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REGISTRATION NO. 1998/031976/23

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DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

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

Proposed Residential Development on Portion 12 (a Portion of Portion 1) of the Farm Uitzigt No. 216, Belvidere, Knysna

DFFE REF: TBC

PREPARED FOR THE APPLICANT:	ZELPY 1825 (PTY) LTD
PREPAPRED BY:	ECO ROUTE ENVIRONMENTAL CONSULTANCY
AUTHOR:	JOCLYN MARSHALL (EAPASA REG 2022/5006)
DATE:	18/05/2023

EAP Signature:

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ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS:

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

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

(a) Details of – (i) The EAP who prepared the EMPr; and (ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae;	This EMPr was prepared by Joclyn Marshall of Eco Route Environmental Consultancy. Please see attached CV of EAP (Annexure A).
(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2 provides specific project details.
(c) a map at an appropriate scale which superimposes the proposed activity, it associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 2 provides mapping which superimpose the proposed activity onto environmentally sensitive areas.
(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	Addressed in Sections 3 and 9.
(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practises;	Addressed in Sections 3 and 9.

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(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Addressed in Section 9.
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6 and 9.
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4 and 9.
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Sections 9.
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 9.
(l) a program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	Section 6.
(m) an environmental awareness plan describing the manner in which – (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 6 and 9.
(n) any specific information that may be required by the competent authority.	Sections 9 and 12.

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Glossary of Terms

BAR	**Basic Assessment Report –** A tool used by the EAP to submit to the competent authority if listed activities is triggered in Regulations GNR 327 and GNR 324 as per NEMA to make a decision regarding a proposed development.
DFFE	**Department Forestry Fisheries and Environment**– the national authority for sustainable environmental management and integrated development planning.
DEA&DP	**Department of Environmental Affairs and Development Planning** – the provincial authority for sustainable environmental management and integrated development planning.
CBA	**CBA Critical Biodiversity Area** – Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
EAP	**Environmental Assessment Practitioner –** An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must – (a) be independent. (b) Have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these regulations and any guidelines that have relevance to the proposed activity. (c) Ensure compliance with these Regulations (d) Perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application. (e) Take into account, to the extent possible, the matters referred to in regulation 18 when preparing the application and any report, plan or document relating to the application; and (f) Disclose to the applicant or applicant, registered and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing – i. Any decision to be taken with respect to the application by the competent authority in terms of these regulations; or ii. The objectivity of any report, plan or document to be prepared by the EAP or specialist, in terms of these Regulations for submission to the competent authority; unless access to that information is protected by law, in which case it must be indicated that such protected information exists and is only provided to the competent authority. (2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the applicant or applicant must, prior to conducting public participation as contemplated in chapter 5 of these regulations, appoint another EAP or specialist to externally review all work undertaken by the EAP or specialist, at the applicants cost. (3) An EAP or specialist appointed to externally review the work of an EAP or specialist as contemplated in sub regulation (2), must comply with sub regulation (1).

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ECO/ESO	**Environmental Control Officer** – A site agent who needs to ensure that all environmental authorisation and conditions are adhered to during the construction phase of the project
EMPr	**Environmental Management Programme –** can be **defined** as "an **environmental management** tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced".
ESA	**Ecological Support Area –** Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of Pas or CBAs, and are often vital for delivering ecosystem services.
MMP	**Maintenance Management Plan –** means a maintenance management plan for maintenance purposes defined and adopted by the competent authority
NEMA	**National Environmental Management Act (Act 107 of 1998) as amended 2017** – national environmental legislation that provides principles for decision-making on matters that affect the environment.
PA	**Protected Area -** A protected area is an area of land or sea that is formally protected by law and managed mainly for biodiversity conservation. Protected areas recognised in the National Environmental Management: Protected Areas Act (Act 57 of 2003) (hereafter referred to as the Protected Areas Act) are considered formal protected areas in the NPAES. This is a narrower definition of protected areas than the International Union for Conservation of Nature (IUCN) definition.1 The NPAES distinguishes between land-based protected areas, which may protect both terrestrial and freshwater biodiversity features, and marine protected areas.

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Contents

1. INTRODUCTION 8
1.1. Purpose of the EMPr 8
1.2. The Polluter-Pays Principle 9
2. PROJECT DETAILS 9
2.1. Site Description 9
2.2. Locality 10
2.3. Vegetation 10
2.4. Ecosystem Threat Status 11
2.5. Critical Biodiversity Areas 12
2.6. Protected Areas 13
2.7. Freshwater Priority Areas 14
2.8. Key Issues 14
3. IMPACTS ASSOCIATED WITH THE PLANNING/DESIGN, CONSTRUCTION AND OPERATION OF THE ACTIVITY 15
3.1. Assessment Criteria 15
3.3. Impacts foreseen during the Operational Phase: 24
4. LEGISLATIVE REQUIREMENTS 28
4.1 Signing of the EMPr 28
4.2. Legislation 28
4.3. Project Responsibilities 29
5. REPORTING PROCEDURES 30
5.1. Documentation 30
5.2. Environmental Register 31
5.3. Non-Conformance Report 31
5.4. Emergency Response 31
6. COMPLIANCE WITH THE EMPr 32
6.1 Monitoring and Compliance 32
6.2 Auditing Process 32
6.3 Non-Compliance 33
6.4 Issuing a Non-Compliance 33
6.5 Process of Issuing Non-Compliance 33
6.6 Failure to complete corrective actions 34
6.7 Unlawful Activity/ies 34
7. AMENDMENTS TO THE EMPr 34
8. ENFORCING THE EMPr 35

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9. ENVIRONMENTAL MANAGEMENT PROGRAMME 36
9.1 CONSTRUCTION PHASE 36
9.2. OPERATIONAL PHASE 46
9.3. REHABILITATION AND MAINTENANCE 50
10. ALIEN PLANT CONTROL PROGRAMME 51
11. STAFF CONDUCT CONTROL AND INFORMATION SHEET 59
12. RESPONSIBILITIES 60
Annexure A: CV of the EAP 62
Annexure B: TRAINING REGISTER 65
Annexure C: INCEDENCE REPORTING 66
Annexure D: COMPLAINTS REGISTER 68

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1. INTRODUCTION

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

Section 28 of NEMA (National Environmental Management Act, Act 107 of 1998) states that:
Duty of care and remediation of environmental damage -
"(1) Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment".

This EMPr must be read in conjunction with the Environmental Impact Assessment Report dated October 2022 and the accompanying specialist reports. All recommendations, relevant conditions and mitigation measures provided in these documents must also be adhered to.

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

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

1.1. Purpose of the EMPr

The purpose of this EMPr is to ensure that the negative environmental impacts of the proposed activities are managed, mitigatedand kept to a minimum during the planning, construction and operation of the proposed housing development. The EMPr focuses on avoiding damage or loss on ecosystems and the services they provide, and to enhance positive environmental impacts where possible. The EMPr is a living document that is flexible and responsive to new and changing circumstances, however, should a change be made within the EMPr permission from DFFE must first be obtained. Once the EMPr is approved by DFFE it is seen as a legal binding document on the following affected parties:

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

Copies of this EMPr must be kept on site and all senior personnel are expected to familiarise themselves with the content of this EMPr.

It is suggested that the EMPr be reviewed on a 5 yearly basis if required. Should any amendments need to be made during operational phase, written authorisation should be obtained from DFFE.

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1.2. The Polluter-Pays Principle

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

2. PROJECT DETAILS

Eco Route Environmental Consultancy has been appointed by the applicant **Zelpy 1825 (Pty) Ltd** to prepare an Environmental Management Programme (EMPr) in compliance with the Basic Assessment Report Conditions set by Department of Forestry, Fisheries, and the Environment (DFFE), for Environmental Authorisation.

Portion 12 (a Portion of Portion 1) of the Farm Uitzigt No 216 is located in Belvidere (Knysna Municipality) and is ±9584m² in extent. The property is currently vacant with only ruins on the property, after the Knysna Fires in 2017. It is currently zoned 'Agricultural Zone I' in terms of the Knysna Municipality: Zoning Scheme By-law.

