DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

for

AALWYNBAAI RESIDENTIAL DEVELOPMENT

on

Erf 23731, Aalwyndal, Mossel Bay Municipal District, Western Cape Province

In terms of the

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

Prepared for Applicant:

Aalwynbaai 21250 Properties (Pty) Ltd

Date: 2 December 2025

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Case Officer: Steve Kleinhans

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DOCUMENT TRACKING

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Candidate EAP: **Mariska Byleveld**. Candidate Environmental Assessment Practitioner with the Environmental Assessment Practitioners of South Africa, EAPSA, **Registration Number 2023/6593.**

PURPOSE OF THIS REPORT:

Environmental Management Programme

APPLICANT:

Aalwynbaai 21250 Properties (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

MOS888/07

SUBMISSION DATE

02 December 2025

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Submitted for:
Stakeholder Review & Comment

Report Issued by:

Cape Environmental Assessment Practitioners

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ORDER OF REPORT

Environmental Management Plan

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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.	Section 1
A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that must be avoided, including buffers	Appendix 1
A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all the phases of the development including – (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable post closure; and (v) Where relevant, operation activities.	Section 4 – Environmental Impacts & Mitigations Section 5 - Responsibilities Section 6 – Pre-Construction Design Section 7 – Construction Phase Section 8 – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	Section 4
A description of the proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved and must, where applicable include actions to – (i) Avoid, modify, remedy control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practises; (iii) Comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Section 4 Section 6 Section 7 Section 8
The method of monitoring the implementation of the impact management actions contemplated above.	Section 9 Section 11
The frequency of monitoring the implementation of the impact management actions contemplated above.	Section 9

Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 5
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	Section 9
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	Section 9
An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment.	Section 5 Section 6 Section 7 Section 8 Section 9
Any specific information that may be required by the competent authority.	Not Applicable.

ABBREVIATIONS AND ACRONYMS

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

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

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

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

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

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

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

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

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

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

EMPr Environmental Management Programme – an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and that positive benefits of the projects are enhanced.

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

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

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

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

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

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

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

1. INTRODUCTION

Cape Environmental Assessment Practitioners (*Cape EAPrac*) was appointed by the Applicant, Aalwynbaai 21250 Properties (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 development of "Aalwynbaai Residential Estate" on Erf 23731, Aalwyndal, Mossel Bay Municipal District (Figure 1).

Figure 1: Locality Map of Erf 23731 in Aalwyndal (YELLOW polygon).

The property is located in the greater Aalwyndal area, approximately 2 km west of Langeberg Mall in Voorbaai. It is situated along Aalwyn Way, adjacent to the "Fly me to the Moon" guesthouse (Figure 1).

Erf 23731 is approximately 6.83ha in size, currently zoned Single Residential Zone I and earmarked for urban expansion in the Mossel Bay Spatial Development Framework (2022) and Aalwyndal Precinct Plan (2018).

The Applicant proposes the **rezoning of the property to subdivisional area** consisting of the following (Figure 2):

- Sixty-nine (69) General Residential I Erven (Group Housing) on ±2.6ha
- Twenty-seven (27) General Residential II Erven (Town Houses) on ±0.5ha
- Three (3) General Residential III Erven (Flats) on ±0.6ha
- Thirteen (13) Open Space II Erven (Private Open Space) on ±1.2ha
- One (1) Transport Zone III Erf (Private Road) on ±1.6ha
- One (1) Open Space III Erf (Conservation) on ±0.3ha

The development will connect to the existing Bartelsfontein bulk **water** pipeline, with a ±1.35 km diameter upgrade required to ensure adequate capacity.

Sewer services will be provided temporarily via two conservancy tanks located at the lowest points of the site's natural drainage zones.

Stormwater will be managed through five detention pond zones discharging into the natural valley bottom wetland south and east of the property.

A formal **refuse** collection area is included at the entrance, with removal by Mossel Bay Municipality.

Access is proposed from Aalwyn Way, subject to potential reclassification of the road to accommodate a high volume driveway.

Electrical demand (±393 kVA) will be supplied via the Aalwyndal 11 kV network, with the Applicant installing a shared 11 kV underground link cable.

TECHICAL INFORMATION

PORTIONS	ZONING	USE	HATCHING	AREA(m²)	%
1-69	General Residential I	Group Housing		2 6334.00	38.39
73-99, Rem. Erf 23731	General Residential II	Town Houses		5380.00	7.84
70 - 72	General Residential III	Flats		6213.00	9.06
100 - 112	Open Space Zone II	Private Open Space		1 1831.00	17.25
113	Transport Zone III	Private Road		1 5922.00	23.21
114	Open Space Zone III	Conservation		2916.00	4.25
			TOTAL	6 8596.00	100.00

Figure 2: Proposed Subdivision Plan for Erf 23731 (Plan no. FP/0525/1144 dated 11/2025).

The proposed development requires an **Environmental Authorisation** in terms of the National Environmental Management Act (NEMA, Act 107 of 1998).

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.

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 (i.e., the **'impact outcome'** of implementing the EMPr). The EMPr must provide easily understood and clearly defined **'impact actions'** that must be implemented during each phase of the proposed activity to ensure that 'impact outcomes' are achieved.

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, as well as future homeowners / managing agents for the operational phase (when top structures are built and when people start to occupy the development).

The EMPr 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 during construction and all **senior personnel** are expected to familiarise themselves with the content of this EMPr.

Any changes or deviations to the 'impact outcomes' stipulated in this EMPr must be authorised by the competent authority prior to such changes/deviations. Changes to 'impact actions' can be undertaken without prior approval from the Competent Authority, on condition that it does not affect or change the 'impact outcomes'.

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 **site establishment, 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 construction of top structures.

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 constructed and 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 EMPr are upheld and complied with.

3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

The EIA regulations contained in the Environmental Conservation Act (ECA) have been replaced by NEMA. However, property owners must comply with the draft regulations pertaining to noise as published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA, as well as Section 24 of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

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

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

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

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.

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.

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.

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).

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.

Since the property is inside the urban edge of Mossel Bay, and the proposal will lead to the development of erven, the need to belong to an FPA and provide for firebreaks will not be applicable.

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.

Heritage Western Cape confirmed that there is no reason to believe that the proposed commercial and residential development will impact on heritage resources. No further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately, and Heritage Western Cape must be notified without delay.

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 Holder and/or the 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:

- Aquatic Impact Assessment (Confluent Environmental)
- Fauna Compliance Statement (Confluent Environmental)
- Botanical/Biodiversity Compliance Statement (Confluent Environmental)
- Heritage Background Information Document for NID (Perception Planning).

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):

Preferred Property & Site (Erf 23731)	
Positive	**Negative**
The property currently does not contribute to any socio-economic aspects. The proposed development on the preferred property will therefore optimize 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. It will also not impact on Endangered/Critically Endangered Vegetation and Critical Biodiversity Areas, Ecological Support Areas.	Potential negative impact on a watercourse further south and east if mitigation measures are not implemented correctly/efficiently.
The preferred property does not fall within the environmental framework determined for the greater Aalwyndal Precinct.	Temporary risk of increase crime during construction.
Development will result in temporary employment opportunities during construction (to semi-skilled and unskilled workers mostly).	Temporary increase in construction vehicular traffic.
Development will result in permanent and temporary employment opportunities during the operational phase (to skilled and semi-skilled workers mostly).	Additional pressure on non-renewable services.
The development will make use of existing municipal services - additional income to the local Municipality through municipal rates and taxes.	Continued maintenance cost (alien clearing, access control, clearing of dumped materials).
The remaining natural vegetation on site will be actively monitored and maintained. The homeowner's association will implement ongoing alien clearing on the property.	Potential permanent risk of increased traffic.

