



DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

For

PROPOSED RESIDENTIAL HOUSING DEVELOPMENT ON ERF
2924, WELBEDAGHT KNYSNA, WESTERN CAPE.



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I, **Joclyn Marshall**, of Eco Route Environmental Consultancy, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent Environmental Assessment Practitioner (**EAPASA Reg: 2022/5006**) and receive remuneration for services rendered for undertaking tasks required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended). I have no financial or other vested interest in the project.

EAP SIGNATURE: _____



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:-

Requirement	Description
<p>(a) Details of –</p> <ul style="list-style-type: none"> (i) The EAP who prepared the EMPr; and (ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae; 	<p>EMPr prepared by Joclyn Marshall (EAPASA 2022/5006) (Appendix A – Joclyn CV).</p> <p>Assisted by Justin Britton (Can. EAPASA 2023/6648) (Appendix B – Justin CV)</p>
<p>(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p>Section 2</p>
<p>(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;</p>	<p>Appendix 3 and Appendix 4</p>
<p>(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 –</p> <ul style="list-style-type: none"> (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; 	<p>Section 3, 10, 11, and 12</p>
<p>(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 –</p> <ul style="list-style-type: none"> (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practises; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and 	<p>Section 3, 10, 11, and 12</p>

(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);	Section 7 and 8
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 6.2
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 6
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 7, 8, 10, 11, and 12
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 7
(l) a program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	Section 7, 8, 10, 11, and 12
(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 7
(n) any specific information that may be required by the competent authority.	N/A

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.
DFFE&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	<p>Environmental Assessment Practitioner – An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must –</p> <ul style="list-style-type: none"> (a) be independent. (b) Have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these regulations and any guidelines that have relevance to the proposed activity. (c) Ensure compliance with these Regulations (d) Perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application. (e) Take into account, to the extent possible, the matters referred to in regulation 18 when preparing the application and any report, plan or document relating to the application; and (f) Disclose to the proponent or applicant, registered and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing – <ul style="list-style-type: none"> 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. <p>(2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the proponent or applicant must, prior to conducting public participation as contemplated in chapter 5 of these regulations, appoint another EAP or specialist to externally review all work undertaken by the EAP or specialist, at the applicants cost.</p> <p>(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).</p>
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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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 –

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 Basic Assessment Report dated July 2024 (2024.02.07) 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 and 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, mitigated and kept to a minimum during the planning, construction and operation of the proposed 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 the competent authority must first be obtained.

Once the EMPr is approved by the competent authority 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 DEA&DP.

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, **Mr Charl van Niekerk**, to prepare an Environmental Management Programme (EMPr) in compliance with the Basic Assessment Report Conditions set by Department of Forestry, Fisheries, and the Environmental (DFFE) for Environmental Authorisation.

2.1. Location Description

Erf 2924, Welbedacht, Knysna (referred to as "the property"), borders the N2 Highway, which separates it from the Knysna Estuary. The property extends approximately 2.5 hectares (as per title deed).

Table 1: SG information of Erf 2924 (Cape Farm Mapper, 2024)

SG Region:	KNYSNA
Erf Nr:	2924
Area (Sqm):	24586.5
SG Code:	C03900050000292400000

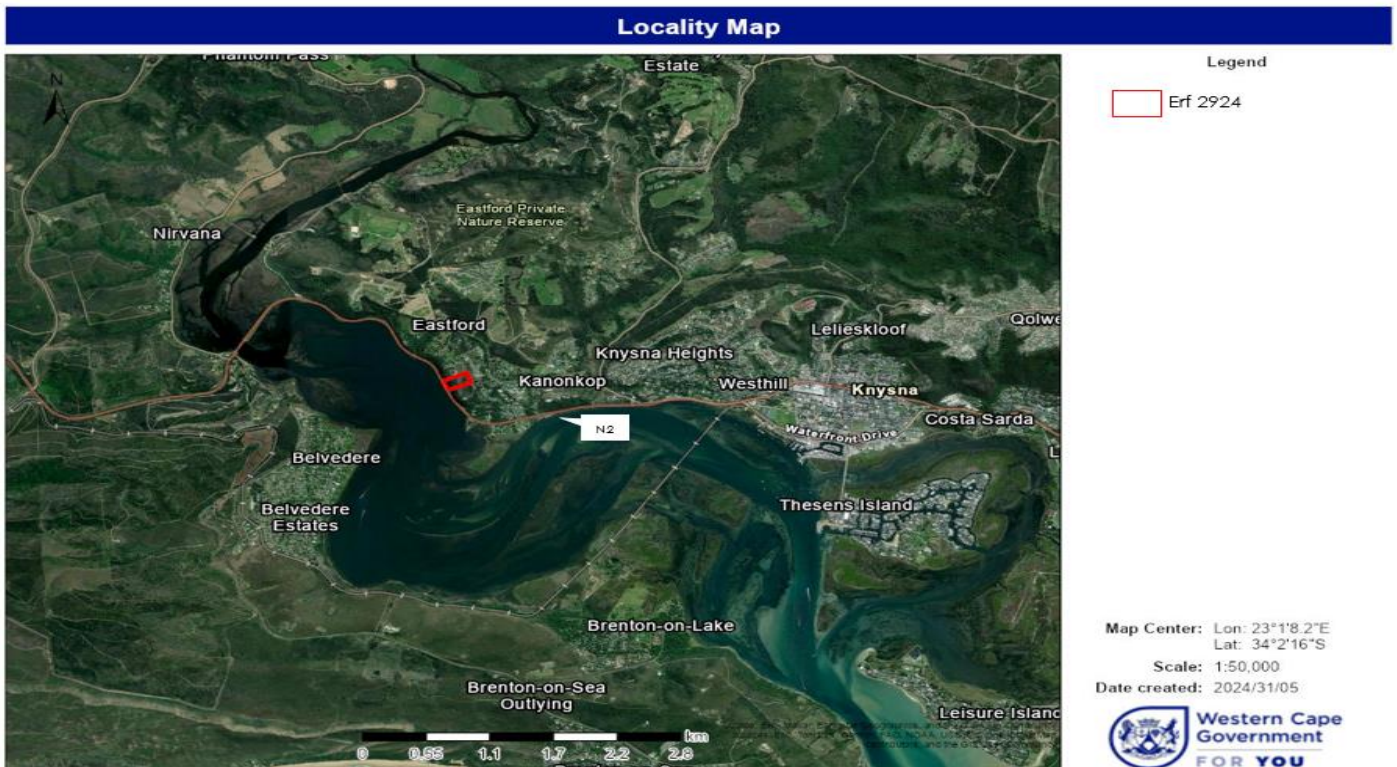


Figure 1: Locality Map of Erf 2924

The property is bordered by Erf 2924 to the north and Erf 2925 to the south. Its eastern boundary ends at Cherry Lane, while its western boundary meets the N2 Highway. Currently, access to the property is via a dirt road extending from Cherry Lane through Erf 7594, which is also owned by the Van Niekerk family.

Table 2: Boundary coordinates for Erf 2924

FEATURE	LATITUDE (S)			LONGITUDE (E)		
	DEG	MIN	SEC	DEG	MIN	SEC
Western Boundary	34°	02'	08.22"	23°	00'	39.74"
Southern Boundary	34°	02'	07.07"	23°	00'	43.81"
Eastern Boundary	34°	02'	05.64"	23°	00'	47.44"
Northern Boundary	34°	02'	03.81"	23°	00'	42.55"