During 2004, the Department of Forestry, Fisheries and the Environment (DFFE) issued an Environmental Authorisation (Appendix F) for 18 residential units. The authorised activities did not commence lawfully before the lapsing date, and therefore the Environmental Authorisation lapsed. No Land Development Application was ever lodged. The owners of the property wish to apply for development rights on the property in order to allow a group housing development consisting of 30 freehold title group housing units. The development of the proposed new group housing development will require Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), as well as a land development approval from Knysna Municipality in terms of the Knysna Municipality By-Law on Municipal Land Use Planning (2016).

The proposed group housing development will consist of thirty (30) freehold title group housing erven, and one (1) private open space / private street property, as indicated on the Site Development Plan (Appendix B1). The development will have access off the Upper Duthie Drive, via a new right of way servitude of 13m wide, over Erf 328 Belvidere, along the eastern boundary of Erf 328, that has been approved by the Knysna Council. The proposed development will have access control. Erf sizes of the proposed group housing development will vary between 195m² and 300m². The density of the proposed development calculates to 31 units/ha.

2.1. Site Description

Erf Number:	Portion 12 (a portion of portion 1) of the Farm Uitzigt 216
Area:	0.96 Ha
SG Code:	C03900000000021600012
Co-ordinates:	34°02'42.6"S 22°59'35.7"E
Local Municipality	Knysna Municipality
District Municipality	Garden Route District Municipality

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2.2. Locality

2.3. Vegetation

Vegetation Type: Garden Route Shale Fynbos (FFd 10)

Distribution Western Cape Province: Garden Route coastal flats from Wilderness, generally to the north of the system of lakes, several patches around the Knysna Lagoon, with more isolated patches eastwards to the Robberg peninsula near Plettenberg Bay. Altitude 40–300 m.

Vegetation & Landscape Features Undulating hills and moderately undulating plains covered with a dense, moderately tall, microphyllous shrubland, dominated by species more typical of sandstone fynbos.

Geology & Soils Deep, acid Tertiary sand inland of coastal dunes forming regic sands and soils of Lamotte form. Land types mainly Hb and Ga.

Climate MAP 670–1 090 mm (mean: 850 mm), with a slight peak in autumn and spring. Mean daily maximum and minimum temperatures 27.3°C and 7.3°C for February and July, respectively. Frost incidence 2 or 3 days per year. See also climate diagram for FFd 10 Knysna Sand Fynbos (Figure 4.57).

Important Taxa Small Tree: *Widdringtonia nodiflora*. Tall Shrubs: *Cliffortia linearifolia*, *Leucadendron eucalyptifolium*, *Metalasia densa*, *Passerina corymbosa*. Low Shrubs: *Anthospermum aethiopicum*, *Berzelia intermedia*, *Cliffortia drepanoides*, *Clutia rubricaulis*, *Erica diaphana*, *E. glandulosa* subsp. *fourcadei*, *E. glumiflora*, *E. sessiliflora*, *Helichrysum asperum* var. *asperum*, *Lachnaea diosmoides*, *Leucadendron salignum*,

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Leucospermum cuneiforme, *Lobelia coronopifolia*, *Morella quercifolia*, *Muraltia squarrosa*, *Oedera imbricata*, *Protea cynaroides*, *Stoebe plumosa*, *Tephrosia capensis*. Herbs: *Geranium incanum*, *Helichrysum felinum*. Graminoids: *Aristida junciformis* subsp. *galpinii*, *Brachiaria serrata*, *Cynodon dactylon*, *Eragrostis capensis*, *Ficinia bulbosa*, *Heteropogon contortus*, *Ischyrolepis eleocharis*, *Tetraria cuspidata*, *Thamnochortus cinereus*, *Themeda triandra*, *Tristachya leucothrix*.

Conservation Endangered. Target 23%. Patches are statutorily conserved in the proposed Garden Route National Park (about 3%) as well as 2% in several private nature reserves. Almost 70% already transformed (pine and gum plantations, cultivation, Knysna urban sprawl, building of roads). Alien *Acacia melanoxylon*, *A. mearnsii* and *A. longifolia* occur locally at low densities. Erosion very low and moderate.

Remark This is a very poorly researched vegetation unit.

References Taylor (1970b), Drews (1980a).

Figure 1: Vegetation Type (SA VegMap 2018).

2.4. Ecosystem Threat Status

The property is within a Critically Endangered Ecosystem Threat Status. The Ecosystem Threat Status, as per the Western Cape Biodiversity Spatial Plan 2017, reflects the current threat status of ecosystems in the Western Cape Province, especially in terms of habitat loss. Ecosystems are based on the SA Vegetation Map (2012 version) and relevant indigenous forest types (DAFF, 2010), as per the national approach to assessing ecosystem threat.

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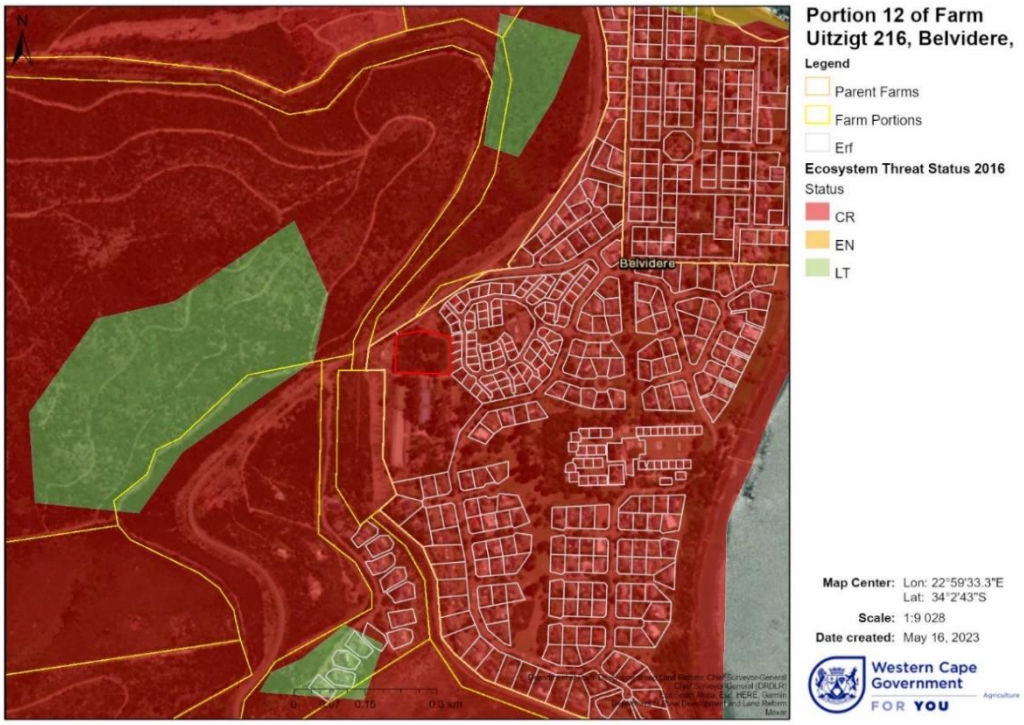

Figure 2: Ecosystem Threat Status.

2.5. Critical Biodiversity Areas

The site is not within a Critical Biodiversity Area (CBA), but a small portion on the western boundary is within a ESA2 (restore from plantation or high-density IAP) (figure 3). The objective of the ESA2 is to restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement. The small portion of ESA2 will be incorporated into a narrow buffer between the western boundary and the development. However, this will not realistically contribute to objectives of the ESA2 given its small area within the property, and the impacts on faunal movement that already exist in the landscape due to surrounding developments.

Ecological Support Areas (Res)	
Feature:	River
Category 1:	ESA2: Restore from plantation or high density IAP
Definition:	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.
Objective:	Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.