4.1 MITIGATIONS

Table 2: List of Mitigation Measures & Associated Management Requirements

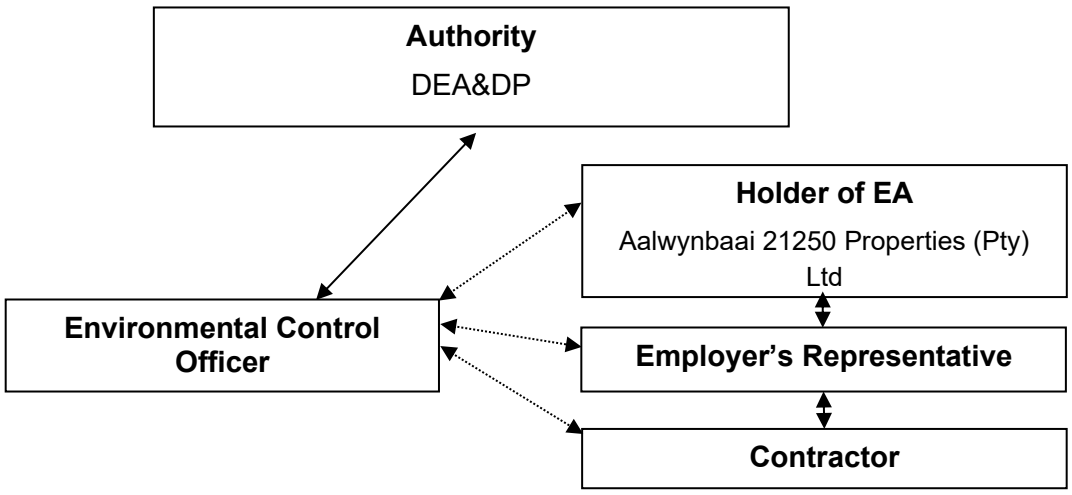
Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Mitigations / Recommendations					
Holder must appoint an ECO to oversee the construction phase. The Holder of the Managing Agent / Home Owners or individual home owners must appoint an ECO to oversee top structure construction, as well as long-term maintenance of the open space areas i.e. alien clearing, rehabilitation, fire management, search and rescue of animals).	✓	✓	✓	✓	
Applicant must continue to eradicate invasive alien plant species within the private open space areas.		✓	✓	✓	
Indigenous landscaping & rehabilitation only.		✓	✓	✓	
Implement resource conservation measures.		✓	✓	✓	
No additional clearing of vegetation should take place without a proper assessment of the environmental impacts; unless for maintenance purposes, in which case all reasonable steps should be taken to limit damage to natural areas.		✓	✓	✓	
Search and rescue mission for plants and animals must be undertaken, prior to commencement of construction activities on site. All rescued species must be relocated to the natural areas on the rest of the property, which will not be developed.		✓	✓	✓	
Survey & Pegg the Core Area. Install formal fencing off the Core Area in line with the fencing requirements stipulated in Report 3 of the Biodiversity Offset Framework Plan.		✓	✓		
Demolish labourer dwelling and livestock pen and revegetate using a mix of indigenous grass species.		✓	✓		
ECO to monitor water clarity as per aquatic specialist recommendations.		✓	✓		
Constructor team to have a stockpile of suitable erosion control products.		✓	✓		
Install erosion protective measures in conjunction of site clearance.		✓	✓		
Phase earthworks and plan accordingly for predicted high rainfall.		✓	✓		
Stockpiles to be kept on flat areas.		✓	✓		
ECO to monitor the site during and after heavy rainfall events.		✓	✓		
No water may be pumped out of excavations directly into the wetland.		✓	✓		
Revegetated disturbed areas once works have concluded.		✓	✓		
Maintain and regularly clear out silt-laden structures.		✓	✓		
Weekly ECO inspections along the fenceline of the Core Area.		✓	✓		
Remove any dumped materials by hand (Core Area).		✓	✓		
Stockpile construction material as far away from the watercourse as practically possible.		✓	✓		
Remove material from site that is no longer required.		✓	✓		

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Retain the upper 50cm of topsoil and separate this from subsoils.		✓	✓		
No vehicle leaking fuel / oil are permitted to work on site.		✓	✓		
Refuel vehicles as far from watercourses as possible.		✓	✓		
A spill kit must be on hand.		✓	✓		
No materials may be dumped in the watercourse and any accidental spills must be cleaned up by hand.		✓	✓		
Reshape soil surfaces to avoid preferential flow paths and steep gradients.		✓	✓		
Revegetate disturbed areas.		✓	✓		
Use the list of plant species in Table 4 of Report 3 of the Biodiversity Offset Framework Plan for landscaping.		✓	✓		
Protect steep slopes with soil saver matting.		✓	✓		
Remove litter and/or materials from the watercourse.		✓	✓		
ECO and Site Manager to delineate a workable disturbance footprint adjacent to the watercourse using danger tape or similar. Signage on the fencing must indicate this as a 'No-Go Area'.		✓	✓		
Identify a waste material stockpile area.		✓	✓		
Re-use soil from Erf 23731 for backfill the eroded hole.		✓	✓		
Use galvanised gabion baskets only.		✓	✓		
A geotextile such as bidim must be used to line the cavity into which gabions are built.		✓	✓		
Sandbags must be placed around the work area in the stream base.		✓	✓		
At conclusion of the works, replant any exposed areas of soil using plants rescued before the works.		✓	✓		
Ensure the HOA clearly communicates special management criteria contained within Report 3 of the Biodiversity Offset Framework Plan to all new residents of the estate (Table 5), as well as contracted garden and security services.		✓	✓		
Consider implementing fines for any transgressions which must cover the cost for rehabilitation or removal where required.		✓	✓		
All landscaped areas of the residential estate should utilise topsoil from the site, and be revegetated using plants that are listed in Table 5.		✓	✓		
Stormwater detention ponds must be vegetated using wetland plant species indicated in Table 5.		✓	✓		
No garden waste or any other type of waste may be disposed of in the Core Area.		✓	✓		
Add signs every 50m along the fenceline indicating the Core Area as a conservation area and highlighting fines for illegal dumping of waste.		✓	✓		
Fenceline boundary pathways should be planted with indigenous grasses such as Cynodon dactylon and Stenotaphrum secondatum where necessary.		✓	✓		
Apart from cut stump applications of herbicide to Rooikrans or other woody aliens, no herbicide should be sprayed along the fenceline of the Core Area.		✓	✓		
No work should be undertaken in the Core Area unless it aligns with the Conservation Management Plan (Report 3) or a recognised Fire		✓	✓		

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Management Plan representing best practice management for conservation in this area.					
Access to the Core Area must be restricted to walking only, and no pets may be walked in this area.		✓		✓	
The ECO must inspect all stormwater structures at conclusion of works to ensure they were constructed as per approved plans, are clear of debris and appear to be functioning well.		✓	✓		
As built plans must be submitted to regulating authorities (DEA&DP and BOCMA).		✓	✓		
Estate maintenance teams to ensure inlets and outlets are kept free flowing where specified.		✓		✓	
It may not be necessary to frequently clear out vegetation in stormwater attenuation ponds, unless the vegetation becomes overgrown to the point that it takes up a significant volume of the pond's capacity.		✓		✓	
Areas indicating erosion following heavy rainfall events should be rapidly addressed with inputs from the engineer and/or aquatic specialist if necessary.		✓	✓		
Signage must be erected on fencing surrounding the tanks indicating that any overflows observed by residents must be immediately reported to the HOA.		✓		✓	
Service level agreements or contracts must be entered into with service providers which ensure efficient removal of sewage in terms of frequency and volumes that maintain capacity for refilling of the tanks over a 24 hour period at least.		✓	✓		
Design of the conservancy tanks must allow for a seamless transition to a municipal connection as soon as it is provided.		✓	✓		
Use anti-climb fencing with small apertures (e.g., galvanised ClearVu-type) to prevent pets from entering the Core Area and to protect wildlife. Install fencing to a depth of 0.2 m to prevent animals from digging underneath. Fence height should be 1.8 m.		✓	✓		
Avoid lighting along the southern boundary wherever possible. Where lighting is unavoidable, use dim, yellow-spectrum lights and downward-facing fixtures to reduce ecological disturbance. Permanent road lighting in the south should be avoided unless required for safety. Prefer low bollard lighting, motion sensors, or timers to limit the duration and intensity of illumination.		✓	✓		
The Environmental Control Officer must be alerted to the possibility of archaeological material. If dense concentrations of artefacts are found, the ECO must immediately report this to Heritage Western Cape. The standard HWC clause and protocol regarding chance finds shall therefore apply.		✓	✓		
If during ground clearance or construction, any palaeontological occurrences, archaeological material or human graves are uncovered, work in that area should be stopped immediately and the ECO must report this to HWC. 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.		✓	✓		
Best Practise					
Rainwater harvesting must be implemented for all top structures.		✓	✓	✓	
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 (protected vegetation).The responsibilities of the holder of the EA / property owner include, but are not limited to the following:

- Ensure that **all tender documentation** include reference to, and the need for compliance with, the EA and 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 environmental 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) as well as the operational phase.

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 if deemed necessary (e.g. DEA&DP, DFFE, CapeNature or Municipality);
  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 and operational periods, 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. This is applicable to all phases (earthworks, installation of bulk services and development of top structures):

- **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;
- **weekly** during **site clearing/demarcation** activities for **individual homes/top structures**;
    - The Managing Agent/HOA may instruct individual homeowners to pay for ECO inspections on individual homes.
    - Alternatively the Managing Agent/HOA must charge a monthly 'environmental levy' for ECO services to all home owners for monitoring during construction of homes.
- **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 in order to inform the first Completion Statement.
- **3 months post construction completion** (of all of the individual homes/top structures) in order to inform the second Completion Statement.
- **Annual** site inspection of the no-go areas/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 Managing Agent/HOA.

5.5 ENVIRONMENTAL COST AND LEVIES

The Holder of the EA is responsible for payment of the ECO services during the construction phase (bulk earthworks/civils).

The Holder of the EA is responsible for invasive clearing of the entire site prior to occupation of the first house.

The Holder/HOA/Managing Agent must charge a monthly levy to homeowners, to be set aside and managed solely for:

- **Ongoing operational alien clearing**
- **Restoration/rehabilitation of the no-go open space areas**
- **Annual monitoring of the No-Go open space areas by the ECO**

The Holder/HOA/Managing Agent may instruct individual homeowners to pay for ECO services for the duration of construction of their individual homes which would be separate from the monthly environmental levy amount.