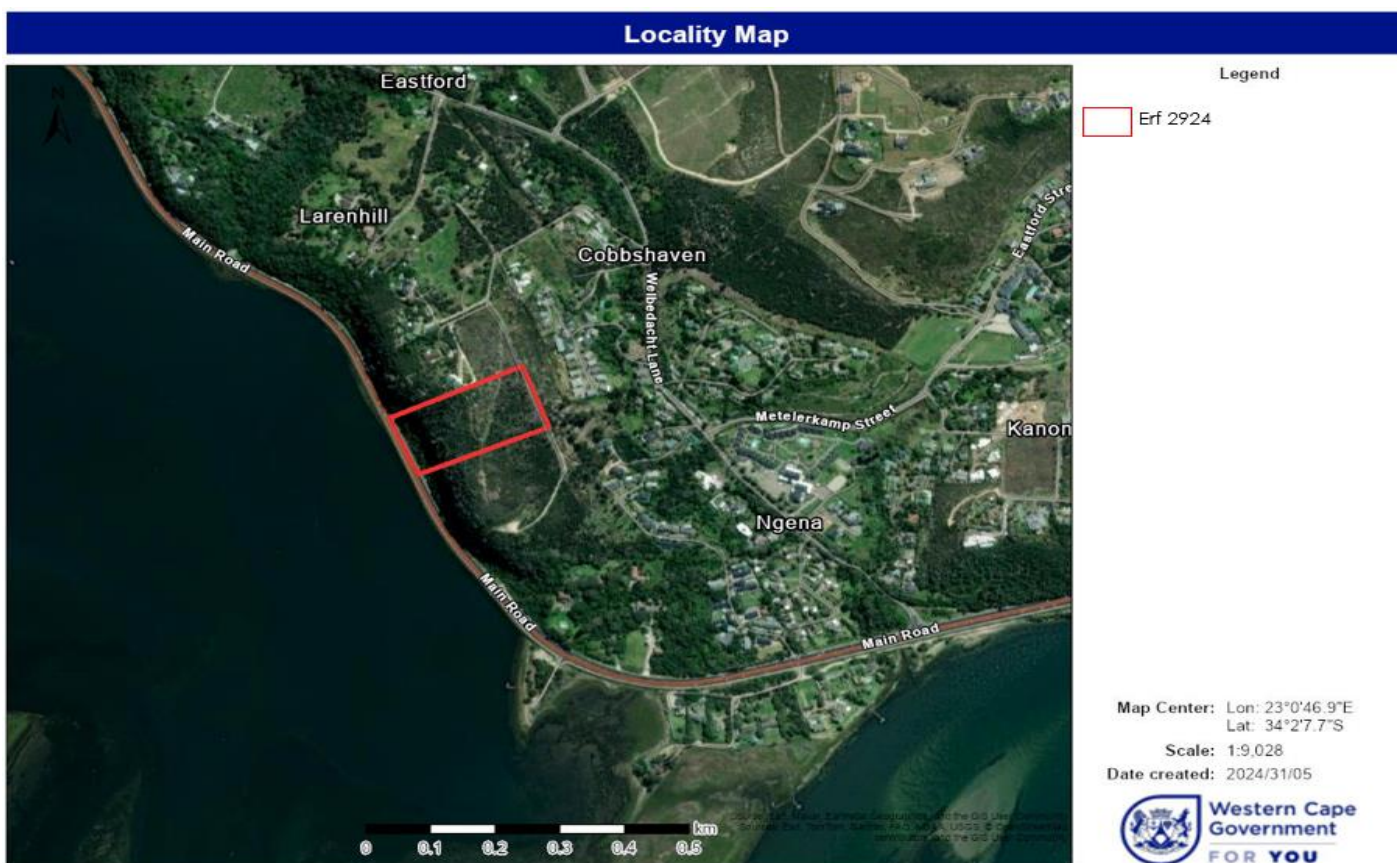


Figure 2: Locality Map of Erf 2924 (smaller extent)

The property is zoned as Single Residential I, as are the properties to the north and south. This implies that the proposed development of a single residential structure will be consistent with the characteristics of the surrounding properties.

Zoning Map: Erf 2924 and surrounding properties

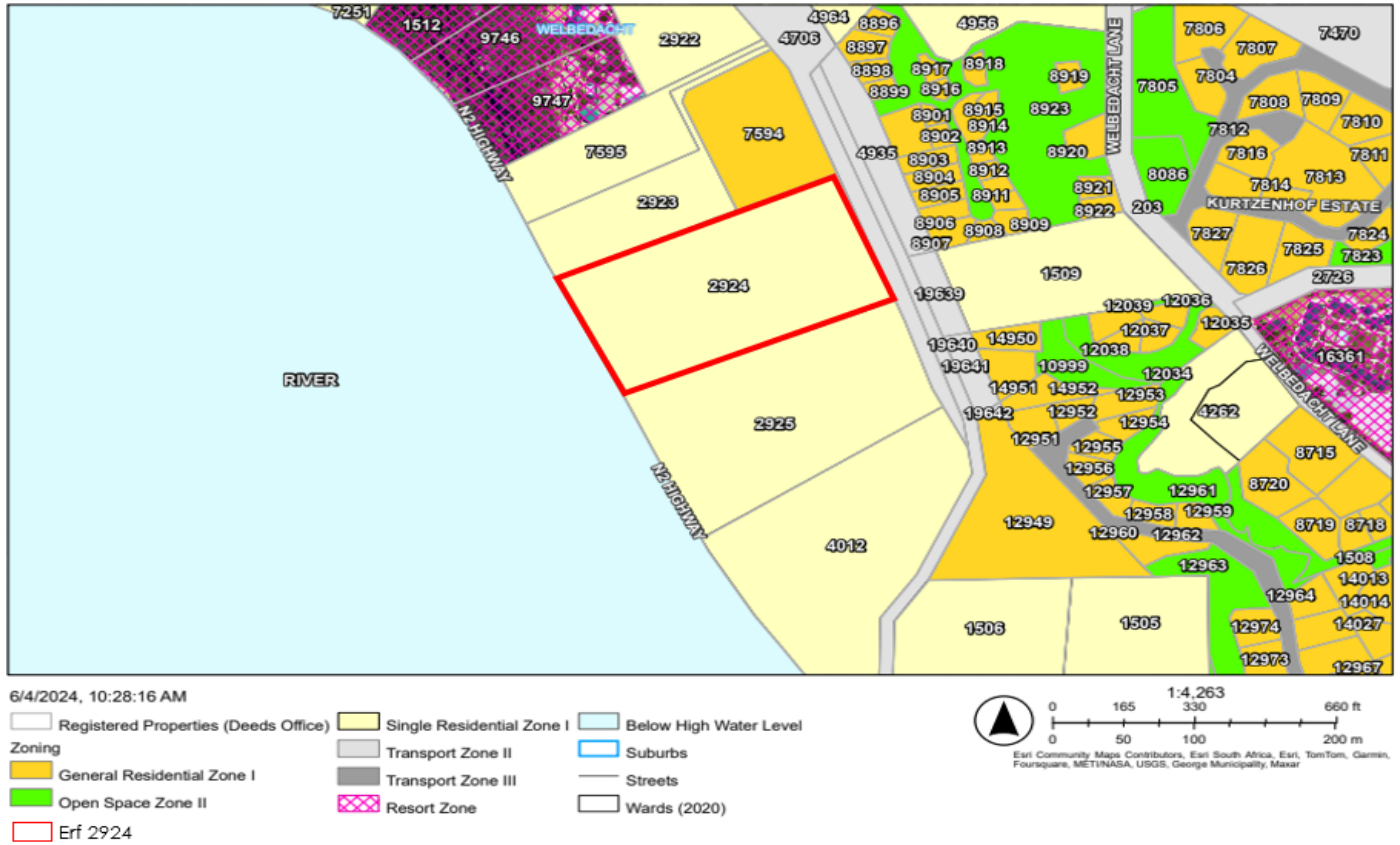


Figure 3: Zoning Map for Erf 2924 and the surrounding properties

2.2. Proposed development (Preferred Alternative – Alternative A)

The preferred alternative involves constructing a primary dwelling and associated infrastructure on Erf 2924, Knysna. The proposed development will be detailed by breaking it down into the following components:

- Primary Dwelling Structure

The primary dwelling structure is the central focus of the proposed development and includes several key features:

- Floor Plan and Layout:

Ground Floor Plan: Consist of main living areas, bedrooms, kitchen, and other essential spaces.

Basement Plan: Includes a garage, staff bedroom, and a staff bath. The ground floor also features a hobby room and circulation space, which connects to the upper floor of the house.