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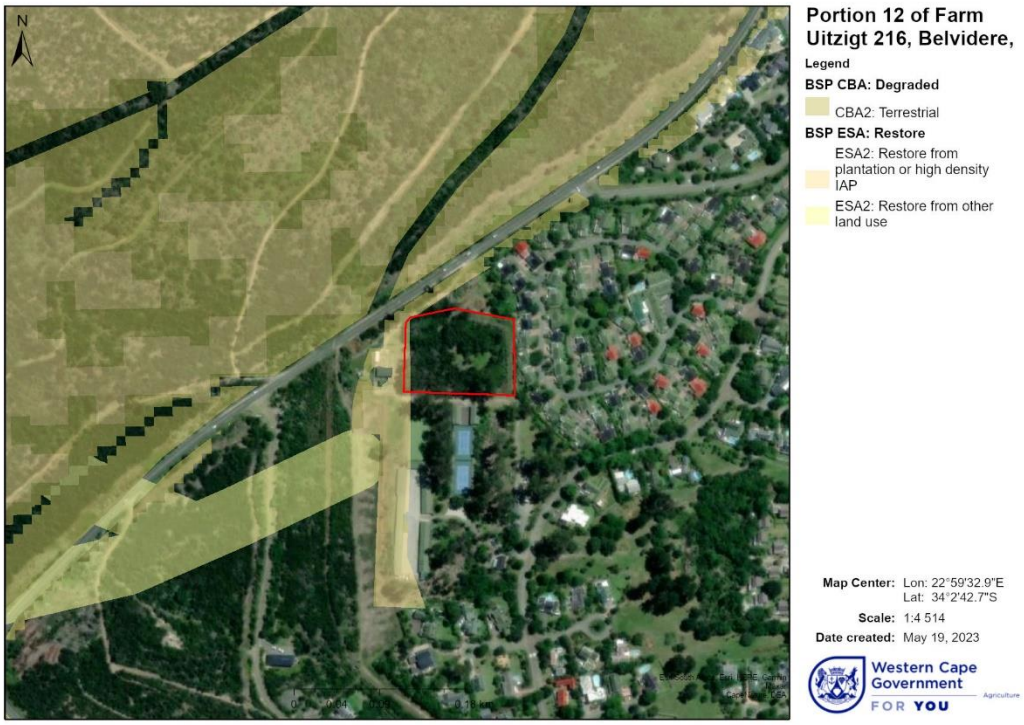

Figure 3: Ecological Support Area (Res).

2.6. Protected Areas

As per Cape Farm Mapper ver 2.1.3 the property falls within the Knysna National Lakes area.

Figure 4: Knysna National Lakes Area.

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2.7. Freshwater Priority Areas

There are no aquatic features on the site.

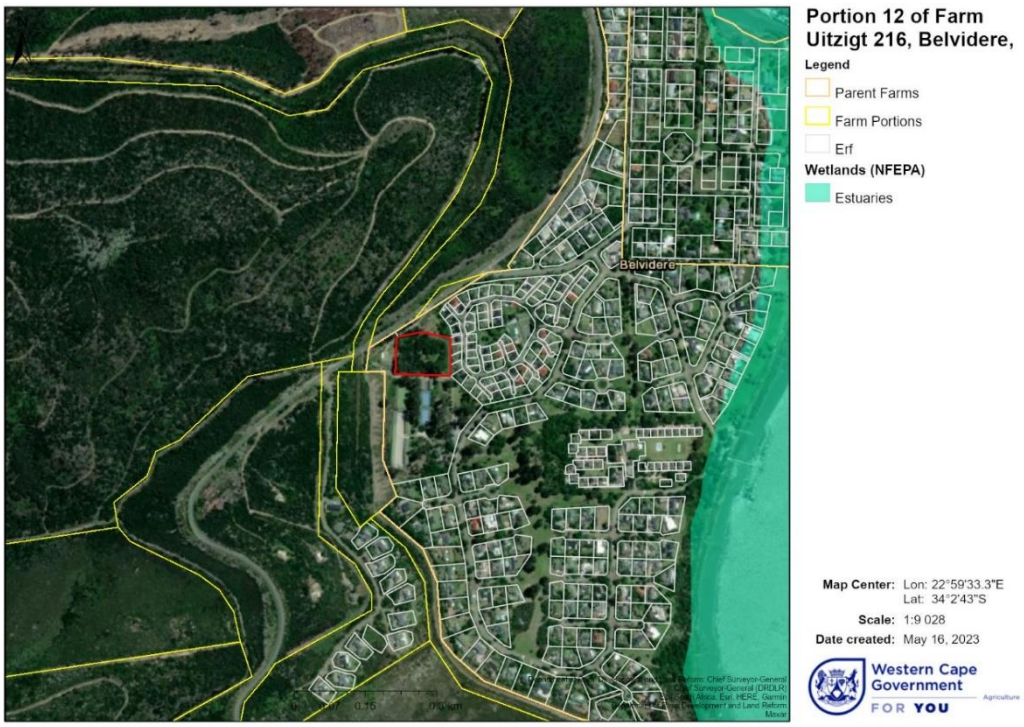

Figure 5: Freshwater Priority Areas.

2.8. Key Issues

These are issues of importance and should be addressed during the Construction and Development Phases as well as the future management of the property and included in the *Home Owners / Resident and Rate Payers Constitutions*.

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

- **Clearance of vegetation:** habitat loss for terrestrial wildlife may result from the removal of vegetation. No loss of natural vegetation is expected to occur.
- **Stormwater management:** Sustainable Drainage Systems (SuDS) should be implemented. The system should lead run off water away from sensitive areas, in order to prevent soil erosion and contamination. The use of grass blocks on paved driveways, and suitably shaped roads with kerbing must assist percolations of stormwater.
- **Stormwater runoff:** without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.
- **Disturbance of topsoil:** removal of topsoil must only be allowed in the disturbance area and undertaken prior to commencement of construction activities and stored for later use during the

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Rehabilitation Phase of the development. The layout of the units has been designed to be terraced with the slope in order to minimise unnecessary earth works and excavations.

- **Erosion:** the removal of organic rich topsoil and disturbance of vegetation during construction may result in erosion. Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. The disturbed open space areas must be rehabilitated with indigenous vegetation.
- **Alien plant infestation**: an ongoing alien invasive management programme should take place on site.
- **Waste Pollution:** construction activities are likely to generate significant quantities of solid waste that could pollute natural areas. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could pollute the environment.
- **Fire risk**: the removal of the alien vegetation will mitigate fire risk to a large extent. There must be well-placed/planned defensible spaces around the structures/houses which will offer additional structural protection against possible wildfires moving into the development. These defensible spaces should be properly maintained. Highly burnable vegetation or flammable material should not be present within these defensible spaces. The road network within the development will also limit any spread of fires within the proposed development. It cannot be expected landowners/homeowners to make provision for extreme wildfire events.
- **Visual impacts**: visual impacts of structures and aesthetic consequences where design guidelines are not adhered to. Open spaces and a wide private road are incorporated into the design to enhance the quality of the neighbourhood.

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

3.1. Assessment Criteria

The criteria are based on the EIA Regulations, published by the Department of Forestry, Fisheries and the Environment (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989.These criteria include:

Nature of the impact
This is an estimation of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

Extent of the impact
Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

Duration of the impact
The specialist should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long term (16-30 years) or permanent.

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Intensity

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

Probability of occurrence

The specialist should describe the probability of the impact actually occurring and should be described as improbable/unlikely (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

Reversibility

- Completely reversible – the impact can be reversed with the implementation of minor mitigation measures.
- Partly reversible – the impact is reversible but more intense mitigation measures are required
- Barely reversible – the impact is unlikely to be reversed even with intense mitigation measures
- Irreversible – the impact is irreversible, and no mitigation measures exist

Irreplaceable loss of resources

Describes the degree to which resources will be irreplaceably lost due to the proposed activity. It can be no loss of resources, marginal loss, significant loss or complete loss of resources.