5.6 ENVIRONMENTAL INDUCTION & TRAINING

The holder of the EA in consultation with the Contractor must ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation by the appointed ECO, on the importance and implications of the EA and EMPr.

The Contractor must provide a translator from their staff for the purpose of translating, if this is deemed necessary.

As a minimum, training must be conducted by the appointed ECO and 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;
- 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.);
- What steps to take when animals must be caught/relocated i.e. snakes, moles, mammals etc;
- Why it is important to respect and stay out of No-Go / Demarcated areas;
- 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 is deemed necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.\

If individual homeowners are allowed to use their own contractors for building of the houses, the ECO must induct each team prior to construction commencing on a house site and continue to monitor the construction period.

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 STORMWATER DESIGN

Management Outcome	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. The SuDS principles mentioned at a conceptual level in the stormwater management plan (e.g. swales, permeable paving etc.) must be implemented.

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 CONSERVANCY TANK DESIGN

Management Outcome	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. The internal sewerage reticulation system must have the capacity to seamlessly transition from the use of conservancy tanks to the municipal connection.

b. The future municipal connection point should be indicated on all plans relating to engineering services (if known).

c. A method statement should be provided for how this transition will be achieved.

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

		management action			
Site Plans Method Statement	Once off	Architect / Engineer	Prior to construction	Audit	Once off

6.3 WATER RESOURCE PROTECTION

Management Outcome	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. Each residential unit must be fitted with rainwater tanks for fire management, landscaping and all external uses. All rainwater tanks must be shown on building plans and house designs must provide roof materials suitable for collection i.e., not thatched roofs.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Must be included in all sales agreements. Must be shown on building plans.	Once off	Developer / 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
Must be included in all sales agreements. Must be shown on building plans.	Once off	Architect / Engineer	Prior to construction	Audit	Once off

Dual Flush Toilets

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 must be fitted with dual flush systems.

Low flow shower heads

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).

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.

Low flow Taps

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.

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.

Washing machines

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:

- **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.

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.

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.

6.4 ENERGY RESOURCE PROTECTION

Management Outcome	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
Must be included in all sales agreements. Energy saving checklist	Once off	Developer / Architect / Engineer	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 home owners 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 homeowner 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 must have insulation on geysers and all hot water pipes.

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 must 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 (can be done in phases).	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). Material stockpile and standing areas for machine sites must be identified in consultation with the ECO. It is recommended that stockpile areas/machine standing areas be within the less sensitive areas next to the existing Sandpiper Leisure Centre for bulk earthworks/services. Individual erven must accommodate their contractor camps/stockpile areas within the demarcated boundaries of the erf under construction. Alternatively per agreement with another	Prior to construction.

	erf owner such an erf may be used, on condition that the erf is also demarcated and groundcover restored after use if construction on that erf is not imminent.	
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. Stockpile areas and construction machines must be kept on the property to avoid unnecessary construction traffic on the residential road network during this phase.	Construction
8	Vegetation clearing must 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 ILLEGAL 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 and groundcover restored.	Construction

7.2 DEMARCATION OF WORK AND NO-GO AREAS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

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

Management Actions

a. Clearly identify and demarcate the development area.

b. Fuel and chemicals may only be stored in a designated work area.

c. Provide on-site sanitation and rest areas for personnel.

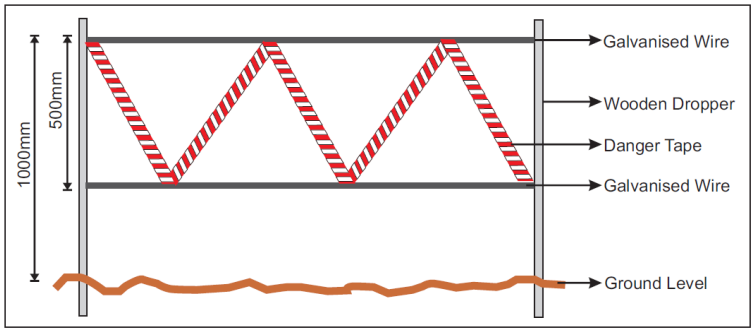
d. The Core Area (No-Go Area) must be surveyed and pegged out.

- This area must be fenced off using galvanised Clear Vu type fencing of 1.8m high. This would be applicable to the section along the southern extent of the development. This section is approximately 200m in length and would eventually tie into neighbouring sections of the fenceline to protect this area. The fence should include a gate through which a single vehicle could access this area if necessary for maintenance in future. However, this must be locked for the duration of the construction phase (except for the replacement of topsoil over demolished livestock pens).

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

<u>Demarcation example (Development Area)</u>

Plant wooden droppers all around the identified work area (as approved by the ECO) and connect it with either galvanised wire with danger tape or hessian/similar material so that no vehicle or staff can go through it.



All areas outside the demarcated area are considered as "no-go" areas for any construction activity including movement of staff (i.e., private open space area).

- Construction staff must be briefed as part of the environmental induction on the requirements regarding the no-go areas.
- Signage must be put up on the demarcation indicating that it is a No-Go area.

7.3 STORMWATER MANAGEMENT

Management Outcome	Impacts & Risks Avoided
To minimise the generation of contaminated stormwater.	Minimise sedimentation, erosion and / or undercutting. Eliminate the risk as far as possible of discharging sediment-laden water downslope to the wetland either in controlled or uncontrolled circumstances.

Management Actions

a. Minimise the quantity of stormwater entering cleared areas.

b. Prior to construction, the ECO must measure water clarity (in cm) in the downstream dam using a water clarity tube (available from Grountruth).

c. The construction team must have a stockpile of suitable erosion control products such as soil saver matting, wooden stakes, shade cloth for silt fencing, and sandbags as a minimum. Haybales can be used for check dams if necessary.

d. When rainfall is predicted ensure the site has been well prepared. Work on the site must cease altogether during and immediately following heavy rainfall events.

e. Following rainfall, any water that must be pumped out of road cuts or excavations must not be directed directly to the wetland, but rather to a temporary sediment control dam where it can evaporate or seep out through a filter material.

f. Protect any inlets to stormwater drains (once constructed) to ensure silt can settle out before discharging to attenuation dams.

g. Maintain and regularly clear out silt-laden structures to ensure they remain functional for the duration of the construction phase.

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	Developer / contractor	Construction Phase	Audit	Monthly

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.

Any erosion channels developed during construction on steep slopes must be backfilled, compacted and restored to an acceptable condition.

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.

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.

7.4 DUST CONTROL

Management Outcome	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

The strategy must include the following amongst others:

- 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.

7.5 NOISE & VIBRATION

Management Outcome	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 and then only with written permission from the ECO.					
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

7.6 TRAFFIC CONTROL

Management Outcome	Impacts & Risks Avoided
To manage and minimise the nuisance effect created by construction traffic.	The development entrance access will be via Bonito 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

- Construction-related activities must be timed where possible to avoid peak periods.
- No construction workers, apart from security personnel, may 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 must 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.
- Construction machinery must be kept on the site and may not travel to and from the site on a daily basis (unless for transportation purposes). This is avoid unwanted construction traffic congestion along the residential road network serving as access to the site.
- The Contractor must ensure that the pre-condition of the main access route to the site remains in the same condition throughout the construction phase.
- The ECO must have a photographic record of the main access road to ensure that its condition throughout construction does not deteriorate by any normal standards.
- It is the Contractors responsibility to repair the road condition to the pre-construction status once the construction phase is complete. Any queries about the condition may have to be addressed with Municipal intervention/input.
- Construction vehicles may not be parked/left outside of the study site i.e. along the public roads.

7.7 WASTE MANAGEMENT

Management Outcome	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.

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.

c. Provide bins for construction workers and staff at locations where they consume food. It is the Contractors responsibility to ensure that the waste bin area does not represent a visual / odour

nuisance. It is the Contractor's responsibility to ensure that the waste bins are cleaned regularly and the waste area kept clean to avoid problems with rodents/flies. It is the Contractor's responsibility to ensure that waste removal is done in a responsible manner.

d. Conduct ongoing awareness with staff of the need to avoid littering.

e. The ECO must conduct regular (weekly) inspections along the fence line of the Core Area to ensure that no dumping or access to this area has occurred resulting in habitat degradation.

f. Any dumped materials must be removed by hand by the relevant contractor, and the site rehabilitated under supervision of the ECO if damage to vegetation has occurred.

g. Materials no longer required must be removed from the site without delay to reduce the risk of washing downslope or into the watercourse.

h. No materials may be dumped in the watercourse, and any accidental spillages must be cleaned up by hand.

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 Method Statement	As required	Contractor	As required	Audit	Records

7.8 STOCKPILE MANAGEMENT

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

Management Actions

a. Minimise the number of stockpiles, and the area and the time stockpiles are exposed.

b. Stockpile sites may only be identified in consultation with the ECO.

c. Stockpile sites/ machinery standing areas may not be in the No-Go open space areas.

d. Keep topsoil and underburden soil stockpiles separate.

e. Remove any invasive alien vegetation regrowth from stockpile sites.