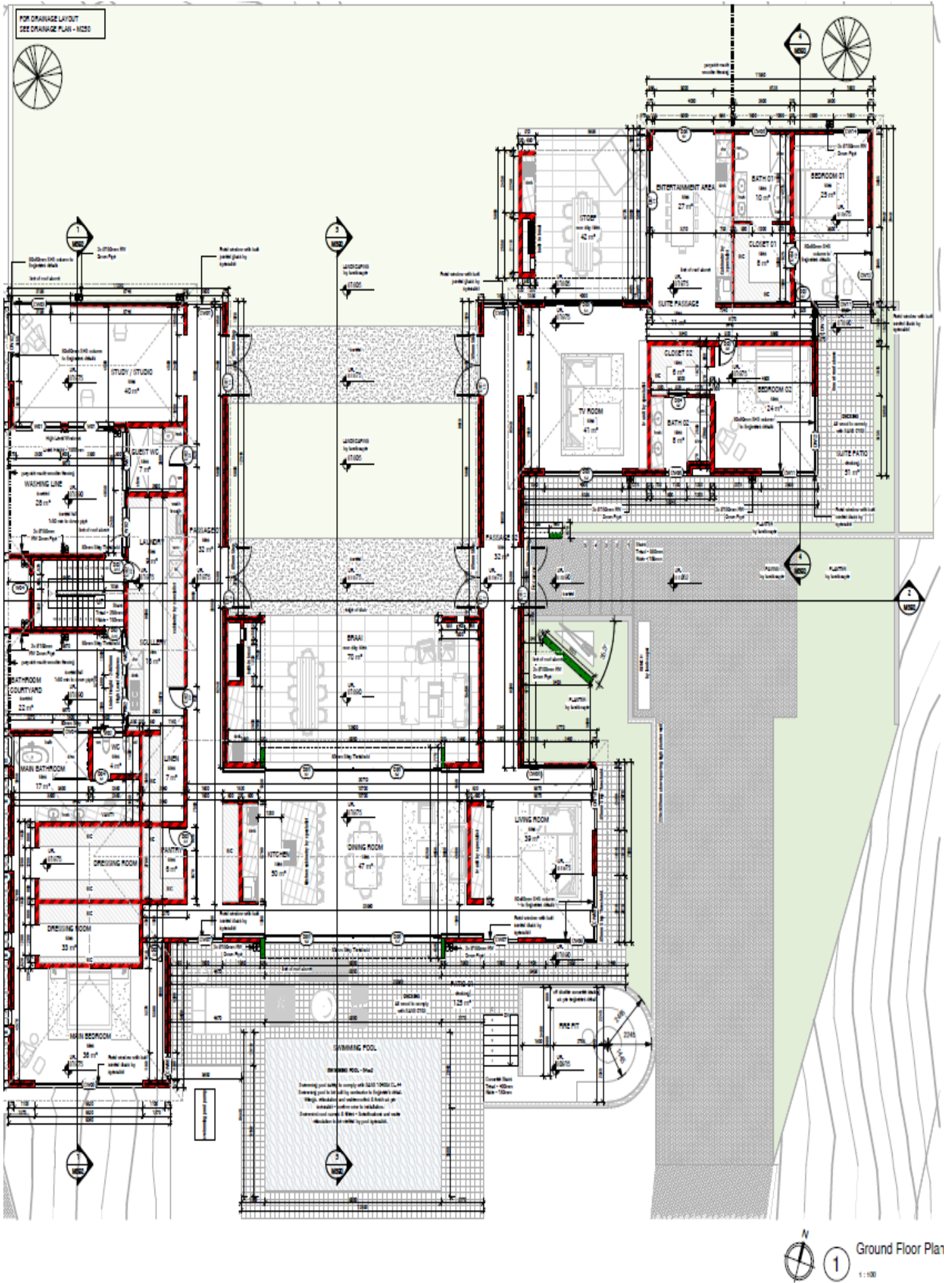


Figure 4: Ground Floor Plan (Mathews + associate architects, 2024)

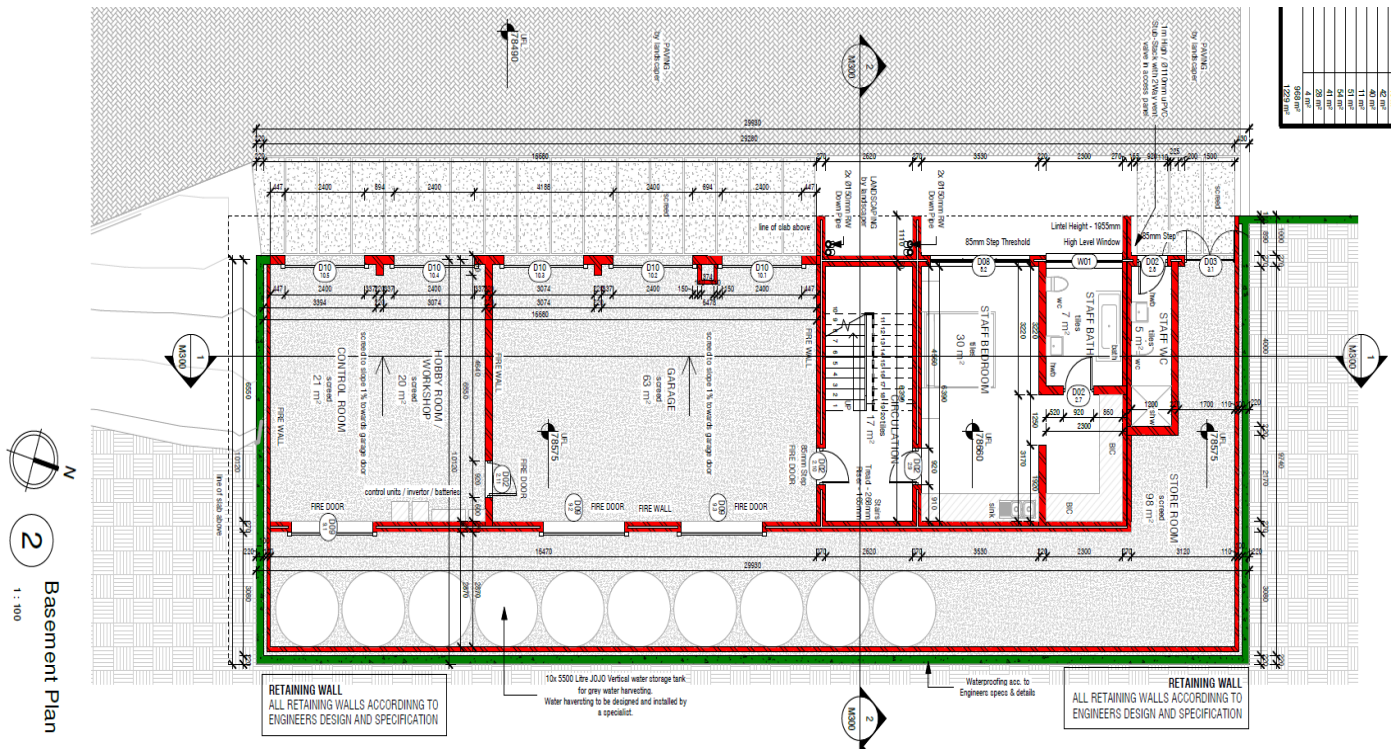


Figure 5: Basement Plan (Mathews + associate architects, 2023)

- Architectural and Design Features

The architectural features of the primary dwelling emphasize both functionality and aesthetic appeal:

- Exterior Design:

Swimming Pool: Positioned with detailed specifications for safety and construction, the pool area will include necessary fittings and reticulation as per specialist requirements.

Pergola: A timber pergola is included, likely providing a shaded outdoor space that complements the overall landscape design.

- Interior Design:

Stairs: Measurements for stair treads and risers are provided, ensuring safety and comfort in movement between floors.

Storage and Utility: The layout includes various utility spaces like a wash trough and storage areas, designed for practicality.

- Site Layout and Landscaping

The site layout integrates the primary dwelling with the surrounding landscape and infrastructure:

- Landscaping:

Existing Trees: The plan indicates existing trees, which some will be preserved to maintain the natural environment and aesthetic. **No protected trees have been noted.**

Paving: Detailed paving plans are included in the site development plan, showing easy access to the front entrance on the east side and the garages on the west side of the dwelling infrastructure.

- Boundary and Access:

Boundary Lines: Clearly marked boundary lines define the extent of the property, whereby all development will be restricted within the boundary lines.

Fence line: A fence will be erected for security purposes along the southern, western, and northern boundaries of the property. It will not be placed on the eastern boundary but rather just beyond the access road.