Cumulative effect

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development. The cumulative effect can be:

- Negligible – the impact would result in negligible to no cumulative effect
- Low – the impact would result in insignificant cumulative effects
- Medium – the impact would result in minor cumulative effects
- High – the impact would result in significant cumulative effects

Significance

Significance of impacts are determined through a synthesis of the assessment criteria and is described as –

- Low negative– where it would have negligible effects and would require little or no mitigation
- Low positive – the impact will have minor positive effects
- Medium negative – the impact will have moderate negative effects and will require moderate mitigation
- Medium positive – the impact will have moderate positive effects
- High negative – the impact will have significant effects and will require significant mitigation measures to achieve an accepted level of impact
- High positive – the impact will have significant positive effects
- Very high negative – the impact will have highly significant effects and are unlikely to be able to be mitigated adequately
- High positive – the impact will have highly significant positive effects.

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3.2. Impacts foreseen during the Construction Phase:

Project Phase	**Construction**			
Impact	**Clearance of vegetation for the construction of the dwelling and associated infrastructure**			
Description of impact	Loss of sensitive vegetation, habitat loss for terrestrial wildlife, mortalities to various species unable to evade the disturbance, loss of viable propagules, fragmentation of ecological infrastructure			
Mitigable	High	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• The removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal. • Laydown areas for construction materials must be contained within the clearing footprint of the proposed development. • Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Very Low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Low	Marginal loss - the resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	No loss of natural resources is expected.			
Cumulative impacts	The impact would result in insignificant cumulative effects			
Project Phase	**Construction**			
Impact	**Disturbance / removal of topsoil**			
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		

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Potential mitigation	• Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so may result in erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth. • Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. • The stockpiling of topsoil for use in rehabilitation is required. • Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed. • Soil disturbance during the removal of alien invasive plants must be minimised as much as possible. • The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms on steeper areas. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Negligible - negative**		**Minor - negative**	
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			
Cumulative impacts	Without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.			

Project Phase	**Construction**	
Impact	**Stormwater runoff and erosion**	
Description of impact	Erosion from exposed surfaces / earthworks for installation of services, roadways, and foundations.	
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts
Potential mitigation	• Adequate drainage and erosion protection must be provided around the site and where necessary.	

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	• Erosion prevention and control measures must be implemented. This may be by the use of mulch bags or silt fences. • Pipelines to be placed in consultation with and to recommendations of the ECO. • Install a series of berms across the internal access road to retard flow from higher areas. • Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place. • Install permeable paving (e.g. grass blocks) in parking areas / driveways as this encourages water infiltration instead of surface runoff. • Revegetate all bare areas of soil post-construction with indigenous vegetation.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Negligible - negative**		**Minor - negative**	
Comment on significance	The layout of the units has been designed to be terraced with the slope in order to minimise unnecessary earth works and excavations.			
Cumulative impacts	Without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.			

Project Phase	**Construction**	
Impact	**Waste Pollution**	
Description of impact	Pollution caused by waste generated by the construction process.	
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts
Potential mitigation	• All construction waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported. • All construction waste materials must be collected and disposed of at a suitable waste facility. • No dumping of construction material within the site and surrounding areas may take place. • The site must be monitored on a weekly basis to clean-up any waste that may have been blown from the construction site.	

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	• Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Negligible - negative**		**Negligible - negative**	
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute natural areas. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could pollute the environment.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	**Construction**			
Impact	**Construction Vehicles**			
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	• Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance the surrounding environment. • No vehicles are to park or operate within "no-go" areas. • Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site. • Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. • The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year

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Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Negligible - negative**		**Negligible - negative**	
Comment on significance	Operation of vehicles could result in spillages or leaks of hydrocarbons (fuel and oil) and could lead to unnecessary disturbance of natural areas.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	**Construction**			
Impact	**Noise pollution**			
Description of impact	Noise caused by machinery and staff			
Mitigable	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	• Construction activities must only take place during normal working times between 07:00-17:00 on weekdays. • Machinery may be fitted with silences to dampen noise. • Staff must be reminded that they are working within a residential area and noise levels must be kept low.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/ or social functions and/ or processes are slightly altered	Negligible	Natural and/ or social functions and/ or processes are negligibly altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur

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Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	Some extent of noise pollution during construction is expected; however, with mitigation the impact will be reduced.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	**Construction**			
Impact	**Visual impact**			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• Architectural Design Guidelines must be followed to mitigate visual impact on the landscape such as colours, heights, disturbance areas, maximum footprint, vegetation, etc. • The necessary measures be implemented during the construction phase to control the noise, dust and visual intrusion. • Implement external lighting restrictions and guidelines.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	The proposal will complement the existing residential character of the area.			

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Cumulative impacts	No cumulative impacts exist.

Project Phase	**Construction**			
Impact	**Employment**			
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities			
Mitigable	Medium	Mitigation only exists to ensure that the positive impact is followed through.		
Potential mitigation	• Use existing social structures and communication channels to ensure social representation. • Use local labour and source local materials as far as possible.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Positive	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Not relevant		Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	**Negligible - negative**		**Negligible - positive**	
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impacts between without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.			
Cumulative impacts	Minor upliftment for the local community.			

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3.3. Impacts foreseen during the Operational Phase:

Project Phase	**Operation**			
Impact	**Visual / Sense of place**			
Description of impact	Visual impacts of structures / aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• Municipal by-laws need to be adhered to. • Re-vegetation and Landscaping of open space areas with suitable indigenous vegetation. • Systematic removal and follow-up operations of invasive alien plants. • Adhere to Architectural Design Guidelines.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative Low	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours. Open spaces and a wide private road are incorporated into the design to enhance the quality of the neighbourhood.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			

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Project Phase	**Operation**			
Impact	**Stormwater Management**			
Description of impact	Accelerated erosion / pollution into sub-surface water.			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• The storm water drainage system must be adhered to, and the system should lead runoff water away from sensitive areas to prevent soil erosion. • Use rainwater collection tanks to serve as a retention vessel in downpours. • Driveways can be constructed from grass blocks to allow for effective retarding of surface flow and facilitate percolation. • Stormwater management should encourage infiltration of water into the soil profile and other on-site attenuation (i.e. using grass pavers etc.).			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	**Negligible - negative**		**Minor - negative**	
Comment on significance	An existing stormwater network is located in Upper Duthie Drive. The stormwater design of the development will make provision for minor and major storms.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase	**Operation**	
Impact	**Eradication of Alien Vegetation**	
Description of impact	Impacts on biodiversity / natural habitats / increased fire risk	
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts
Potential mitigation	• All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.	

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	• Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species. • A suitable planting list of trees and shrubs must be compiled and incorporated into the landscape planning. • Reduce fire hazard on site			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/or social functions and/or processes are slightly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	**Minor - negative**		**Minor - positive**	
Comment on significance	With mitigation the impact is likely to have more beneficial impact on natural biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants.			

Project Phase	**Operation**			
Impact	**Formal gardens**			
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential mitigation	• Areas that are not required for development purposes should remain natural with indigenous vegetation. • All alien invasive plants must be removed from the site on an on-going basis. • Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in favour of locally indigenous plants. • Landscaping must be done with locally occurring indigenous vegetation.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Positive	
Duration	Brief	Impact will not last longer than 1 year	Permanent	Impact may be permanent, or in excess of 20 years

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Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Highly unlikely / None	Expected never to happen	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Not relevant	
Significance	**Negligible - negative**		**Minor - positive**	
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			

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4. LEGISLATIVE REQUIREMENTS

4.1 Signing of the EMPr

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

4.2. Legislation

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

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of the Republic of South Africa. (Act 108 of 1996)	All State and Provincial Departments as well as Local Authorities that have been identified as relevant Competent Authorities.	Relevant Consideration
Environmental Conservation Act (Act 73 of 1989)	Department of Economic Development, Environmental Affairs &Tourism	Relevant Consideration
National Environmental Management Act (Act 107 of 1998)	Department of Economic Development, Environmental Affairs &Tourism	Authorization
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Department of Economic Development, Environmental Affairs &Tourism	Relevant Consideration
National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)	Department of Forestry, Fisheries, and the Environment (DFFE), Branch Oceans & Coasts (O&C)/ Department of Economic Development, Environmental Affairs &Tourism	Comment/ Relevant Consideration
National Environmental Management: Protected Areas Act (Act 57 of 2003)	Department of Economic Development, Environmental Affairs &Tourism	Relevant Consideration
National Water Act (Act 36 of 1998)	Department of Water and Sanitation	Relevant Consideration
Water Services Act (Act 108 of 1997)	Department of Water and Sanitation	Relevant Consideration
Sea Shore Act (Act 21 Of 1935)	Department of Forestry, Fisheries, and the Environment (DFFE),	Relevant Consideration