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

g. Stabilise stockpiles and batters that will remain bare an extended period of time must be covered with mulch or anchored fabrics or seeding with sterile grass to prevent dust pollution.

h. Stockpiles must be positioned far from the watercourse as practically possible.

i. All building material stockpiles (e.g. sand, cement, topsoil) should be kept on flat 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

Photographic	As required	Contractor	As required	Audit	Records

7.9 STORING FUELS & CHEMICALS AND REFUELLING

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

Management Actions

a. Minimise fuels and chemicals stored onsite.
b. Install bunds and take other precautions to reduce the risk of spills.
c. Implement a contingency plan to handle spills, so that environmental damage is avoided.
d. Vehicle refuelling areas must be located as far from watercourses as possible, and a spill kit must be on hand in case of fuel spills.
e. Vehicles leaking fuel are not permitted to work on the site until they have been repaired.

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

7.10 MINIMISING EROSION

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

Management Actions

a. Schedule measures to avoid and reduce erosion by phasing the work program to minimise land disturbance in the planning and design stage.
b. Keep the areas of land cleared to a minimum, and the period areas remain cleared to a minimum.
c. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.
d. Mulch, roughen and seed cleared slopes and stockpiles where no works are planned for more than 28 days, with sterile grasses.
e. Keep vehicles to well-defined haul roads.
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
Method statement	As required	Contractor	As required	Audit	Method statement records

7.11 REHABILITATION

Management Outcome	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. Ensure all soil surfaces are reshaped to avoid preferential flow paths and overly steep gradients.
b. All areas disturbed during the construction phase must be revegetated and cannot be left bare. Revegetation within the development where grass is desirable can utilise indigenous grass seed (use Stenotaphrum secundatum and Cynodon dactylon, also known as kweek).
c. For landscaping of areas within the estate refer to Table 4 of Report 3 of the Biodiversity Offset Framework Plan for a comprehensive list of plant species that can be purchased from nurseries and are found locally in the area.
d. Any steep slopes where grass seed or plugs have been placed should be protected with soil saver matting to reduce the risk of erosion.
e. Ensure any litter and/or materials associated with the construction phase are removed from the watercourse

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
g. Rehabilitation and landscaping may only make use of indigenous vegetation.					
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

7.12 FAUNA MANAGEMENT

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

Management Actions

a. Prevent unnecessary mortalities of indigenous fauna.

b. **Fencing** to reduce human impact on the Core Area
- Use anti-climb fencing with small apertures (e.g., galvanised ClearVu-type) to prevent pets from entering the Core Area and to protect wildlife.
- Install fencing to a depth of 0.2 m to prevent animals from digging underneath.
- Fence height should be 1.8 m.

c. Minimising artificial **lighting** near the Core Area
- Avoid lighting along the southern boundary wherever possible.
- Where lighting is unavoidable, use dim, yellow-spectrum lights and downward-facing fixtures to reduce ecological disturbance.
- Permanent road lighting in the south should be avoided unless required for safety.
- Prefer low bollard lighting, motion sensors, or timers to limit the duration and intensity of illumination.

d. Best-practice measures for handling and protecting all fauna, whether SCC or not, must be followed throughout all phases of 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

Ad hoc	As required	Contractor	Continuously	Audit	Visual / photographic

7.13 SOCIAL REQUIREMENTS

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

Management Actions

a. It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project (Aalwyndal area, Mossel Bay Municipal District).

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 must endeavour to source local suppliers that are BEE compliant within the Mossel Bay Municipal District/Garden Route District/Western Cape Province.
- 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.

7.14 METHOD STATEMENTS

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

Management Actions

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

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

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

- Demarcation of No-Go areas
- Construction camp selection, set-up and restoration (inclusive of stock pile areas, machine standing areas, ablution facilities, waste facilities, dining 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.

7.15 CEMENT BATCHING

Management Outcome	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 / be done on a wooden board and not on open ground.

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

7.16 HERITAGE REQUIREMENTS

Management Outcome	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

- 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.

7.17 MONITORING OF DEMARCATION OF WORK AND NO-GO AREAS

Management Outcome	Impacts & Risks Avoided
To ensure that demarcation is maintained throughout every construction phase (including construction during the operational phase).	Negative construction impacts on natural and rehabilitated areas

Management Actions

a. Contractor to check demarcation daily. If the demarcation is torn or removed, make sure it is replaced immediately. Demarcation is not effective if a person or vehicle can easily pass through it into the "no-go" areas which is all areas outside the approved demarcated area.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Daily	Developer / contractor	Construction (earthworks, bulk services and residential dwellings)	Audit	Monthly

7.18 ALIEN VEGETATION MANAGEMENT

Management Outcome	Impacts & Risks Avoided
All alien invasive vegetation must be removed from the site in order to ensure restoration of the indigenous vegetation.	Reduce the impact of alien vegetation on the property's biodiversity and fire management.

Management Actions

a. Once alien vegetation is identified on a site, the ECO must provide a management method statement for its removal.

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

b. Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but must be temporarily stored in a demarcated area (in consultation with the ECO).

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

- Any seed-bearing material must be removed to prevent the spread of seed.

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 STORMWATER MANAGEMENT

Management Outcome	Impacts & Risks Avoided
To ensure management of stormwater during operation phase	• 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

- 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 BOTANICAL / LANDSCAPING

Management Outcome	Impacts & Risks Avoided
To ensure that indigenous vegetation is encouraged within urban areas.	• Ongoing spread of alien invasive species. • Ensure protected species are taken into consideration.

Management Actions

a. Homeowners must practice ongoing alien invasive management.					
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	Owner	As required	Audit	Audit
b. Retain and manage protected and indigenous vegetation.					
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	Owner	As required	Audit	Audit
c. Rainwater collected from roofs must receive preferential use in the irrigation of gardens or other outdoor requirements.					
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	Owner	As required	Audit	Audit

- 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 *Sideroxylon inerme* (Milkwoods).

8.3 FAUNA MANAGEMENT

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

a. Fencing around the property must allow for the migration of animals.					
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

8.4 ALIEN VEGETATION MANAGEMENT

Management Outcome	Impacts & Risks Avoided
All alien invasive vegetation must be completely removed from the site in order to ensure restoration of the indigenous vegetation **prior to any occupation** of the residential dwellings.	Reduce the impact of alien vegetation on the property's biodiversity and fire management.

Management Actions

a. The Holder / Managing Agent / HOA must continue to eradicate invasive alien plant species within the private open space 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
Ad hoc	As required	Managing Agent / HOA	Continuously	Audit	Visual / photographic

8.5 ONGOING MANAGEMENT OF "NO-GO" AREAS

Management Outcome	Impacts & Risks Avoided
No development encroachment or development creep infiltrates the No-Go areas to the operational phase.	Reduce the impact of people and vehicles/machines on the remaining natural vegetation on-site

Management Actions

a. The Holder / Managing Agent / HOA must ensure that no development encroachment or development creep infiltrates the No-Go areas for the operational phase.

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	Managing Agent / HOA	Continuously	Audit	Visual / photographic
b. ECO must be appointed for the duration of the operational phase to conduct annual site inspections of the No-Go areas to ensure that the Managing Agent / Holder / HOA complies with the requirements for these areas to not be transformed over time. c. The ECO must verify that private erven does not extend their landscaping/structures/parkings etc into the surrounding no-go 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
Ad hoc	As required	Managing Agent / HOA	Continuously	Audit	Visual / photographic

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 INTERNAL MONITORING TIMEFRAMES SUMMARY

Table 4: Monitoring Timeframe Summary

MONITORING TIMEFRAMES		
Type	Frequency	Criteria
ECO visits	As per section 5.4 (weekly during construction of civils and earthworks; weekly during construction of dwellings)	Site photographs / site diary
Record keeping by ECO	Monthly ECO report during construction and operation phases (whilst houses are under construction still)	Site photographs, method statements, site meeting minutes (if applicable)
	3-month post construction phase finished and 3-months post construction of the last house is finished	Completion Statement x2
Internal Auditing by ECO	One year post construction completion (bulk/earthworks and civils) and annually during operational phase till validity of EA expires.	Compliance with the EA, EMPr, municipal permits and any other approvals

9.2 INTERNAL ENVIRONMENTAL AUDITS

- A final construction phase Completion Statement must be submitted to the DEADP within 3 months of completion of construction / site handover after bulk earthworks/civils.
- Second Completion Statement must be submitted to the DEADP within 3 months of completion of the last house/dwelling is completed.

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

- An internal Environmental Audit by the appointed ECO must be undertaken one (1) year post construction phase completion and one (1) year post operational phase completion (specifically once the last house is complete).

9.3 EXTERNAL AUDIT REPORTS FREQUENCIES AND FORMAT

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

Note that the external Audit(s) must be submitted to the Competent Authority and it must be undertaken by an independent person, who is not the ECO or the EAP who conducted the environmental application process.

