioner.

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Charmaine Mudau - ECO

Charmaine Mudau joined Cape EAPrac in September 2022. She holds a BA in Geography and Environmental Management from the University of the Free State (2014) and a BSc Honours in Geography from UNISA (2020). She joined our team as full time On-Site Environmental Control Officer for a renewable energy development in Kenhardt, Northern Cape.

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