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	Branch Oceans & Coasts (O&C)/ Department of Economic Development, Environmental Affairs &Tourism	
Conservation Of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture, Forestry and Fisheries	Relevant Consideration
National Heritage Resources Act (Act 25 of 1999)	Eastern Cape Provincial Heritage Resources Authority	Comment/ Relevant Consideration
Outiniqua Sensitive Coastal Area Extension Report (OSCAER)	Knysna Municipality	Permit

4.3. Project Responsibilities

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

The project applicant will be responsible for the following:

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

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

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

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

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

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

5. REPORTING PROCEDURES

5.1. Documentation

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

An Environmental File which includes:

- Copy of the EMPr;
- Copy of the EA;
- Copy of all other licences/permits;
- Environmental Method Statements;
- Non-conformance Reports;
- Environmental register, which shall include:

    - Communications Register – including records of complaints, minutes and attendance registers of all environmental meetings;
    - Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports; and
    - Incident book – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.

- Waste Documentation such as, but not necessarily limited to: Waste Manifest Documents;
- Material Safety Data Sheets (MSDSs) for any hazardous substances; and
- Written Corrective Action Instructions.

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5.2. Environmental Register

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

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

5.3. Non-Conformance Report

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

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

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

5.4. Emergency Response

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

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

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

6. COMPLIANCE WITH THE EMPr

6.1 Monitoring and Compliance

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

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

6.2 Auditing Process

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

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

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

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

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6.3 Non-Compliance

Definition

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

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

Types of non-compliances issued

Two types of non-compliances may be issued:

A. Stop Works Non-Compliance

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

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

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

B. General Non-Compliance

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

6.4 Issuing a Non-Compliance

Non-compliance may be issued to:

- The Applicant
- Any representative of the Applicant

6.5 Process of Issuing Non-Compliance

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

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6.6 Failure to complete corrective actions

In the event that the Applicant fails or refuses to complete the corrective action, either at all or within the allocated timeframe, the ECO shall inform DFFE in writing that a condition of approval for the project is not being met.

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

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

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

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

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

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

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

6.7 Unlawful Activity/ies

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

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

7. AMENDMENTS TO THE EMPr

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

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

8. ENFORCING THE EMPr

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

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

TABLE OF RESPONSIBLE PARTIES BELOW:

Responsibility	Name of Responsible Party
Applicant	**ZELPY 1825 (PTY) LTD**
Environmental Control Officer/ ECO	**(To be appointed)**
Site Manager	**(To be appointed)**

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9. ENVIRONMENTAL MANAGEMENT PROGRAMME

9.1 CONSTRUCTION PHASE

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

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	❖ Erosion control ❖ Dust control ❖ Stockpile and storage areas ❖ Site preparation and construction ❖ Installation of services and roadways ❖ Road upgrade ❖ Solid waste management ❖ Storage of hazardous materials (if applicable) ❖ Standard emergency procedures		construction (if necessary)
	The ECO will monitor the implementation of the statements.	ECO	On-going
Notifying Relevant I&APs	**Notice of Environmental Authorisation (EA)**		
	A written notice must be given to all relevant I&APs notifying them of the EA. The notice must include a date on which the EA was received and the reference number for the EA. Commencement of construction may not begin until 21 days after the notification, provided no appeals have been lodged against the EA.	Applicant	Prior to commencement
Education of Site Staff on General and Environmental Conduct *A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff.*	**Environmental Awareness and Training**		
	All contractors, sub-contractor and delivery personnel will be required to be briefed on the Construction Phase Management Rules (Appended to the EMPr). The main contractor must do these briefings before his staff will be allowed to work on the Estate. The main contractor remains the liable person.	Contractor	Once-off and as required
	Construction staff must be adequately educated by the ECO as to the provisions included in the EMPr, and in terms of general environmentally-friendly practice.	ECO	Once-off and as required
	The ECO must ensure that all staff, and if applicable, Contractors / Sub-contractors / Suppliers / Service Providers are trained on the environmental, occupational safety and/or legal responsibilities expected from them. The training must take into account language and literacy requirements as well as measures to determine the effectiveness of the training. Proof of training must be attached to the ECO's audit reports.		

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Consideration of the implications of the EA and EMPr must form part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language. The induction training will, as a minimum, include the following: ❖ The importance of conformance with all environmental policies; ❖ The environmental impacts, actual or potential, of their work activities; ❖ The environmental benefits of improved personal performance; ❖ Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and ❖ The mitigation measures required to be implemented when carrying out their work activities.		
	All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record.	ECO	Once-off
	Staff, operating equipment, shall be adequately trained and sensitised to any potential hazards associated with their tasks.	Applicant	During staff induction, followed by on-going monitoring
	Translators are to be used where necessary during staff training.	ECO	
	The ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.	ECO	
	Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.	ECO & Applicant	
	All employees must undergo the necessary safety training and wear the necessary protective clothing at all times.		
	No alcohol / drugs to be present on site; no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs.		
	No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).		
	No unsocial behaviour will be permitted.		
	Bringing pets onto site is forbidden.		

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Staff must make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires to be permitted on site.		
	Trespassing on private / commercial properties adjoining the site is forbidden.		
	No worker may be forced to do work that is potentially dangerous or for what he / she is not so trained		
	The staff conduct rules are described in a separate table of rules in the EMPr. This is aimed at providing staff with the basic information regarding worker conduct on site.		
Site Management	**Access**		
	No vehicles may drive onto the adjacent properties and any other no-go areas.	Contractor & Site Manager	On-going
	Noise		
	Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.	Contractor & Site Manager	On-going
	Machinery may be fitted with silences to dampen noise.		
	Staff must be reminded that they are working within a residential area and noise levels must be kept low.		Immediately & on-going
	Visual		
	The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion.	Contractor & Site Manager	On-going
	Appoint a Landscape consultant to recommend and implement the introduction of an indigenous landscape plan to protect the existing indigenous vegetation and to prepare a landscape plan for implementation in the private and common areas.		Immediate
	Implement external lighting restrictions and guidelines.		On-going
	Housekeeping		
	To ensure that the ecological integrity of the surrounding environment is maintained and preserved, the applicant and contractor must ensure that the construction footprint is limited to the construction area. The extent of the construction must be marked out to satisfaction of the engineer and ECO.	Applicant/ Contractor/ Site Manager	On-going

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	The Contractor must restrict all activities, materials, equipment, and personnel within the area specified or restricted activities to areas that are necessary to undertake the work.		
	The Contractor must ensure that materials are appropriately secured to ensure safe passage between destinations, loads including, but not limited to, sandstone chips, fine vegetation or refuse should have appropriate cover to prevent pollution of adjacent properties.		
	The applicant will be held responsible for any clean-up in the 'no-go' and buffer areas resulting from failure by the contractors or suppliers to properly secure material.		
	Adequate drainage and erosion protection must be provided around the site and where necessary.		
	Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust. Alternatively, a binding product such as Dustex (supplied by Patch Industrial Supplies) could be used.		
	Construction Vehicles		
	No vehicles are to park or operate within "no-go" areas.	Contractor & Site Manager	Immediately & on-going
	Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site		
	No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed near natural spring and dam.		
	Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones.		
	The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.		
Sewage and Sanitation	**Ablutions**		
	Contractors must make adequate provision for drinkable water and temporary toilets situated on the building site for the use of their employees until such time	Contractor & Site Manager	Immediately & on-going