Table 5: Audit Reports Timeframe Summary

EXTERNAL ENVIRONMENTAL AUDIT TIMEFRAMES		
Type	Frequency	Criteria
Bulk Internal Services		
Environmental Audit during the period which the activities have been commenced with on site until the construction of the bulk internal services infrastructure has been completed on site.	Annually (to be submitted to DEA&DP).	Audit EA and EMPr compliance by an external Auditor.
Final Environmental Audit	Once-off (to be submitted to DEA&DP within three (3) months of completion of the construction of bulk internal services and post construction rehabilitation and monitoring requirements thereof).	Audit EA and EMPr compliance by an external Auditor.
Development of Residential Units (i.e., construction of units)		
Environmental Audit(s) during the period the development of the residential units is undertaken.	Not exceeding five (5) year intervals (to be submitted to DEA&DP). The final auditing requirement must be completed and submitted to DEA&DP at least three months prior to expiry of the validity period of the EA.	External Audit of EA and EMPr compliance.

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.	

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	**Description**
(b) 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 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.	

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**
(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 must 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:

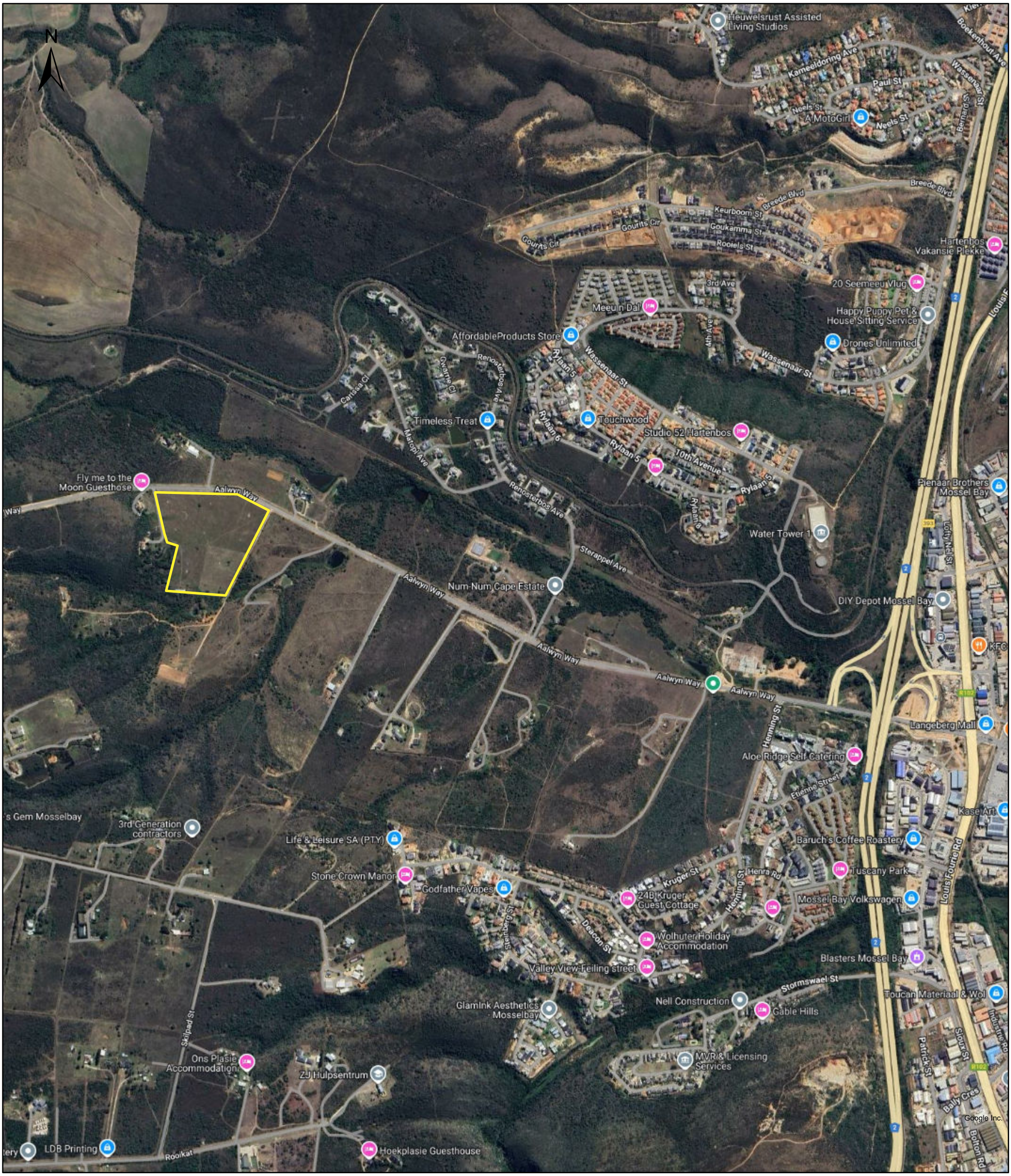
- The competent authority shall issue a **Notice of Non-compliance** to the Holder of the EA, stating the nature and magnitude of the contravention.

[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.

- 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

APPENDIX 1

Locality Map of Erf 23731 Aalwyndal



km
0 0.1 0.2 0.3 0.4 0.5

Map Center: Lon: 22°5'14.3"E
Lat: 34°8'34.5"S

Scale: 1:12,423

Date created: 2025/11/24

Western Cape Government
FOR YOU

APPENDIX 2

PROPOSED SUBDIVISION PLAN Erf 23731 Mossel Bay

TECHICAL INFORMATION

PORTIONS	ZONING	USE	HATCHING	AREA(m²)	%
1-69	General Residential I	Group Housing		2 6334.00	38.39
73-99, Rem. Erf 23731	General Residential II	Town Houses		5380.00	7.84
70 - 72	General Residential III	Flats		6213.00	9.06
100 - 112	Open Space Zone II	Private Open Space		1 1831.00	17.25
113	Transport Zone III	Private Road		1 5922.00	23.21
114	Open Space Zone III	Conservation		2916.00	4.25
			TOTAL	6 8596.00	100.00

GENERAL NOTES

1. All dimensions are approximate and subject to a detailed site survey and Local Authority input.
2. The Copyright of this drawing, including the design and details shown herein, is reserved by First Plan.

AMENDMENTS

REV	DESCRIPTION	BY	DATE
1	Portion 114 Open Space III	CT	08/25
2	Conservancy Tanks	CT	11/25

CLIENT:
Balu Trust

PLAN NO	FP/0525/1144
DATE	July 2025

A3 = Scale 1:1500
0 10 20 30 40 50

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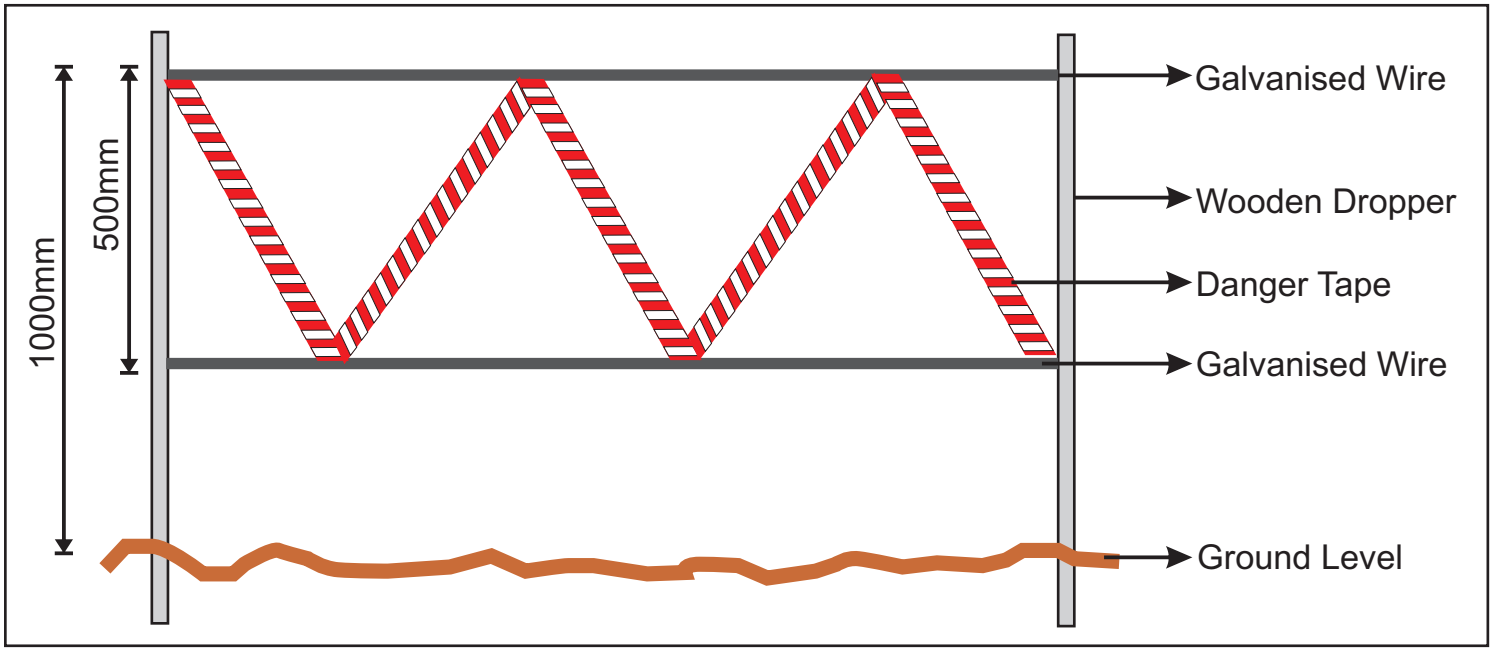

Plate A: Showing a cross section of a typical method of demarcation of no-go areas.