Access Roads: The layout includes an access road that stems from Erf 7594 and continues towards Erf 2925. **All the property owners have agreed on the construction of the road.**

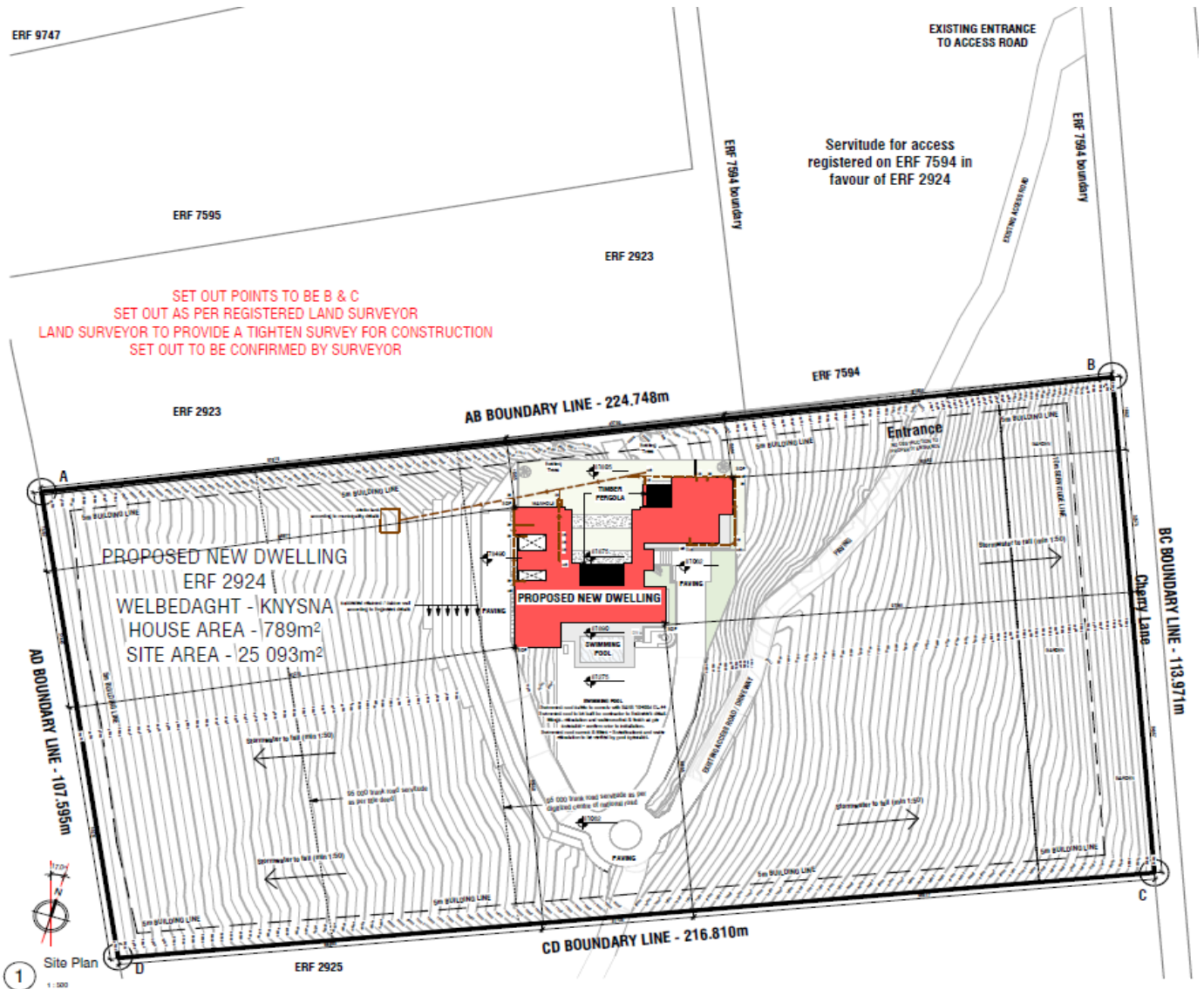


Figure 6: Revised site development plan with access road (Mathews + associate architects, 2024)

Total development (m²) as calculated by the architect:

Description	Total (m²)
Proposed new dwelling	789
Driveway / access road (Property footprint only)	1 500
Swimming pool	54
Septic tank	20

Fencing	1 561
Total	3 924

Site	25 093
Total disturbance	3 924
Percentage disturbed	16 %
Percentage retained	84 %

The development of this property faces topographical limitations, necessitating cut (2054 m³) and fill (3643 m³) to stabilize the construction area. It is proposed to use the cut material for infilling purposes. Figure 7 below shows the predicted cut and fill.

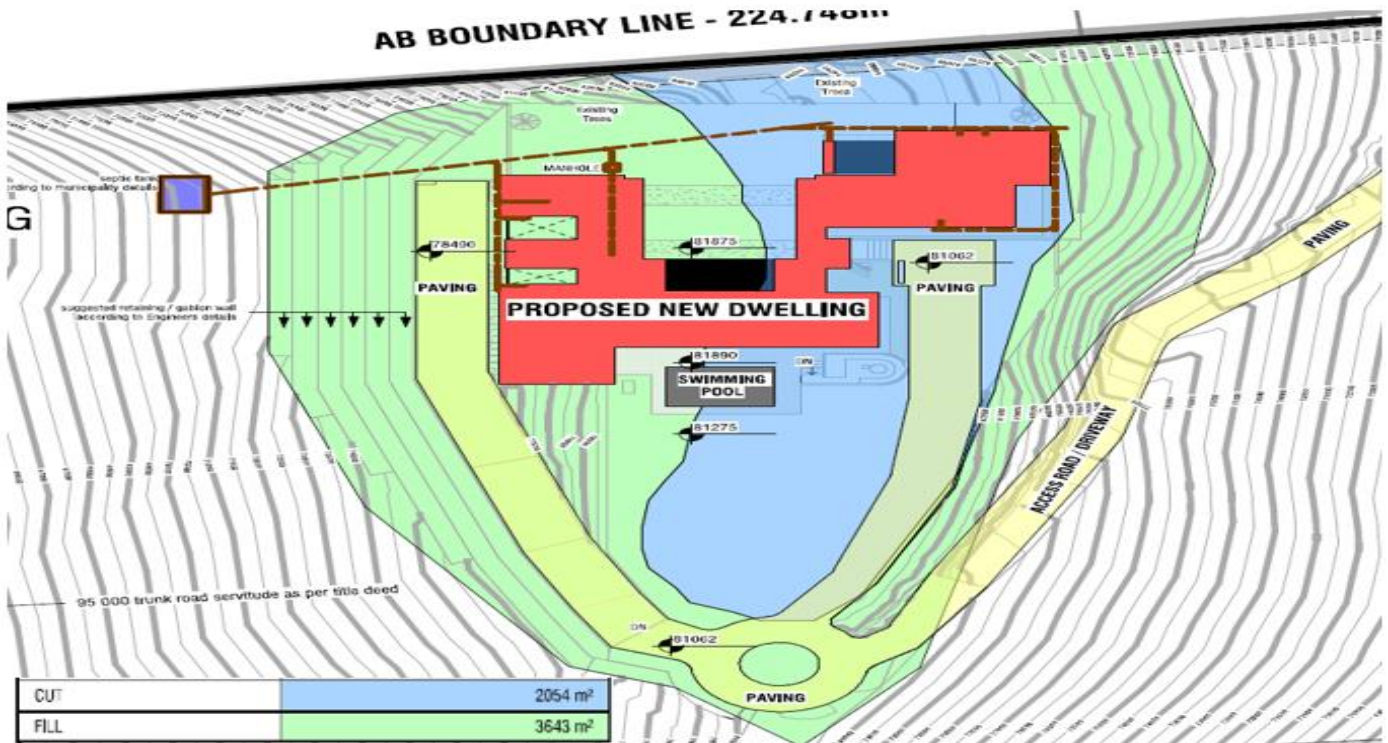


Figure 7: Predicted cut and fill (Mathews + associate architects, 2024)

- Services

The applicant has outlined the provision of municipal services to the property, including water, electricity, and sewage services. Water and electricity municipal services will be connected. However, a septic tank will be installed to prevent sewage connection to the municipal system.

Sustainable alternatives to mitigate the impact on municipal water and electrical services is proposed.

- Water

Rainwater harvesting: Involves collecting water from rooftops, which is stored in dedicated tanks. Gutters will be installed along the access road and driveway to maximize collection efficiency. Filters will also be incorporated to ensure the harvested water is suitable for reuse.

- Electricity

Solar and Gas: To relieve the usage of electricity, solar panels will be installed on the roof at designated points. Geysers will also be fitted with solar driven heating elements. Gas will be utilized for cooking purposes.