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

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Storm water control must be undertaken to prevent soil loss and erosion impacts from the site.		
	Erosion prevention and control measures must be implemented. This may be by the use of mulch bags or silt fences. The engineer must provide a method statement for site specific erosion methods.		
	Provision shall be made for storm water management measures that will ensure effective run-off control and prevent erosion at run-off points.		
	Continuous monitoring for evidence of erosion must be undertaken around the site.		
	The stockpiling of topsoil for use in rehabilitation is required		
	Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.		
	The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.		
	Installation of services and roadways		
	Topsoil removed for trenching along the route for installation of services to be stockpiled and replaced as the final compacted layer.	Site Manager / Contractor & ECO	During service installation
	Pipelines to be placed in consultation with and to recommendations of the ECO.		
	Regular compaction tests to be done to ensure adequate soil compaction in pipeline trenches.		Following completion installation of services
	Install a series of berms across the internal roads to retard flow from higher areas.	Site Manager & Contractor	Throughout the duration of the project
Conservation of the Natural Environment	**Clearing of vegetation**		
	Prior to the commencement of clearing the proposed building site, the contractor must undertake vegetation search-and-rescue on the site. This	Site Manager,	Immediately

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	operation is a legal requirement to ensure that any endangered vegetation species is transplanted prior to work commencing on the erf.	Contractor & ECO	
	Areas which are identified by the Environmental Control Officer (ECO) as being ecologically sensitive on or adjacent to the site are to be suitably demarcated to prevent damage by construction practices. These areas are to be recognised as "no-go" areas.		
	Indigenous vegetation that is removed is to be replanted either back to the point from which it was taken or must be replaced by new relevant indigenous vegetation.		
	Access by heavy machinery should be limited on the site.	Site Manager & Contractor	Immediate and On-going
	Laydown areas for construction materials must be contained within the clearing footprint of the proposed development.		
	Fauna and Flora		
	All alien invasive plant species must be continuously removed around the site. The best way to do this is to remove the plants from the roots by hand and leave the plants in the sun to dry out and die before disposal.	Site Manager & Contractor	On-going
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.		
	If any trees need to be removed or pruned then a permit is required, according to the National Forests Act.		Immediately
Waste Management	**On-Site Waste Management**		
	The excavation and use of rubbish pits is forbidden.	Site Manager & Contractor	On-going
	Burning of waste is forbidden. *A possible exception to this may be that the alien invasive vegetation which is removed from the site should be burned to prevent the spread of the plants. The transportation of Alien Invasive Plants is strictly forbidden in terms of the Conservation of Agricultural Resources Act (CARA), especially if in seed; unless stored in a completely sealed container.*		On-going and monitored weekly
	Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day.		On-going monitoring
	An adequate number of general waste bins must be arranged around the site to collect all domestic refuse, and to minimise littering.		

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Solid waste must be managed and separated into recyclable and non-recyclable and disposed of accordingly.		
	Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation).		
	The contractor must make adequate provision for removal of building rubble and excess material. No material or building rubble will be spoiled on the property. Stockpiling of sand to be completely covered with netting or hessian.		
	No dumping of construction material within natural areas or buffer zones may take place.		
	The buffer and "no-go" areas must be monitored on a weekly basis to clean-up any waste that may have been blown from the construction site.		Weekly
	Waste must be removed from the site on a weekly basis.		
Handling of Hazardous Materials (if necessary)	**Hazardous Materials**		
	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.	Site Manager & Contractor	On-going
	Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.		
	The mixing of cement must be done on Rhino board.		
	All empty contaminated containers must be stored within a hazardous bunded area until collection by a reputable hazardous waste collection company. Waybills must be presented to the ECO for review and filing purposes.		
	No vehicles transporting hazardous materials to the site may be washed on or near site. They must return to the supplier of such material to be cleaned out.		
Cultural Environment	**Archaeology and Artefacts**		
	No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Heritage Western Cape.		Immediate and On-going

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	If any archaeological sites/materials are exposed, mitigation regarding the finds must be conducted with the Heritage Western Cape regarding the destiny of the material. Examples of heritage resources are as follow: • Human remains • Coins/Gold/Silver • Fossils • Fossils shell middens/ marine shell heaps • Pottery/ceramics	Site Manager & Contractor	
	If Heritage Western Cape agrees to the removal of the material, an archaeologist must apply for a permit to scientifically excavate/collect the material.		
	All costs must be financed by the applicant. This may include: All monitoring and mitigation expenses regarding the excavations/collecting of material, travel, accommodation and subsistence, analysis of the material, radiocarbon date(s) of the site(s) and a one-off curation/storage fee payable to the Western Cape Repository for Archaeological material.		
Safety and Security	**Safety and Security On-Site**		
	Material stockpiles or stacks must be stable and well secured to avoid collapse and possible injury to site workers / local residents.	Site Manager & Contractor	On-going
	Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.		
	No unauthorised person may be permitted to enter the site without prior permission of the site manager.		
	Fire Management		
	Firefighting equipment should be present on site at all times as per Occupational Health and Safety Act.		On-going

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	No fires will be allowed on any part of the property including the building site. Fire extinguishers are required to be on all sites at all times.	Site Manager & Contractor	
	All project staff must be trained in fire hazard control and firefighting techniques and know the proper procedure in case of a fire occurring on site.		
	All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.		
	No open fires will be allowed on site.		
	Smoking must not be permitted in areas considered to be a fire hazard.		

9.2. OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation	**Vegetation**		
	All disturbed areas, or areas which have been disturbed for the purpose of the development, are to be re-vegetated. This will aid in preventing erosion within the site. A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site.	Contractor & ECO	Project completion
	Erosion prevention and control measures must be implemented. Organic mulch or sand bags must be used to contain all sediment and prevent erosion during rehabilitation.	Contractor	Rehabilitation
	All rehabilitated areas must be maintained through weekly inspections until an acceptable success rate has been achieved.	Contractor & ECO	Post Construction/ Weekly
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. This would need to be undertaken by the ECO or a designated specialist.	Site Manager / Contractor & ECO	Project completion and Maintenance

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Landscaping		
	Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in their garden areas in favour of locally indigenous plants.	Site Manager & Contractor	Project completion
	All disturbed open space areas are to be rehabilitated using locally occurring indigenous vegetation.		
	Prepare a landscape plan for implementation in the private and common areas.		Project completion and Maintenance
Alien Invasive Plants	**Alien plant eradication**		
	All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species. Section 11 details methods for Alien Invasive Plant Control.	ECO & Site Manager	Immediate and On-going
	An Alien Invasive Plant Control Plan must be implemented, as encroachment of alien vegetation may increase as a result of the construction process disturbances.		
	Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.		
	The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.		
Land Rehabilitation	**Land**		
	Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	Contractor & ECO	Project completion
	Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited.	Contractor	Project completion
	The site is to be cleared of all litter.	Site Manager & Contractor	Project completion and Maintenance

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Areas that are disturbed through building activities (such as the excavations for sewerage pipelines) should be suitably rehabilitated without delay. Failure to do so may result in erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth. Use complete cover of locally chipped woody material (for example Acacia cyclops stems and branches but not the seed pods).	Contractor	Progressive rehabilitation and on Project completion
Removal and Repair of Materials and Infrastructure	**Materials and Infrastructure**		
	All material used for the construction must be removed from site after construction.	Contractor	Project completion
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.		
	Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the ECO.		
	All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.		
Stormwater Management	**Increased stormwater runoff**		
	The storm water drainage system must be adhered to, and the system should lead runoff water away from sensitive areas to prevent soil erosion.	Contractor	Project completion
	Use rainwater collection tanks to serve as a retention vessel in downpours.		
	Stormwater management must encourage infiltration of water into the soil profile and other onsite attenuation through the use of grass pavers etc.		
Waste	**Removal of Hazardous and Non-Hazardous Waste**		
	All hazardous materials and containers must be collected by a reputable hazardous waste collection company and disposed of appropriately.	Contractor	Project completion
	Collection and disposal of non-hazardous waste to a registered landfill site must occur at least once a week.	Site Manager	During Operational phase
	Residents must be made aware of the dangers that accompany the irresponsible use of harmful chemicals.		
Fire Management	**Fire Regulations**		
	No burning of vegetation to be permitted.	Site Manager	On-going
	Ensure that no refuse waste is buried or burnt on the site or surrounds.		
	Smoking must not be permitted in areas considered to be a fire hazard.		