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.

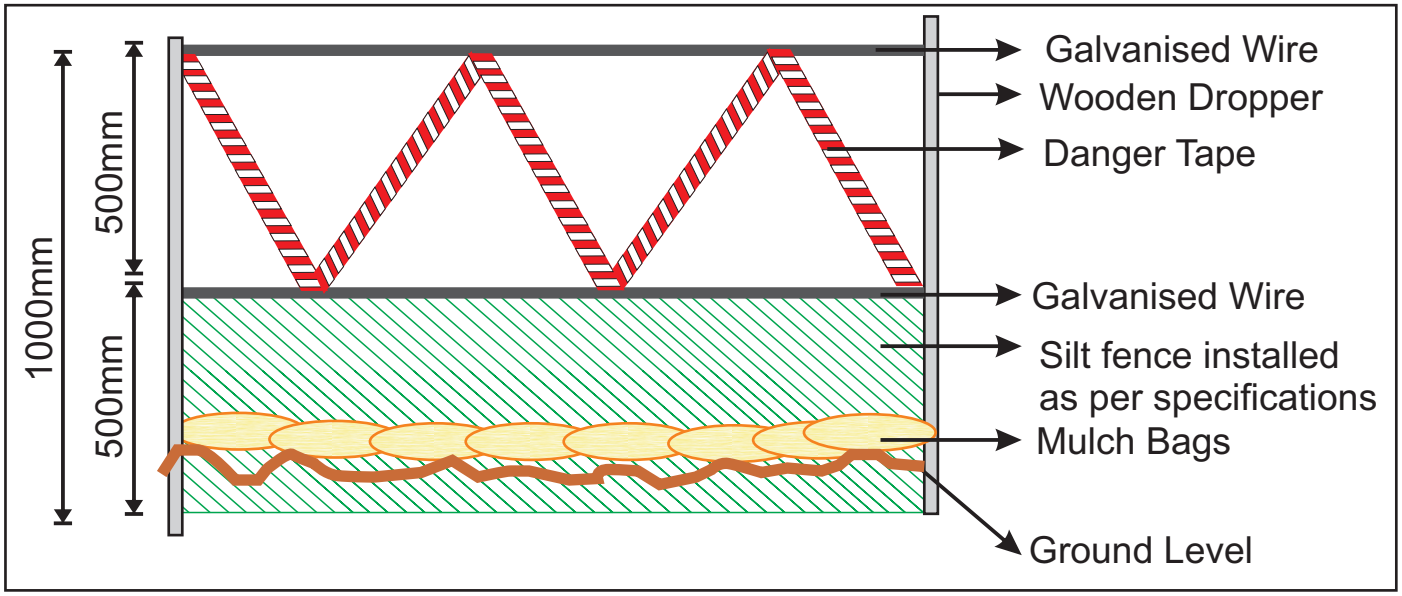

Figure 1: Demarcation of No - Go Areas During Construction

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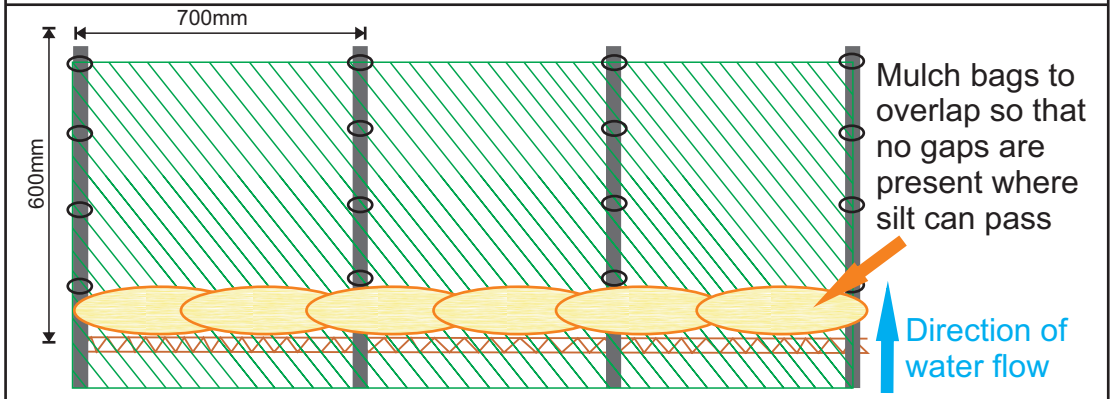
Frontal View



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

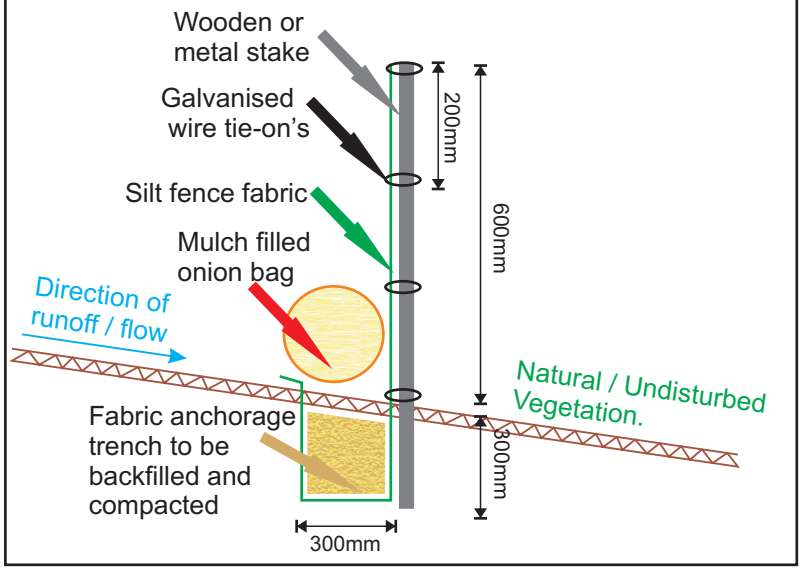
Technical Specifications

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

Planning, Placing and Maintenance

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

Cross-section View



Top View

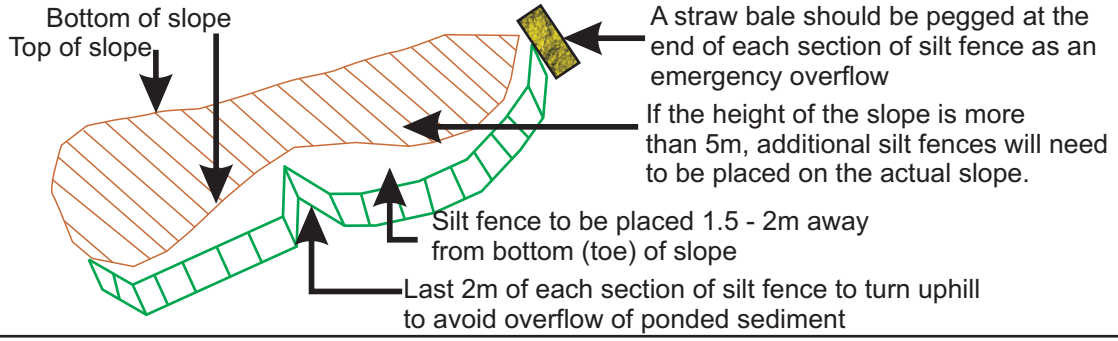


Figure 2: Specifications for Silt Fences

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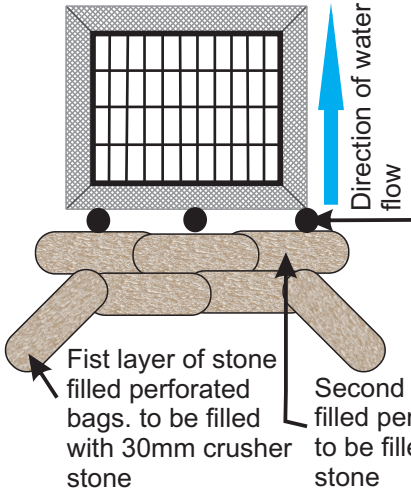
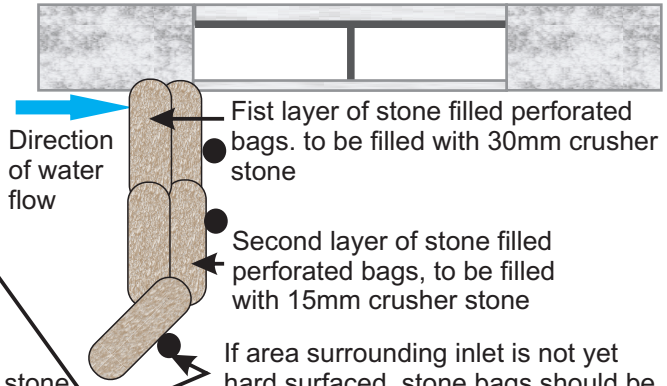
Inlet Protection