3. ENVIRONMENTAL IMPACTS AND MITIGATIONS

The following activities as per the National Environmental Management Act (Act No. 107 of 1998), Regulations Listing Notice 1 (Government Notice No. 983) and Listing Notice 3 (Government Notice No. 985) require environmental authorisation from the Department of Environmental Affairs (DEA), prior to commencement.

- Listing Notice 1; Activity 19A
- Listing Notice 3; Activity 12

3.1. Summary of the Receiving Environment

The entire property was originally classified as containing Endangered (EN) Garden Route Shale Fynbos and was revised to still include such vegetation. However, verified specialists from Capensis have ground-truthed the persisting vegetation and found that fynbos does not cover the entire property. Fynbos is present on the upper ridge, northern slope, and southwest-facing cliffs, while the southern part of the property includes Southern Cape Afrotemperate Forest. The fynbos species found on the site (**Error! Reference source not found.**) include typical fynbos and some thicket species often found along forest margins or in fire-safe areas. Some of these thicket species are resprouting and hardy, possibly becoming more dominant due to Invasive Alien Plants (IAPs). No species of conservation concern (SCC) were identified in this habitat. The ecological functioning is moderately altered, with plant species diversity affected by IAPs, impacting the habitat available for other biota.

Subterranean tunnels typical of the Golden Mole SCC were found on the hilltop areas of the property during the site visit. While it was not possible to identify the species present based on the tunnels alone, the habitat suggests the more likely occurrence of the Fynbos Golden Mole (*A. corriae*) rather than Duthie's Golden Mole (*C. duthieae*, Vulnerable), which is typically associated with more forested habitats. However, the DFFE Screening Tool predicted suitable habitat for Duthie's Golden Mole on the property, so a precautionary approach is followed for this SCC as well. Mole tunnels were found in all vegetation habitats in the hilltop and northern sections of the property, regardless of the level of alien plant invasion. One mole tunnel was also observed crossing beneath the fence of the northwestern neighbouring property, indicating their movement across the entire hilltop landscape (**Error! Reference source not found.**).

Specialists confirmed that the proposed development was indicated to occur within CBA 1, but they stated that this classification is questionable as the sites are not intact. It would be more accurate to classify the property as CBA 2 or ESA 2 due to its poor condition.

The site was considered suitable for the proposed development, but there were some moderate geotechnical constraints, including moderate to steep slopes and loose sandy soil, which require consideration by the structural engineer.

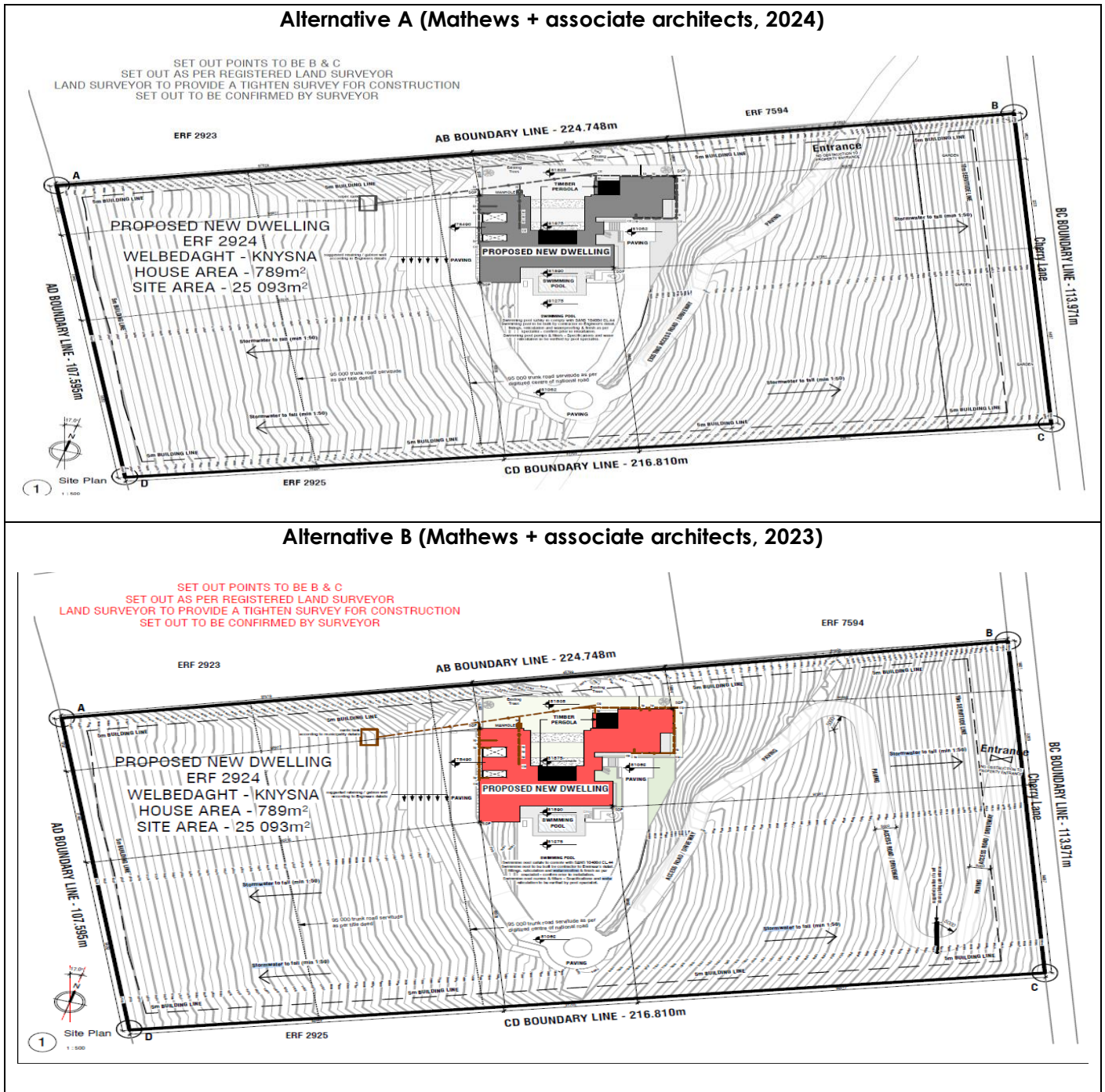
The property is buffered by the N2 highway and a steep cliff, providing a significant barrier against direct flooding and tidal surges from the Knysna Estuary. The elevation of the property further reduces its vulnerability to the effects of sea level rise and storm surges. Consequently, while the Knysna Estuary may experience changes in its ecological dynamics due to climate change, the elevated position and natural buffers of the property ensure it remains minimally impacted by these environmental changes, making it a viable option for development with minimal risk.

A Notice of Intent to Develop (NID) under Section 38(1) and (8) of the NHR Act will be submitted to Heritage Western Cape. Heritage Western Cape will determine whether the proposed development might have an impact on heritage resources. Comments will be included in this section of the final Basic Assessment Report.

3.2. Summary of Project Scope:

Two alternatives were considered during this basic assessment, whereby the preferred alternative refrains from a meandering access road. This access road will provide access to residents from Erf 7594, Erf 2924 (this development proposal), and Erf 2925 (family of the proponent).

Table 3: Provides comparisons between the two alternatives -



Ultimately it will not be possible to move the location of the primary dwelling, however, based on the recommendations from specialist the footprint was reduced by limiting the construction of a meandering access road.

3.3. Impact of Proposed Development

The following table will serve as a summary of the impacts of proposed development during the construction phase of alternative A.

Table 4: Summary of impacts of proposed development associated with alternative A - proposed development

Impact	Without Mitigation	With Mitigation
	Significance of Impact	Significance of Impact
Loss of terrestrial biodiversity	Low – negative (-)	Negligible – negative (-)
Loss of species of conservation concern	Low – negative (-)	Negligible – positive (+)
Disturbance / loss of faunal habitat	Medium – negative (-)	Low – negative (-)
Fatality to faunal species	Low – negative (-)	Negligible – negative (-)
Disturbance / removal of topsoil and subsoil	Medium - negative (-)	Low – negative (-)
Stormwater runoff and erosion	Low- negative	Negligible – negative (-)
Waste Pollution	Low- negative (-)	Negligible – negative (-)
Construction Vehicles Pollution	Low- negative (-)	Negligible – negative (-)
Noise Pollution	Low- negative (-)	Negligible – negative (-)
Visual Impact	Low – negative (-)	Negligible – negative (-)
Employment	Low – negative (-)	Negligible – positive (+)

3.4. Recommendations From Specialist Input

The DFFE screening tool report indicates certain recommended specialist assessments to be done regarding selected classifications (Transformation of land | Indigenous vegetation) and (Infrastructure / Localised infrastructure / Infrastructure in the Sea-Estuary-Littoral Active Zone-Development Setback_100M Inland or coastal public property) with respect to the correlating listed activities.