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Undeveloped areas must be managed so that they do not pose a fire risk.		
	Fire Management Plan		
	The Southern Cape Fire Protection Association must be consulted regarding firebreaks, and fire management for the property in case of wildfires. The responsibilities of people in control of land - All owners on whose land a veldfire may start or burn or from whose land it may spread must: • prepare firebreaks on their side of the boundary if there is a reasonable risk of veldfire • have such equipment, protective clothing and trained personnel for extinguishing fires as are: prescribed (in the regulations) • If there are no regulations, reasonably required in the circumstances take all reasonable steps to notify the FPO of the local FPA (if there is one) when a fire breaks out do everything in their power to stop the spread of the fire. The Act also requires that if the owner is absent, he or she must have a responsible person present on or nearby his or her land to: • extinguish a fire if one broke out, or assist others to do so. • take all reasonable steps to alert the neighbours and the FPA (if there is one). • The owner may appoint an agent to act on his or her behalf to perform these duties.	Site Manager	During Operational phase
	Implement regulations/rules around "braai" fires /open flame fires especially when high fire danger weather conditions are predicted.		
	Ensure that access roads are kept clear in order for firefighting vehicles to have unobstructed access to the structures/houses.		
	Work collaboratively with local authorities to develop an emergency preparedness plan that outlines the steps to take in the event of a fire. The plan should include protocols for notification, evacuation, and communication with local authorities.		

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Activity	Management / Mitigation	Responsibility	Frequency / Timing
	The goal of the management plan should be to prevent wildfires from starting and spreading within the development and to minimize the impact of any fires that do occur.		
	Residents, security guards, and estate manager must report any sign of smoke or a vegetation fire immediately to their local Municipal Fire and Rescue Services.		

9.3. REHABILITATION AND MAINTENANCE

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

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation	**Vegetation**		
	A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site.	Applicant, Site Manager & ECO	On-going site maintenance
	Erosion prevention and control measures must be fully implemented (if necessary).		
	All rehabilitated areas must be maintained through weekly inspections until an acceptable success rate has been achieved (if applicable), as determined by the ECO.		
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation.		
Stormwater Management	**Stormwater**		
	Any negative stormwater effects, related to the operational phase, must be remediated.	Applicant & Site Manager	On-going site maintenance
	On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project.		

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10. ALIEN PLANT CONTROL PROGRAMME

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

10.1. INTRODUCTION

Benefits of control

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

Important factors influencing the effectiveness of a control programme

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

Requirements for an effective alien vegetation control programme

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

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

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

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10.2. LEGISLATION

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

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

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

The Conservation of Agricultural Resources Act, No 43 0f 1983 (CARA) was passed to protect soil, water resources and vegetation. This included measures to manage and control weeds and invader vegetation species. The CARA regulations declare several species of "weeds" or "invader plants." These species have been divided into three categories:

Category 1a Listed Invasive Species:

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

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

(a) comply with the provisions of section 73(2) of the NEMBA;

(b) immediately take steps to combat or eradicate listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA; and

(c) allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species.

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

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Category 1b Listed Invasive Species:

1) Category 1b Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the NEMBA as species which must be controlled.

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

(a) control the listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA.

(b) must allow an authorised official from the Department to enter onto the land to monitor, assist with or implement the control of the listed invasive species, or compliance with the Invasive Species Management Programme contemplated in section 75(4) of NEMBA.

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

Category 2 Listed Invasive Species:

1) Category 2 Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the NEMBA as species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be.

2) Unless otherwise indicated in the Notice, no person may carry out a restricted activity in respect of a Category 2 Listed Invasive Species without a permit.

3) A landowner on whose land Category 2 Listed Invasive Species occurs or person in possession of a permit, must ensure that the specimens of the species do not spread outside of the land or the area specified in the Notice or permit.

4) Unless otherwise specified in the Notice, any species listed as Category 2 Listed Invasive Species that occurs outside the specified area contemplated in sub-regulation (1), must, for purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to Regulation 3 above.

5) Notwithstanding the specific exemptions relating to existing plantations in respect of Listed Invasive Plant Species published in *Government Gazette* No. 37886, Notice 599 of 1 August 2014 (as amended), any person or organ of state must ensure that the specimens of such Listed Invasive Plant Species do not spread outside of the land over which they have control.

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

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Category 3 Listed Invasive Species:

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

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

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

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

10.3. Ways to Eradicate Invasive Alien Plants

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

Step 1

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

Step 2

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

10.3.1. Managing IAP Invasions

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

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

- **Prevention**

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

- **Early identification and eradication**

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

- **Containment, control, and suppression**

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

10.3.2. Mechanical Methods

- ***Hand-pulling***

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

- ***Up-rooting***

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

- ***Lasso & Winch***

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

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- ***Cutting / Slashing***

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

- ***Ring-barking***

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

- ***Strip-barking***

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

- ***Frilling / Girdling***

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

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

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

The effectiveness of both girdling and frilling can be increased by using herbicides. With frilling and girdling, water soluble forms of herbicides are most commonly used to get maximum movement of

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

10.3.3. Chemical Methods

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

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

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

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

10.3.4. Biological Control

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

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

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10.4. Environmental Safety

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

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

10.4.1. Disposal of IAP Vegetation

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

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11. STAFF CONDUCT CONTROL AND INFORMATION SHEET

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

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12. RESPONSIBILITIES

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

FUNCTION	RESPONSIBILITY
Applicant	• The Applicant is ultimately responsible for the ensuring compliance with all the requirements associated with the construction, operation, rehabilitation and decommissioning phases of the project.
Site Manager	• The Site Manager is responsible to ensure that all necessary communication and submission of required documentation concerning this project is submitted to the relevant authorities. • The site manager is required to adhere to the EMPr and is responsible to ensure that all staff appointed also adhere the EMPr. • Ensures that all staff are made aware of the need to conduct activities in an environmentally responsible manner. • (Site Manager) On instruction by the ECO, ensures that storm/surface water controls are established. • Ensures prompt remediation of any sewage spills. • Stockpiles are protected from aeolian effects, stormwater effects, or being driven over by workers. • Ensures that a "clean-site" policy is applicable at all times. • Ensures that all complaints by residents are dealt with promptly. • Is responsible for any contravention/s by staff or any non-compliance with the EMPr.
Environmental Control Officer (ECO)	• The ECO is to have access to the site at all times, for the purpose of inspections to ensure that the environmental conditions of the EMPr as well as the conditions stipulated to in the EA and the recommendations made in the EIR are being implemented and adhered to. • The ECO must report on the environmental aspects of the project to the responsible person/authority at agreed intervals. • The need for any deviations or variations in the environmental conditions must be reported to the DEDEAT for approval prior to these being undertaken. • The ECO must be fully cognisant with the contents of the Environmental Authorisation as well as this EMPr and any other applicable legislation
Competent Authority	• The Compliance Officer appointed by the Competent Authority is responsible for the ensuring that the Applicant, Site Manager and ECO are compliant with the provisions of the EA and EMPr.

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ACKNOWLEDGEMENT FORM

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

PROJECT NAME:

Proposed Residential Development on Portion 12 (a Portion of Portion 1) of the Farm Uitzigt No. 216, Belvidere, Knysna.

DFFE REF: TBC

APPLICANT:

Signed: ..... Date: .....

SITE MANAGER:

Signed: ..... Date: .....

ENVIRONMENTAL CONTROL OFFICER

Signed: ..... Date: .....