Drop Inlets



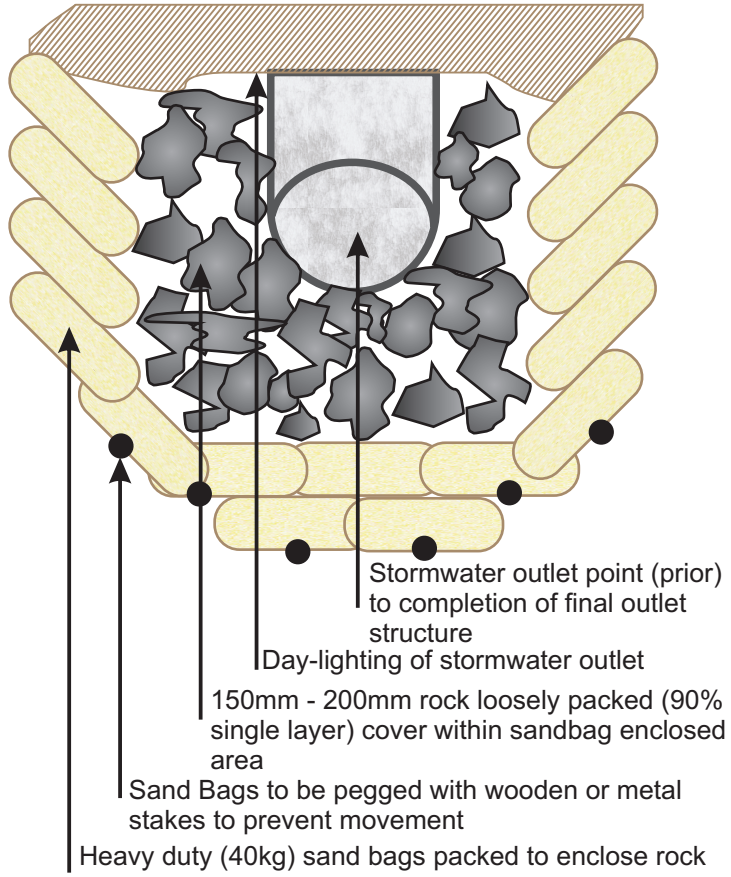
Kerb Inlets



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

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

Outlet Protection



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

Figure 3: Specifications for Temporary Stormwater Management During Construction

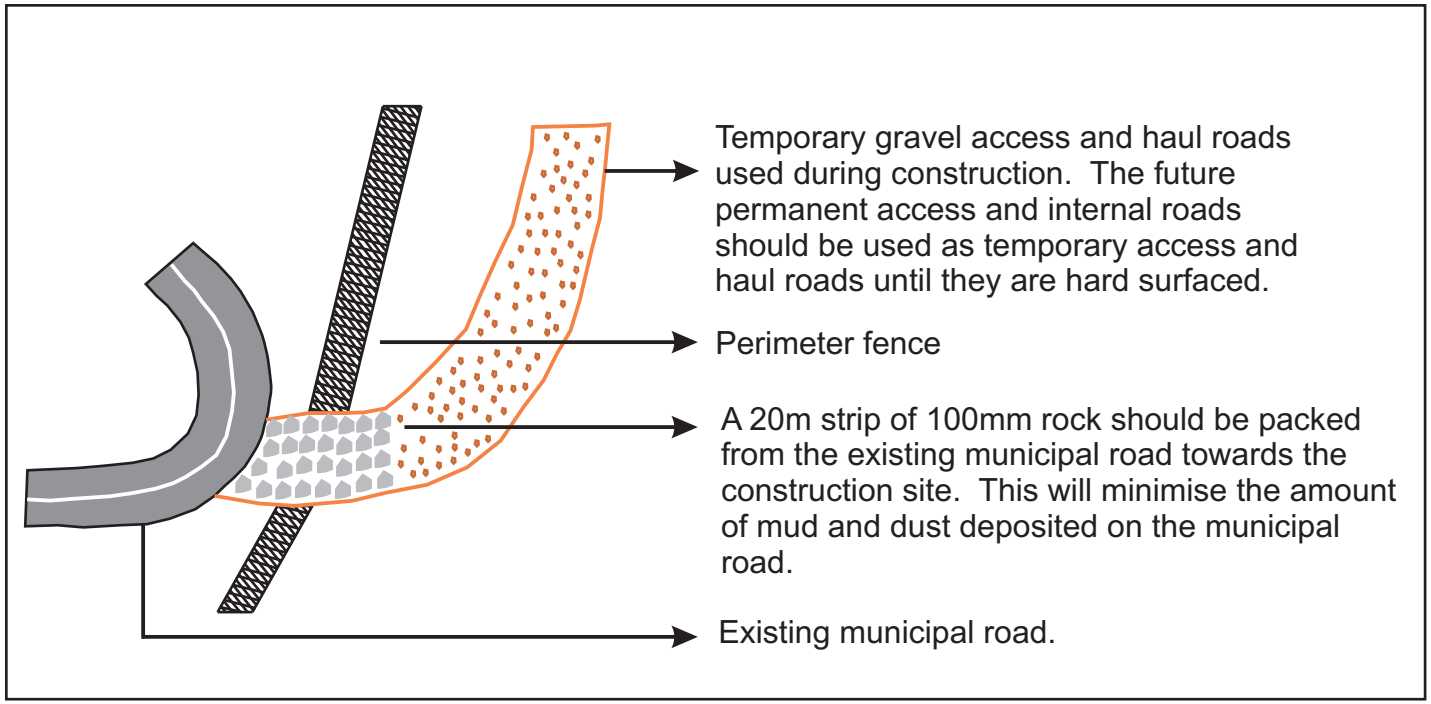
Cape Environmental Assessment Practitioners (Pty) Ltd

Key Environmental Considerations for Haul Roads

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

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

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



Minimisation of Dust on Haul Roads

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

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

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

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

Figure 4: Management of Haul and Access Control During Construction

Cape Environmental Assessment Practitioners (Pty) Ltd

APPENDIX 4

The Team

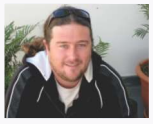
Doug Jeffery - Director

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

email: doug@dougjeff.co.za

Dale Holder

Senior Environmental Practitioner

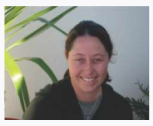


Dale graduated from the Technicon Pretoria in 1999 with a National Diploma in Nature Conservation. He worked as a Socio-Ecologist for SANParks and as Project Manager for the Department of Marine and Coastal Management. He started working as an environmental practitioner in 2002. His focus is currently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

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

email: dale@cape-eaprac.co.za

Siân Holder - Consultant / ECO



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

email: sian@cape-eaprac.co.za

Carin Naudé

Business Administrator

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

email: carin@cape-eaprac.co.za

Louise-Mari van Zyl

Director / Principal Environmental Practitioner

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

email: louise@cape-eaprac.co.za

Mariska Byleveld

Candidate Environmental Practitioner

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

email: mariska@cape-eaprac.co.za

Francois Byleveld

Candidate Environmental Practitioner

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

email: francois@cape-eaprac.co.za

On-Site ECOs

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

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

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

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

Louise-Mari van Zyl

2023

17 Progress Street, George
PO Box 2070, George, 6530
Tel- 044 8740365
Cell – 071 603 4132
Fax – 044 875 0432
louise@cape-eaprac.co.za
www.cape-eaprac.co.za

EDUCATION

University of Stellenbosch

Masters: Geography & Environmental Studies
2006

BA Honours: Geography & Environmental Studies with GIS
2001

BA Geography & Environmental Studies
2000

PROFESSIONAL REGISTRATION

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

PROFESSIONAL SOCIETIES

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

WORK EXPERIENCE

Managing Director | Cape EAPrac, George

2008 – Present

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

2019 – Present

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

2007 - 2008

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

2002 – 2007

CORE COMPETENCIES

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

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

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

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

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

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

PROFFESIONAL PORTFOLIO

ENVIRONMENTAL IMPACT ASSESSMENT, BASIC ASSESSMENT & EMP'S

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

WASTE MANAGEMENT LICENCES

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

WATER RELATED

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

AIR EMISSION LICENSES

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

SECTION 24G RECTIFICATION APPLICATIONS

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

ACADEMIA

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

OTHER

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

Mariska Byleveld

May 2023

17 Progress Street, George
PO Box 2070, George, 6530
Tel: 044 8740365
Cell: 084 503 6587
mariska@cape- eaprac.co.za
www.cape-eaprac.co.za

EDUCATION

Jim Fouché High School
Matric 2013

University of the Free State
MSc Geology 2018 - 2020

BSc Honours Geology 2017

BSc Geology 2014 - 2016

PROFESSIONAL REGISTRATION

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

Registered Scientist at SACNASP (Candidate Natural Scientist)