Site sensitivity verification was done to explain why Terrestrial Biodiversity Impact Assessments, Plant Species Compliance Statement, Aquatic Compliance Statement, Animal Species Assessment, and a Geotechnical Report should be provided. Each report mentions certain mitigation measures to mitigate the impact of certain activities throughout the construction and operational phase.

Summary of Terrestrial Biodiversity Impact mitigations:

- The vegetation from the fynbos habitat that is not developed must be rehabilitated to a state where it is at least partially representative of the original fynbos ecosystem and supports ecological functioning to a moderate or high level.

- The rehabilitation must be undertaken in a phased approach, according to a rehabilitation plan and undertaken by a qualified botanist or restoration ecologist.
- The initial step will require the removal and control of all IAPs on the property and erosion control if necessary. Passive rehabilitation on the parts of the site where no earthworks have taken place can be allowed for one winter season following the removal of IAPs. Thereafter the site must be assessed by the restoration contractor to determine the level of active rehabilitation input. Active rehabilitation will be required for areas where topsoil has been removed.
- Follow-up clearing of all exotic and listed IAPs is required every 6 months for the first three years, and annually thereafter to ensure that the IAPs do not dominate the fynbos.

Best practise mitigation

- Mark off the areas that are not going to be developed prior to undertaking any works and ensure that no unnecessary loss of adjacent vegetation occurs.
- Sites for building material stocks, vehicles, toilets etc must be clearly marked and restricted to the building footprint, exiting roads or existing disturbed areas.

Summary of Aquatic Biodiversity Impact mitigations

- Implement measures to control erosion, with particular focus on the southwestern cliffs.
- Adhere to the principles for best management practice of stormwater management.
- Strategically place rainwater harvesting tanks.
- Use swales and detention ponds to manage stormwater runoff.

Summary of Animal Species Impact mitigations

- Phased Construction: Conduct construction in phases, confining activities to one area at a time. Communicate the construction phase plan to all staff.
- Pre-Construction Checks: Before earthworks, an ECO should walk through the demarcated footprint to check for and remove animals with limited mobility.
- Erosion Control Measures: Implement erosion control measures downslope where vegetation will be cleared.
- Topsoil Management: Treat and store topsoil removed during construction for future rehabilitation purposes.
- Staff Orientation: Regularly conduct staff orientation and information sessions.
- Vehicle Checks: Check construction vehicles daily for leaks and faults.
- Waste Management: Implement proper waste management, storage, and disposal to minimize pollution.
- Ablution Facilities: Provide, clean, and maintain adequate ablution facilities on-site.
- Pollution Prevention: Manage activities involving concrete, cement, plastering, and painting to prevent contamination of the environment.
- Material Storage: Cover stockpiles of building materials and soils with geotextiles or plastic coverings when not in use, and store small items and building materials in containers or designated areas to prevent animal interference.
- Food Waste Disposal: Dispose of food waste in designated bins and remove it from the site daily.
- Construction Hours: Restrict construction to daylight hours to ensure adequate monitoring for fauna and to prevent the use of artificial lighting.
- Speed Limits: Implement and enforce speed limits on all roads, with signs to warn drivers of wildlife.

Site Cleanup: Regularly clear the site of waste material, rubble, and debris during and at the conclusion of the construction phase.

3.5. NO – GO Areas

As per specialist recommendations, the working area, which includes the area designated for cutting and filling, as well as the proposed site for the development of the primary dwelling and associated infrastructure, should be clearly demarcated. All areas outside the working area are to be considered NO-GO zones.



Figure 8: Schematic representation of NO-GO areas of Erf 2924, Knysna

4. PHASING OF THE EMPr

Careful consideration was given to avoiding damage to the property's natural resources during the pre-construction planning and design process. This included incorporating specialist-proposed mitigations applicable before construction began. There is however additional requests and mitigations related to the pre-construction events in line with site preparation. The construction and operational phases are further detailed in this EMPr, which will serve as a living document, flexible and responsive to new and changing circumstances. However, any changes to the EMPr must receive prior approval from the competent authority. This will include whenever site demolition and decommissioning of structure is to occur.

4.1. Pre – Construction phase

During this part of the pre-construction phase, all necessary mitigations must be in place before the physical execution of construction activities. This includes site preparation tasks such as vegetation clearance and earthworks.

4.2. Construction Phase

This phase involves the physical construction and related activities necessary for developing a primary dwelling and its associated infrastructure on the property. It includes the installation of bulk services, and further the erection of the dwelling infrastructure and the construction of the internal access driveway. Essentially, it encompasses all on-site activities leading up to the applicant's occupation.

4.3. Operational Phase

The operational phase of a development project refers to the period when the constructed facilities are in use by the occupants. This phase includes the routine activities and maintenance required to ensure the smooth functioning and sustainability of the development. The Applicant must ensure that the Operational Phase maintains the underpinning principles 'Duty-of-Care-to-the-Environment' and ideals of sustainable development.

4.4. Rehabilitation and Maintenance Phase

Rehabilitation and maintenance should be conducted during all phases of the development to minimize environmental impact and ensure that the post-construction rehabilitation workload does not become a burden on the applicant and contractor. Essentially the idea is to keep the surrounding environment intact. To have the environment represent a better state than before the proposed development of as near as originally assessed.

4.5. Decommissioning phase

Since the development involves constructing a primary dwelling, the project's lifespan is expected to be quite long. However, once the operational phase reaches its end, decommissioning will involve removing the operating assets of the development. At that time, the appropriate legislation must be followed, including at minimum the demolition and removal of building structures.

5. LEGISLATIVE REQUIREMENTS

The applicant is reminded of the following legislative requirements in this section. It is incumbent that the following legislative requirements entrenched in this document (EMPr) be upheld and complied with to ensure a sustainable project with little environmental impact.

5.1. National Environmental Management Act (NEMA, Act 107 of 1998).

The National Environmental Management Act (NEMA, Act 107 of 1998, as amended) mandates the identification and assessment of activities potentially detrimental to the environment. These activities require authorization from the competent authority, in this case, the Department of Forestry, Fisheries, and the Environment. For this project, the listed activities were –

Table 5: Relevant listed activities that require environmental authorisation

Activity	Description	Development applicability
Listing Notice 1 Activity 19A	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from—	The SDP (2024/07/02) indicates that infilling of more than 5 cubic meters is to occur within 100 meters from the Knysna Estuary.

	<p>(i) the seashore;</p> <p>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or</p> <p>(iii) the sea; —</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	
<p>Listing Notice 3: Activity 12</p>	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>a. Western Cape</p> <p>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>ii. Within critical biodiversity areas identified in bioregional plans;</p> <p>iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on even in urban areas;</p>	<p>The proposed activities will require the removal of more than 300 m² <u>endangered</u> Garden Route Shale Fynbos.</p>

	<p>iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or</p> <p>v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.</p>	
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5.2. National Environmental Management: Biodiversity Act (NEM:BA) (Act 10 Of 2004)

NEM:BA (Act 10 of 2004) governs the management and conservation of South African biodiversity within the framework of NEMA. It addresses the protection of species and ecosystems that require national protection, as well as the sustainable use of indigenous biological resources. Additionally, NEM:BA regulations regarding the control of alien invasive vegetation are set out within the Act and the Alien and Invasive Species Regulations of 2014. According to NEM:BA Regulation 75, landowners are required to manage all listed invasive alien species on their land. However, not all properties require a Control Plan. The Department of Environmental Affairs (DEA) developed criteria to determine when Invasive Alien Species (IAS) Control Plans are necessary (Figure 9).