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Annexure A: CV of the EAP

Joclyn Joe Marshall

Heatherhill Farm, P.O. Box 19, Rheenendal, 6576
Contact: 072 126 6393
Email: joclynjoe@gmail.com

CAREER HISTORY

July 2022 – current **Eco Route Environmental Consultancy**
Environmental Assessment Practitioner

- Environmental screening for new projects.
- Compile Basic Assessment Report and EIA's (NOI, Application, DBAR, EMPr, FBAR, etc);
- Compile EMPr's, MMP's, screening reports, rehabilitation plans, AIS Control Plans, and any other reports required.
- Liaise with clients, specialists, and competent authorities.
- Complete EIA Checklists.
- OSCAER permit and EMMS compilations and submission.
- Environmental audits.
- S24G applications.
- Prepare Public Participation documents and registers.
- Completed Projects:
    - BAR for beachfront security estate on Portion 66 & 67 of Farm 443 Plettenberg Bay.
    - BAR for a single residential dwelling on ERF 8 Konkiebaai, Eersterivier.
    - Part 1 Amendment for Erf 1262 Wilderness and application for adoption of MMP.
    - Rehabilitation Plan for Remainder Erf 2 of farm 189 Boven Lange Valley.
    - Screening Report for Remainder Erf 444 Granse Vallei_August 2022.
    - EIA Checklist for Portion No 33 Farm 440 Roodefontein.
    - EIA Checklist for Portion 7 of the Farm Wittedrift No. 306, Bitou Municipality.
    - Various OSCAE Permits with EMMS in the Knysna and Plettenberg Bay areas.

August 2020 – August 2022 **Moira Cloete Environmental Assessment Practitioner**
Sub-Consultant

- Perform tasks and functions as set out in the EIA Regulations 2014, as amended, specifically in line with Appendices 1-4 thereof.
- Complete environmental screening tool reports.
- Complete EIA/BAR application forms.
- Draft Scoping Reports.
- Draft EIAs/BARs.
- Prepare Public Participation documents, EMPs and BID documents.
- Completed Projects:
    - EIA for proposed construction of a water storage dam on Argyll Farm 218 for irrigation of 80ha of lucerne.
    - EIA for proposed construction of a water storage dam on Coldstream Farm 970 for irrigation of 80ha of lucerne.
    - BAR for proposed development of a poultry facility for egg production on Confluence Farm 143.
    - EMP for operating an organic composting facility for Meat Traders Abattoir.

February 2012 – April 2019 **Knysna Municipality**
Senior Environmental Officer

- Preparation of EMP's, MEMP's, EMM's for municipality and clients.
- Carrying out ECO work on municipal projects and other construction sites.
- Commenting on Land Use applications, EIA applications and issuing of OSCAER permit.
- Conducting various site inspections and audits including taking water samples for analysis.
- Applying environmental legislation and regulations to applications and other environmental matters.
- Liaising with other Governmental Departments, NGO's, Forums, Committees and Conservancies.
- Campaigning in environmental education and development of educational programmes.
- Report writing, research and project development.
- Advising and assisting public on environmental matters and various related tasks.

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February 2011 – January 2012 **Allanson Associates cc.**
Research assistant at the Knysna Basin Project

- Field work that included water sample collection and analysis, critical observations of environmental health, monitoring of Waste Water Treatment Works outflow;
- Lab work that included water quality analysis (including chemical methodology), fluorometry, microscopy and scientific report writing and publication.

June - July 2010 **Department of Environmental Science, Rhodes University**
Field assistant

- Harvesting, transporting, shredding and drying spekboom material.

2009 – 2010 **Department of Environmental Science, Rhodes University**
Graduate Assistance

- Assisted in second year practicals and field trips, and data input.

2007 **Departments of Zoology and Botany, Rhodes University**
Demonstrator

- Assisted in first year practicals and field trips, and marking practical reports.

ACADEMIC QUALIFICATIONS

2009 – 2010 **Masters in Environmental Science** by research dissertation
Rhodes University
Thesis: Population assessments of priority plant species used by local communities in and around four Wild Coast Reserves, Eastern Cape, South Africa

2008 **Honours in Biodiversity and Conservation** (*Joint Botany and Environmental Science*)
Rhodes University

2005 -2007 **Bachelor of Science** with Majors in Botany and Zoology
Rhodes University

1998 – 2004 **Heatherhill College (*Cambridge University International Examination*)**
HIGCSE: Art and Design (2), First Language English (3), Biology (1), Mathematics (2), Physical Science (2), Afrikaans as a Second Language (3). IGCSE: Information Technology (B)

PUBLICATIONS

- B.R. Allanson & J.J. Fearon (2012): Growth rate of juvenile Siphonaria compressa (Gastropoda: Pulmonata), Invertebrate Reproduction & Development, DOI:10.1080/07924259.201 1.646447

OTHER SKILLS AND TRAINING

- Registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA) – Registration number 2022/5006
- Registered as a Candidate Natural Scientist in Environmental Science. Registration number: 100121/11
- SAGIC Invasive Species Training, 15-18 May 2018. Stellenbosch, Western Cape.
- Certificate of competence in Herbicide Applicator – Noxious Weeds, 18 May 2018. Invader Plant Specialists (Pty) Ltd. Stellenbosch, Western Cape.
- Certificate attained for Management of Estuaries in South Africa short learning programme. NMMU, Stellenbosch, Western Cape.
- Certificate attained for Urban Interface Fire Management Short Course, 10-12 November 2015. NMMU Saasveld.
- Certificate of attendance attained for ArGIS Basic Training, 4 May – 8 May 2015. ESRI South Africa.
- Certificate attained for Basic Training Course for Environmental Management Inspector, 17 November 2014 - 15 December 2014. Western Cape Department of Environmental Affairs and Development Planning.
- Certificate attained for Fire Ecology and Conservation Short Course, 14-18 July 2014. NMMU Saasveld.

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- Certificate attained for EIA Short Course, 13-17 May 2013. Rhodes University.
- Computer literacy: Microsoft Office including Word, Excel, Powerpoint, Access and photodraw V2, Statistica, StatPlus, FiSAT II, ArcView GIS 3.2, ArcMap GIS, Coral Draw.
- Drivers license code 08.

REFERENCES ARE AVAILABLE ON REQUEST

Janet Ebersohn
Lead EAP: Eco Route Environmental Consultancy
Email: janet@ecoroute.co.za

Moira Cloete
Lead EAP: Moira Cloete Environmental Consultancy (MCEC)
Email: moira@mcec.co.za

Pamela Booth
Manager: Environmental Management Department, Knysna Municipality
Email: pbooth@knysna.gov.za / Cell: 060 998 6967

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Annexure B: TRAINING REGISTER

ENVIRONMENTAL AWARENESS TRAINING ATTENDANCE REGISTER		Date:	
PROJECT NAME:			
CONTRACTOR		Phone number	
Induction given by		E-mail	
Name of Attendee & Signature		Company	

[1]

[1] Ecosence CC

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Annexure C: INCEDENCE REPORTING

INCIDENT REPORT FORM		**Date:**	
PROJECT NAME:			
To be completed by the person reporting the incident:			
Name		**Designation**	
Contact number		**Physical location of incident**	
Describe the incident and environmental impact			
What remediation has been undertaken? (describe)			
In the opinion of the Site Operations Manager is the remediation action sufficient?			
If not, what further actions must be taken? (detail)			
Has the damage/ contamination been completely remediated?			
If not, what residual damage remains (detail the residual damage)?			
If residual damage remains - what is the reason and what is planned with respect to the environmental damage?			
Upon investigation, what was found to be the cause of the incident? (Detail)			
Is this a repeat of a similar incident?			
What is the reason that planned changes did not prevent a recurrence of the incident?			
What is to be changed to ensure that the incident will not be repeated? (Detail)			
Does the incident potentially compromise legislation?			

[2]

[2] Ecosense CC

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Note: In the event of a significant incident which is defined in terms of section 30(1)(a) of the National Environmental Management Act as an unexpected sudden occurrence, including a major emission, fire or explosion leading to danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, the incident shall be reported. In line with Section 30(3)(d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment must be reported to-

(i) the Director-General of the Department responsible for Environmental and / or Water Affairs;
(ii) the South African Police Services and the relevant fire prevention service;
(iii) the relevant provincial head of department or municipality; and
(iv) all persons whose health may be affected by the incident

Other Comments:

_____ _____

Date Signed by person completing the report.

[3]

[3] Ecosense CC

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Annexure D: COMPLAINTS REGISTER

ENVIRONMENTAL COMPLAINTS REGISTER		Date:	
PROJECT NAME			
RESPONSIBLE PERSON:		Phone number	
Company		E-mail	

Date of complaint	Contact Details of Complainant	Nature of Complaint	Actions taken to rectify including dates

[4]

[4] Ecosense CC