WORK EXPERIENCE

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

Project Assistant | Cape EAPrac
April 2022 – December 2022

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

Student Assistant | University of the Free State
2016 - 2019

CORE COMPETANCIES

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

PROFESSIONAL PORTFOLIO

ENVIRONMENTAL IMPACT ASSESSMENTS, BASIC ASSESSMENTS & EMPs

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

ENVIRONMENTAL CONTROL & MANAGEMENT (ECO)

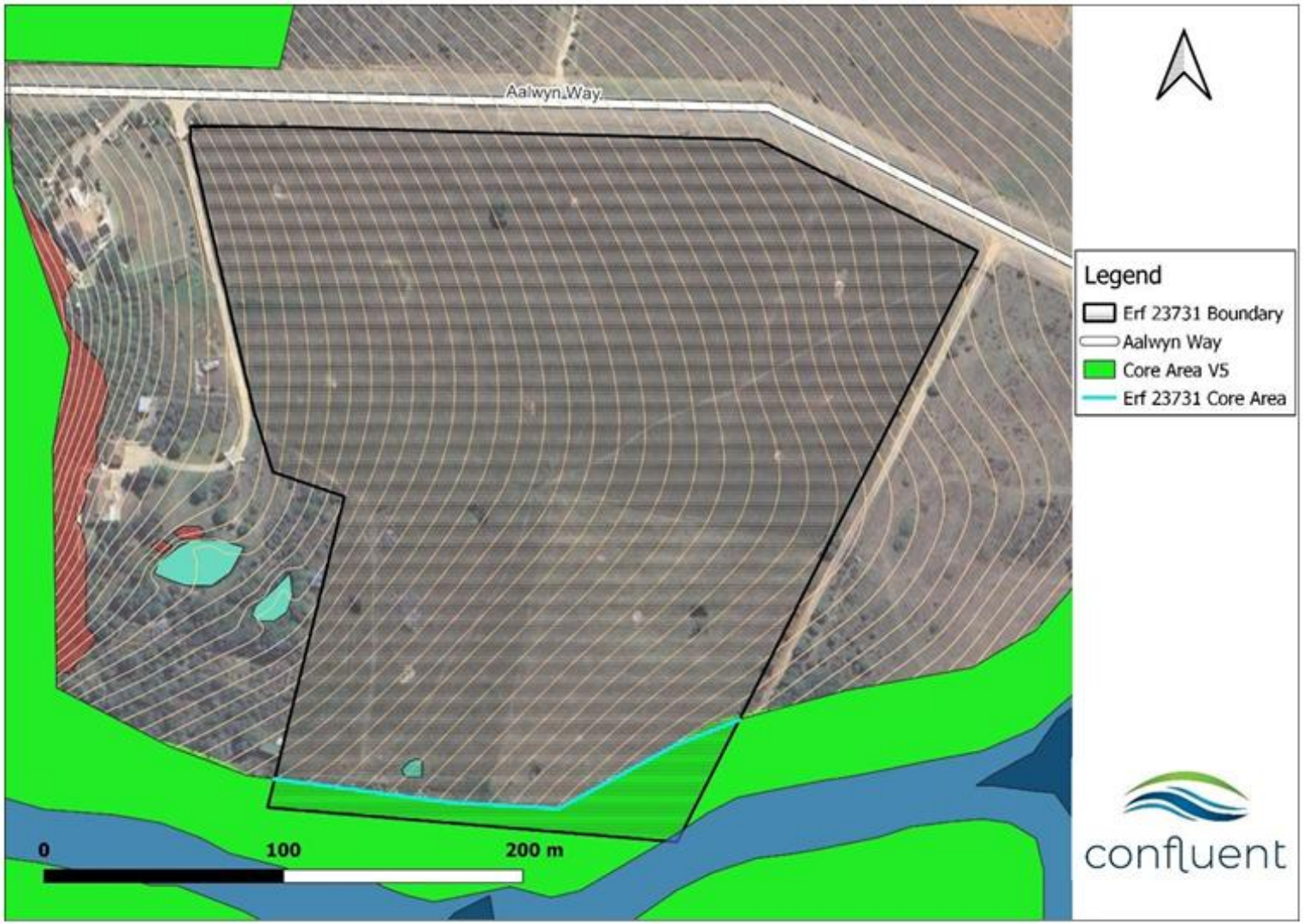
Acting, under supervision, she acts as Environmental Control Officer during the construction of various residential, retail and services development projects and associated infrastructure.

OTHER:

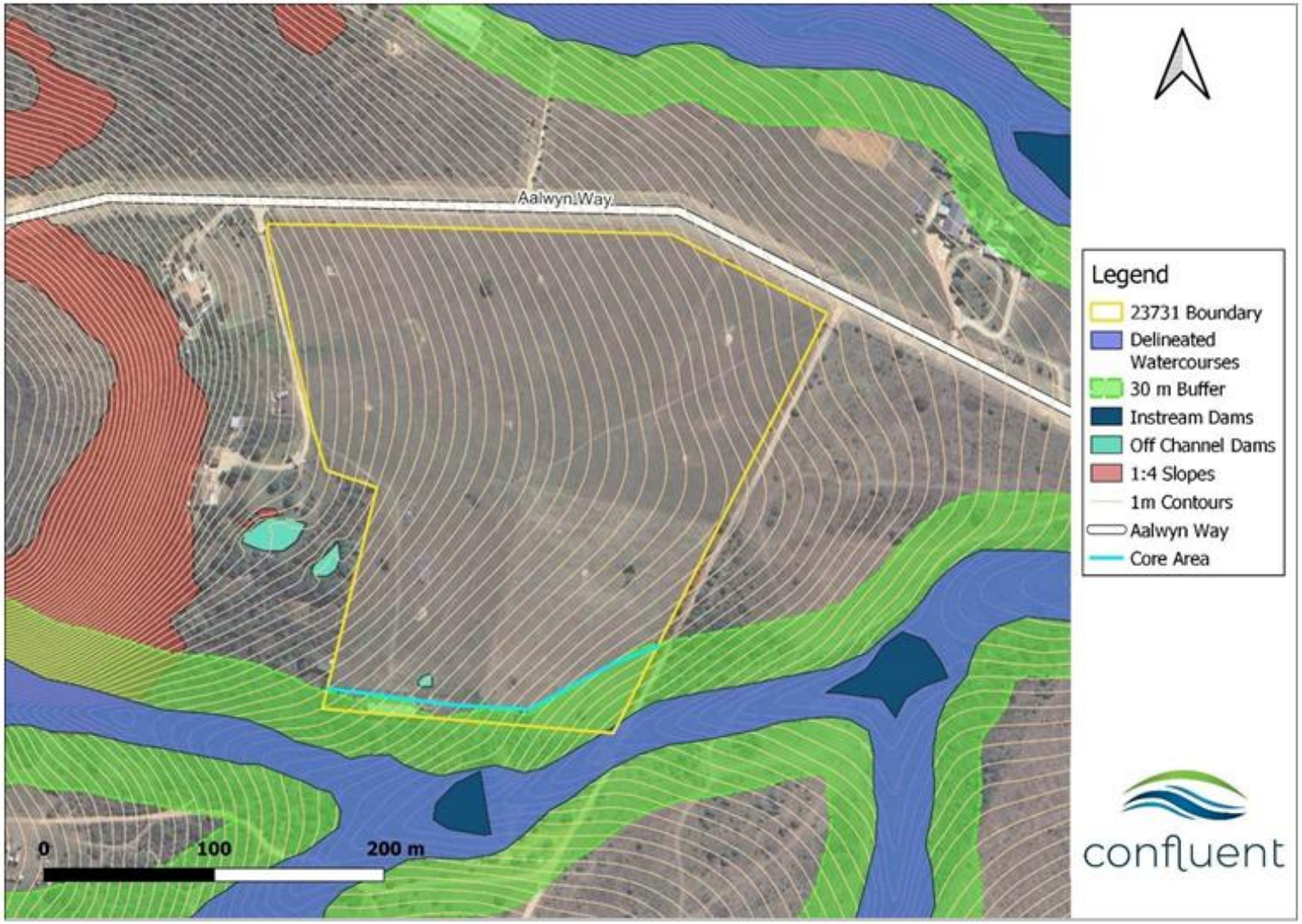
- Geotechnical Investigation
- DCP (Dynamic Cone Penetrometer) testing
- Troxler Nuclear Gauge testing
- Laboratory Management

APPENDIX 6

A small section of a Core Area (a conservation corridor through Aalwyndal) is located along the southern boundary and south-eastern corner of Erf 23731. This area is considered a No-Go Area (excluding stormwater maintenance & alien clearing activities)



The Core Area is aligned with a suitable riparian buffer which aims to protect the watercourse from impacts associated with the housing development.



The section of the Core Area on Erf 23731 will be zoned Open Space III (Conservation)

PROPOSED SUBDIVISION PLAN Erf 23731 Mossel Bay

TECHICAL INFORMATION

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2. The Copyright of this drawing, including the design and details shown herein, is reserved by First Plan.

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2	Conservancy Tanks	CT	11/25

CLIENT: Balu Trust

PLAN NO	FP/0525/1144
DATE	July 2025

A3 = Scale 1:1500
0 10 20 30 40 50

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