Property size Hectares (ha) Square meters (m ²)	Requirements	Timeframes for clearing
< 0.05 Ha (5000 m ²)	Clear and remove plant material to approved Green Garden Waste site	30 days
0.051 – 5 Ha(5001 m ² - 50,000 m ²)	Clear and remove plant material to approved Green Garden Waste site; or apply for fuel reduction burn (See details below); or chip; or utilize. Or alternatively submit a Control Plan with acceptable timeframes to the Department of Environmental Affairs	90 days (at least by the end of November (start of the fire season))
– 5 Ha10,001 m ² to 50,000 m ²	Clear or submit Control Plan with timeframes acceptable to the Department of Environmental Affairs	120 days to clear or 30 days to submit a control plan
> 5.1 Ha> 50,001 m ²	Submit Control Plan with timeframes acceptable to the Department. Prioritize the urban edge boundaries that are high-risk fire risk. Fire breaks are to be in place. Permits are required to keep category 2 plants except when they are in riparian areas, or where they pose a fire risk, in these cases there are to be treated as category 1b and cleared.	30 days to submit control plan. On approval: Start implementing within reasonable timeframe 5 - 10 years

Figure 9: Criteria for properties requiring IS Control Plans

In the case of this application the applicant is not required to produce a control plan. However, all invasive alien species must be eradicated from the property. This also aligns with the recommendations brought forward by the specialists during the Basic Assessment phase.

5.3. National Forest Act (NFA) (Act 84 Of 1998)

The NFA provides for the protection of forests and specific tree species. According to the Act, “no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export,

purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated." The Department of Forestry, Fisheries, and the Environment (DFFE) is responsible for implementing and enforcing the NFA, including the prohibition of damage to indigenous trees in any natural forest without a licence (Section 7 of the NFA) and the prohibition of cutting, disturbing, damaging, destroying, or removing protected trees without a licence (Section 15 of the NFA).

In the case of this application, no species requiring authorisation were noted. However, it should be noted that if such a plant species is discovered during the construction or operational phase, the appropriate application for authorisation of disturbance / removal must be obtained prior to the commencement of such activities.

5.4. National Heritage Resource Act (act 25 of 1999)

The purpose of the National Heritage Resources Act is to introduce an integrated and interactive system for managing national heritage resources and to promote good governance at all levels. It empowers civil society to nurture and conserve heritage resources for future generations and establishes general principles for heritage resources management across South Africa. The Act introduces a system for identifying, assessing, and managing heritage resources, establishes the South African Heritage Resources Agency and its Council to coordinate national management, and sets norms and standards for protecting heritage resources of national significance. It controls the export of nationally significant heritage objects and the import of illegally exported cultural property, enables provinces to establish heritage authorities with powers to protect and manage heritage resources, and provides for the protection and management of conservation-worthy places and areas by local authorities, along with addressing related matters.

After the submission of a Notice of Intent to Develop (NID) under Section 38(1) and (8) of the NHR Act to Heritage Western Cape, the determination of requests and required mitigation actions will be included in this section of the EMPr.

5.5. National Environmental Management: Waste Amendment Act 2014 (Act 26 of 2014)

The National Environmental Management: Waste Amendment Act 2014 (Act 26 of 2014) in South Africa is a legislative framework aimed at promoting sustainable waste management practices and reducing the environmental impact of waste. It amends the National Environmental Management: Waste Act of 2008, enhancing provisions related to waste management planning, licensing, and compliance monitoring. The Act introduces more stringent measures for waste classification, minimisation, and recycling, and emphasizes the importance of extended producer responsibility. The most important aspect of this Act is its focus on the waste management hierarchy, prioritising waste avoidance and reduction, followed by reuse, recycling, recovery, and, as a last resort, safe disposal. This approach encourages a shift towards a circular economy, aiming to minimise waste generation and its adverse effects on the environment and human health.

The applicant must adhere to the National Environmental Management: Waste Amendment Act 2014 (Act 26 of 2014) at all times during both the construction and operational phases. Compliance with this Act is essential to ensure sustainable waste management practices and minimize environmental impact.

6. 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.

6.1. The Applicant / Holder of the EA

The holder of the EA / property owner is the overseeing entity responsible for ensuring that all activities undertaken on the property comply with the Environmental Authorisation (EA) and associated Environmental Management Programme (EMPr) (& any other approval / licence / permit).

Actions relate (but are not limited to) –

- Ensure that that all tender documentation include reference to, and the need for compliance with, the EA and EMPr as well as any other legally binding documentation.
- Ensure that all employed Contractors and Engineers are aware of and understand the conditions of the EMPr (Include the EMPr in all tender documents)
- The right to remove any person or appointed contractors or personnel from site if the contravene with the 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.

6.2. The ECO

- Secure the protection and provide assistance on the 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, Contractor and the ECO.

Site Visit Frequency:

- The ECO must conduct site inspections every two weeks during the construction phase (the frequency may be increased to weekly site inspections) and submit the ECO monitoring reports monthly.
- The ECO must conduct site inspections once a month during the rehabilitation phase and submit the ECO monitoring reports during this phase monthly.

Environmental induction and training

- It will be the responsibility of the ECO to provide adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr.
- Where staff turnover is high and with additional appointment of Sub-contractors, it may be necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.

6.3. The Engineers and Contractors

The responsibilities indicated here are also relevant to Sub-Contractors. The responsibilities of the Engineers 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.

6.4. Signing of the EMPr

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

7. REPORTING PROCEDURES

7.1. 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.

7.2. 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.

7.3. 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 an 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.

7.4. Emergency Response

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

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

- Employees shall be adequately trained in terms of incidents and emergency situations;
- Details of the organisation (i.e. manpower) and responsibilities, accountability and liability of personnel;
- A list of key personnel and contact numbers;
- Details of emergency services (e.g. the fire department / on-site fire detail, spill clean-up services) shall be listed;
- Internal and external communication plans, including prescribed reporting procedures;
- Actions to be taken in the event of different types of emergencies;

- Incident recording, progress reporting and remediation measures to be implemented; and
- Information on any hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

8. COMPLIANCE WITH THE EMPr

8.1. 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 monitor the site and compile a monitor report on the frequency that was determined.
- 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).

8.2. Auditing Process

- An independent EAP must be appointed to conduct an audit of the project. As per the EA, such person may not be the ECO or EAP who conducted the EIA process.
- Auditing during non-operational phase (construction phase):
 - During the period which the development activities have been commenced with on the site, the Holder must ensure annual environmental audit(s) are undertaken and the Environmental Audit Report(s) submitted annually to the Competent Authority.
 - final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within three (3) months of completion of the construction phase.
- The audit is to report on the success of the implementation of the EA and the EMPr as the case may be.
- Auditing requirements are to cover ONLY the Construction and rehabilitation phase and do not extend to the operational phase.

8.3. 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.

8.4. 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 to the ECO to be placed in the EMPr file. The ECO will be required to sign-off on the corrective action, indicating that it has been completed within the timeframes and to the satisfaction of the ECO.

In the event of damage being caused, the contractor will be responsible for the cost of cleanup, repair and / or rehabilitation as necessary, as well as being liable for the fine. These fines will not be determined by the ECO, rather the ECO will report continued non-compliance to the competent authority which will determine the amount of the fine.

Non-compliance may be issued to:

- The Applicant
- Any representative of the Applicant

8.5. 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 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.

8.6. 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.

9. AMENDMENTS TO THE EMPr

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

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

10. PRE - CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

It is recommended that the following actions be implemented in order to ensure that the impacts associated with the development are avoided, minimised or managed before construction commences.

Activity	Management / Mitigation	Responsibility	Frequency / Timing
10.1. Stormwater Management	<ul style="list-style-type: none"> Apply the principles of Low Impact Development (LID) in the design of the drainage systems. Final design of the stormwater system must take place prior to construction to ensure timeous implementation. 	Applicant / Architect	Once off
10.2. Water Resource Protectionn	Rainwater harvesting		
	<ul style="list-style-type: none"> Rainwater harvesting must be incorporated into the designs. All rainwater tanks must be shown on building plans 	Applicant / Architect	Once off
10.3. Development preparation	Efficient water use		
	<ul style="list-style-type: none"> Water efficiency must be incorporated into the design of the units (e.g.) - <ul style="list-style-type: none"> - Dual flush toilets - Low flow shower head - Low flow taps - Waterwise landscaping - Reuse greywater 	Applicant / Architect	Once off
	Site demarcation / NO-GO areas and site setup		
	<ul style="list-style-type: none"> Clearly identify and demarcate the development area, area of works and spoiling areas. (all areas outside the demarcated workspace will be considered NO-GO areas). 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. Set up the site camp in a designated, level area away from sensitive environments, ensuring it includes secure storage for materials, sanitary facilities, and clear boundaries. Install temporary utilities, safety signage, and waste management systems in compliance with environmental and safety regulations. 	Applicant / Contractor	Once off (the frequency may be ongoing, depending on the state of demarcation)

	Method statements		
	<ul style="list-style-type: none"> Method Statements must be submitted by the Applicant/ Contractor to the ECO and must be adhered to by the Applicant/ Contractor. These relate to: <ul style="list-style-type: none"> - water and stormwater management requirements, - dust management - solid waste management requirements, - the storage of hazardous materials (if applicable), and - standard emergency procedures. 	Applicant/ Contractor	Prior to commencement of construction and during construction (if necessary)
Appointment of Environmental Control Officer (ECO)			
	<ul style="list-style-type: none"> An Independent ECO must be appointed at the Applicant's cost to monitor the implementation of the EMPr. It will be the responsibility of the ECO to provide adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr. All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record. 	Applicant / ECO	Once off

11. CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

Activity	Management / Mitigation	Responsibility	Timing / Frequency
11.1. Stormwater Management	<ul style="list-style-type: none"> • Any erosion channels developed during construction causing surface runoff must be backfilled, compacted and restored to an acceptable condition. • Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion. • In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation should commence as soon as possible. A suitable rehabilitation method statement must be submitted to the ECO for approval. 	Applicant / Contractor	Ongoing
11.2. Dust Control	<ul style="list-style-type: none"> • Implement a dust prevention strategy as presented by method statement. • This strategy must include <ul style="list-style-type: none"> - Speed control to minimise dust on site. - During dry, dusty periods haul roads should be kept dampened to prevent excess dust. No potable water or seawater may be used for damping haul roads. - Exposed stockpile materials must be adequately protected against wind (covered) and should be sited taking into consideration the prevailing wind conditions. - Trucks bringing in materials must be covered to prevent dust and small particles escaping and potentially causing damage to people and property. 	Contractor	Ongoing
11.3. Noise Control	<ul style="list-style-type: none"> • 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 upon receiving complaints • Staff must be reminded that they are working within a residential area and noise levels must be kept low. 	Contractor	Ongoing
11.4. Traffic Control	<ul style="list-style-type: none"> • No vehicles may drive onto the adjacent properties and any other NO-GO areas. • No vehicles are to park or operate within "no-go" areas 	Contractor	Ongoing

11.5. Waste Management	<ul style="list-style-type: none"> • Provide refuse bins around site designated for the different types of generated waste (e.g., general waste, refuse, construction material). • Refuse bins will be responsibly emptied and secured. • Temporary storage of domestic waste shall be in covered and secured waste skips. • Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. • <u>Under no circumstances</u> may domestic waste <u>be burned</u> on site or buried on open pits. • Separation and recycling of different waste materials should be supported. • Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day. 	Contractor	Ongoing
11.6. Stockpile Management	<ul style="list-style-type: none"> • Keep stockpiles on site to a minimum. • Keep topsoil and underburned stockpiles separate. • Locate stockpiles away from drainage lines, at least 10 metres away from natural waterways and where they will be least susceptible to wind erosion. • Ensure that stockpiles and batters are designed with slopes no greater than 2:1 (horizontal/vertical). • Stabilise stockpiles and batters that will remain bare for more than 28 days by covering with mulch or anchored fabrics or seeding with sterile grass. 	Contractor	Ongoing

11.7. Storing fuels and chemicals	<ul style="list-style-type: none"> • Though unavoidable, fuels and chemicals stored on site must be kept to a minimum • 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. 	Contractor	Ongoing
11.8. Cement Batching	<ul style="list-style-type: none"> • The mixing of cement must be done on Rhino board. • All concrete batching must take place on an area that is to be hard surfaced as part of the development. • Concrete mixing areas must have bund walls or a settling pond in order to prevent cement run off. Once the settling ponds dry out, the concrete must be removed and dispatched to a suitable disposal site. • When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading. This form of batching is preferable for large constructions as no on-site batching is required and there is a lesser likelihood of accidental spills and run off. Trucks may not be washed out on site. 	Contractor	Ongoing
11.9. Fauna and Flora management	<ul style="list-style-type: none"> • Mark off the areas that are not going to be developed prior to undertaking any works and ensure that no unnecessary loss of adjacent vegetation occurs. • In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated. • No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard. 	Contractor / ECO	Ongoing

11.10. Ablution facilities	<ul style="list-style-type: none"> • Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site. • Toilets facilities must comply with local authority regulations, shall be maintained in a clean and hygienic condition. Their use shall be strictly enforced. They must be positioned in an appropriate place, also taking into consideration, gradient of the land. • The Contractor must ensure that toilets are cleaned weekly or more regularly, if found to be necessary. • 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. 	Contractor	Ongoing
11.11. Social Requirements	<ul style="list-style-type: none"> • It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project. • Theft and other crime associated with construction site are not allowed • A complaints register must be kept of all received complaints and delt with immediately. 	Contractor	Ongoing
11.12. Heritage Requirements	<ul style="list-style-type: none"> • 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. <p>Examples of heritage resources are as follow:</p> <ul style="list-style-type: none"> - Human remains - Coins/Gold/Silver - Fossils - Fossils shell middens/ marine shell heaps - Pottery/ceramics 	Applicant / Contractor	

	<ul style="list-style-type: none"> If Heritage Western Cape agrees to the removal of the material, an archaeologist must apply for a permit to scientifically excavate/collect the material. 		
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12. OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

Activity	Management / Mitigation	Responsibility	Timing / Frequency
12.1. Stormwater management	<ul style="list-style-type: none"> A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape. Runoff from the roof of the new buildings should be fed into an existing formal stormwater drainage system (if present) or directly infiltrate into soft landscaped areas surrounding the building . <p>Erosion prevention and control measures must be implemented by use of organic mulch or sandbags to contain all sediment and prevent erosion during rehabilitation.</p>	Applicant / Architect / Contractor	Once off
12.2. Waste Management	<ul style="list-style-type: none"> No waste may be disposed of anywhere else if not designated as a waste disposal area (disturbance zone). All waste must be disposed of in appropriate municipal or other authorised dumping sites. NO Dumping of garden refuse on any part of the property or neighbouring areas is permitted. 	Applicant	Ongoing
12.3. Alien Invasive Plants	<ul style="list-style-type: none"> 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. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site. 	Applicant	Ongoing

13. REHABILITATION AND MAINTENANCE PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME

Activity	Management / Mitigation	Responsibility	Frequency / Timing
13.1. Vegetation Rehabilitation	Vegetation		
	<ul style="list-style-type: none"> 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. Consultation must be made with a Botanical Specialist for a site-specific vegetation list. 	Applicant	
	<ul style="list-style-type: none"> Erosion prevention and control measures must be fully implemented (if necessary). 	Applicant & ECO	Project completion
	<ul style="list-style-type: none"> All rehabilitated areas must be maintained through weekly inspections until the 80% success rate has been achieved (if applicable). 	Applicant & ECO	On-going site maintenance
	<ul style="list-style-type: none"> Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. 		
13.2. Stormwater Management	Stormwater		
	<ul style="list-style-type: none"> Any negative stormwater effects, related to the operational phase, must be remediated. On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project. 	Applicant	On-going site maintenance
13.3. Land Rehabilitation	Land		
	<ul style="list-style-type: none"> Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation. 		
	<ul style="list-style-type: none"> Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited. 		
	<ul style="list-style-type: none"> The site is to be cleared of all litter. 		
	<ul style="list-style-type: none"> The surface of all disturbed areas must be left rough to facilitate binding of topsoil and vegetation. 	Applicant / Contractor	Project completion
	<ul style="list-style-type: none"> Areas that are disturbed through building activities (such as the excavations for sewerage pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential 		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	for plant growth. Use complete cover of locally chipped woody material (for example Acacia cyclops stems and branches but not the seed pods).		

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 DEVELOPMENT OF ERF 1058, WHITES ROAD, HOEKWIL (WILDERNESS HEIGHTS) GEORGE MUNICIPALITY & DIVISION, WESTERN CAPE.

DEA&DP REF: 16/3/3/6/7/1/D2/30/0241/23

APPLICANT:

Signed: Date:

CONTRACTOR:

Signed: Date:

ENVIRONMENTAL CONTROL OFFICER

Signed: Date: