EVIRONMENTAL MANAGEMENT PROGRAMME

PREPARED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), EIA REGULATIONS OF 2014, AS AMENDED

PROJECT:

SECTION 24G RETROSPECTIVE ENVIRONMENTAL AUTHORISATION APPLICATION FOR THE UNLAWFUL COMMENCEMENT AND CONTINUATION OF LISTED ACTIVITIES: THE UNLAWFUL INFILLING, MOVING AND EXCAVATION OF SOIL WITHIN 32 METRES FROM A WATERCOURSE AND DEVELOPMENT OF A ROAD ON THE REMAINDER OF PORTION 7 OF FARM HUISRIVIER NO. 14, GAMKA PRIVATE FARM ESTATE, CALITZDORP REGISTRATION DIVISION, WESTERN CAPE PROVINCE

DEA&DP PRE-COMPLIANCE NOTICE REF. NO.: 14/1/1/E3/6/2/3/L1216/22

APPLICANT:

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LIST OF ACRONYMS AND ABBREVIATIONS

DEA&DP	Department of Environmental Affairs and Development Planning
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ESA	Ecological support Area
EMPr	Environmental Management Programme
GA	General Authorisation, in terms of the National Water Act, 1998 (Act No. 36 of 1998)
GN	Government Notice
I&APs	Interested and Affected Parties
MMP	Maintenance Management Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended
NWA	National Water Act, 1998 (Act No. 36 of 1998), as amended
RD	Registration Division

DEFINITIONS

"Activity" is the relevant action(s) applied for on the site, e.g., the construction and operation of a second residential dwelling and associated infrastructure within/near a non-perennial watercourse and the realigned section of the stream on Portion 421 of the Farm Rust and Vrede No. 124, Stellenbosch Registration Division (RD).

"Ecological Infrastructure" refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.

"Environmental aspect" is a feature or characteristic of an activity that affects or can affect the environment.

"Environmental impact" is a change to the environment. Such change can be positive or negative. Environmental impacts are caused by environmental aspects;

"Environmental "Objective" is the specific environmental goal; and

"Environmental Target" is a detailed performance requirement. Environmental targets are derived from environmental objectives and are used to achieve these objectives. Targets should be measurable where possible.

"General Authorisation" in this document refers to the General Authorisation in terms of section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for Water Uses as defined in Section 21(c) or Section 21(i) (GN. 509 of 26 August 2016).

"Impeding" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently, but excludes the damming of flow so as to cause storage of water.

"Indigenous vegetation" refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

"Listed Activity" means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity. Activity in this document refers to the activities as listed in Listing Notice 1, 2 and 3 of the Environmental Impact Assessment Regulations, 2014 (as amended), as well as other relevant regulations.

"Maintenance" means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

"Section 24G process" is a rectification process undertaken in terms of Section 24G of the NEMA to obtain retrospective authorisation for a project which commenced without the necessary authorisation, and which was thus undertaken illegally as defined in Section 24F of NEMA.

"Watercourse" means:
a) a river or spring;
b) a natural channel in which water flows regularly or intermittently;
c) a wetland, lake or dam into which, or from which, water flows; and
any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and

a reference to a watercourse includes, where relevant, its bed and banks.

"Wetland" means, land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

PART 1: PROJECT DETAILS

1. Introduction

This Environmental Management Programme (EMPr) describes, amongst others, mitigation measures and identifies the specific people/entities that will be responsible for implementation of the identified mitigation measures in order to ensure that impacts on the environment are minimised during the construction and operational phases[1] of the listed activities related to the construction of a road within and near a watercourse and platform near a watercourse on the Remainder of Portion 7 of Farm Huisrivier No. 14, near Calitzdorp in the Western Cape Province.

This EMPr was prepared by Pieter de Villiers of Cornerstone Environmental Consultants, the Environmental Assessment Practitioner (EAP) who undertook the Section 24G process for the project.

In the event of appointing external Contractors, this EMPr must form part of the contractual agreement between the relevant contractor(s) and the Applicant.

This report has been divided into the following four parts:

Part 1: Provides an introduction to the project and the report, provides project details and describes the applicable Listed Activities;

Part 2: Details the construction and operational phase management activities to ensure that identified impacts are adequately managed to prevent environmental impacts.

2. Project Description and Listed Activities Covered by this EMPr

2.1 Brief Project Description

The landowner of the Remainder of Portion 7 of Farm Huisrivier No. 14, henceforth referred to as the property or site, near Calitzdorp in the Western Cape, undertook certain activities that were deemed unlawful because Environmental Authorisation (EA) was not obtained before commencement. These activities were the:

1. Alleged unlawful infilling, moving and excavation of soil within a watercourse whilst a road was constructed. Note that the watercourse is described by the freshwater specialist as a drainage channel, with very little to no aquatic function;
2. Development of infrastructure within 32 metres from the drainage channel (this was the creation of an earth platform of ± 750 m² on which a house[2] is proposed to be constructed); and
3. Development of an access road of ± 290 metres long and ± 4 metres wide.

All the above were undertaken without an EA. See **Appendix A** for the Locality Map and Site Layout Plan.

2.2 Project Phases

Two project phases are relevant to this project, namely the construction and operational phases. This EMPr does not address the decommissioning and closure phases, since it is not anticipated that the activity will be decommissioned in the foreseeable future. Should decommissioning be considered in future, the relevant listed activities applicable at that time would need to be applied for, and an EMPr developed for such activities.

[1] Note that the construction phase has mostly been completed and that a house will be constructed on the platform, if authorised. General construction related management measures for the house have been included in the EMPr.

[2] The house itself does not trigger any listed activities and therefore does not require Environmental Authorisation. It can be constructed on the platform, given that the platform has been authorised.

2.3 Receiving Environment Summary

Location & Climate

The activities took place on the applicant's property, the Remainder of Portion 7 of Farm Huisrivier No. 14, Gamka Private Farm Estate, Calitzdorp, which lies approximately 7.8km West of Calitzdorp, just off the R62 Road. The project area is located adjacent the Gamka and Huis Rivers, running along the northern and southern boundaries of the property, with the Gamka River acting as one of the main tributaries of the Gouritz River. Other landscape features surrounding the properties include the Groot Swartberg Mountains located to the far north, the deep valleys associated with the Gamka and Huis Rivers as well as the Rooiberg Mountains located to the far south.

The climate found on site is similar to that of Calitzdorp's and can be classified as semi-arid. The study area normally receives about 145mm of rain per year (CapeFarmMapper,2023), with the very low rainfall generally occurring year-round. It received the lowest rainfall (25 mm) in April 2022 and the highest (40 mm) in November 2022. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Calitzdorp ranged from 17°C in July to 29°C in February. The region is the coldest during July when the mercury dropped to 6°C on average during the night.

Terrestrial Habitat

Gamka Thicket (AT2) based on vegetation described in Mucina and Rutherford (2006). Gamka Thicket in this area has since been reassigned as Gamka Arid Thicket (AT33) according to Skowno and Monyeki (2021). The terrestrial ecosystem status for these habitats is Least Concerned (AT33) (Skowno and Monyeki, 2021).

Apart from the areas affected by the alleged unlawful activities, the vegetation on site is still in a largely natural condition.

Aquatic Habitat

The site falls within Quaternary catchment J25A which falls within the larger Breede-Gouritz River Water Management Area (WMA). Freshwater features found on site include a small ephemeral tributary of the Gamka River together with its associated drainage lines.

The small ephemeral stream is joined by several small drainage lines before meeting the Gamka River towards the north-east of the property. Because of the stream's ephemeral nature, it only flows in times of heavy rainfall within the immediate area and does not host any permanent aquatic habitat or vegetation. The stream and its drainage lines also do not possess any distinct riparian zone and can only be recognised by defined channels running along the contours. From an aquatic ecological perspective, the stream only acts as drainage channel, with very little to no aquatic function.

2.4 Impact Assessment Summary and Recommendations

It is unlikely that there have been any impacts on geographical, physical, cultural-historical, palaeontological, noise, dust and visual aspects during the construction phase of the road and platform.

Construction activities have resulted in impacts of **very low (negative)** significance, after mitigation, on freshwater ecology aspects (physical disturbance and loss of aquatic habitat during construction). No vegetation species of conservation concern was removed during the clearance. It is the botanist's opinion that the loss of plant biodiversity on the developed area can be regarded as of a **High negative** impact, but this should be seen in context of the broader area (and remaining vegetation on the property)

No operational phase impacts, as a result of building a house on the already created platform, are anticipated on geographical, physical, socio-economic, cultural-historical, palaeontological, noise, and visual / sense of place aspects, because the impacts already occurred during the construction phase.

No decommissioning phase impacts are anticipated on geographical, physical, socio-economic, cultural-historical, palaeontological, noise, and visual / sense of place aspects.

It is concluded that the construction of the road and platform have not resulted in any significant impacts during the construction phase and are also not expected to result in any significant impacts during the operational phase.

2.5 Applicable EIA listed activities

The identified Listed Activities in terms of the NEMA for which Environmental Authorisation is being applied for through the Section 24G process, are listed below.

Table 1: Listed Activities applicable to this application

Activities unlawfully commenced with on or after 07 April 2017: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998, as amended		
GN No. R. 327 Activity No(s): **(LN 1 of 2014, as amended)**	Describe the relevant listed activity(ies) in writing as per GN No. R.327 of 2014 ("NEMA 2014 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.
Activity 12	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or **(ii) infrastructure or structures with a physical footprint of 100 square metres or more;** **where such development occurs—** **(a) within a watercourse**; (b) in front of a development setback; or (c) if no development setback exists, **within 32 metres of a watercourse**, measured from the edge of a watercourse; excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; [or] (ee) where such development occurs within existing roads, [or] road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	The creation of a platform of ± 750 m² for the proposed house);
Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving - (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance	The development of the road resulted in the removal, moving and infilling of 10 m³ of material or more from the watercourse.

Activities unlawfully commenced with on or after 07 April 2017: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998, as amended		
GN No. R. 327 Activity No(s): **(LN 1 of 2014, as amended)**	Describe the relevant listed activity(ies) in writing as per GN No. R.327 of 2014 ("NEMA 2014 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.
	management plan;	
GN No. R. 324 Activity No(s): **Listing Notice 3 of 2014, as amended)**	Describe the relevant listed activity(ies) in writing as per GN No. R.324 of 2014 ("NEMA 2014 Basic Assessment listed activity/ies")	Describe the portion of the development as per the project description that relates to the applicable listed activity.
Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	Development of an access road of ± 290 metres long and ± 4m wide.

It is of the utmost importance to prevent the triggering of further listed activities that may need to be authorised. It is recommended that an EAP be contacted to ascertain if proposed further activities will trigger any Listed Activities during the undertaking of management or maintenance activities

3. Environmental Assessment Practitioner

This EMPr was prepared by Pieter de Villiers of Cornerstone Environmental Consultants, the Environmental Assessment Practitioner (EAP) who undertook the Section 24G process for the project.

Pieter holds a Baccalaureus Technologiae (B. Tech) Degree in Environmental Sciences from the Tshwane University of Technology and has more than 19 years' experience as an EAP. He has led numerous Basic Assessment, EIA and Section 24G processes across South Africa, for a wide variety of projects. He is a member of the EAPASA, Registered (2019/1372) and member of the IAIAsa. He is a registered Professional Natural Scientist with the South African Council for Natural Scientific Professions (registration number 400210/15). He has also successfully completed Aspects International's, ISO 14001:1996 Lead Auditors Training course (IEMA's Approved Auditors' Course), amongst others.

See **Appendix B** for Pieter de Villiers' Curriculum Vitae.

4. Responsible Parties and Communication

Responsibility for the implementation of the EMPr lies with the Applicant. This responsibility could be delegated to contractors for practical purposes (if required), but the Applicant will remain legally responsible for the implementation of the EMPr.

It is therefore the responsibility of the following individuals or groups to implement the EMPr and its management conditions:

4.1 Applicant

The Applicant has the responsibility of implementing the conditions of the EMPr, as well as those to be contained in the Environmental Authorisation (EA).

4.2 Applicant's Representatives

This person, who could also be the Applicant, is responsible for managing the property and related facilities on behalf of the Applicant.

Responsibilities include:

- The day-to-day running and maintenance of various activities and facilities; including maintenance of the entrance road and the platform on which the house is situated.
- Appointment and management of relevant third parties as described below and/or management of internal employees conducting work related to management, maintenance, upkeep of any infrastructure; and
- Overseeing the implementation of the EMPr.

5. Environmental Awareness Education

5.1 Environmental Awareness and Environmental Risk Induction

In this section, the following shall apply:

- During general operational activities, responsibility for training shall lie with the Applicant, and/or the Applicant's representative (i.e. Responsible Party). 'Staff' to be trained refers to general staff working on site.

The Responsible Party must induct all staff to convey the importance and implications of this report and the conditions of the EA, and to familiarise them with the environmental aspects surrounding operational or maintenance activities.

As part of the induction programme, staff shall be educated as to the need to refrain from destruction of animals and plants, as well as from indiscriminate defecation, waste disposal and/or pollution of local soil and water resources, from trespassing on surrounding private property and from theft from surrounding private property. Immediate and decisive action shall be taken should this occur.

Notwithstanding the specific provisions of this clause, it is incumbent upon the Applicant to convey the spirit of this report to all staff involved with the works.

Where possible, the presentation needs to be conducted in the staff's language of choice. The environmental induction training shall, as a minimum, include the following:

- Sensitive and no-go areas on site;
- The importance of conformance with the EMPr;
- The significant 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 EMPr, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures; and
- The mitigation measures required to be implemented when carrying out their work activities.

PART 2: ENVIRONMENTAL MANAGEMENT PROGRAMME

1. EMPr Content requirements

In terms of developing an EMPr in line with the requirements of Appendix 4 of the EIA Regulations, the content requirements for an EMPr also includes the need to comply with Section 24N (2) of the NEMA. The table below lists the relevant requirements, indicates whether the relevant information is included in this report or not, and provides cross-references as to where the relevant information can be found in this report.

Table 2: EMPr requirements in terms of Appendix 4 of the EIA Regulations of 2014, as amended.

Appendix 4 of the EIA Regulations of 2014, as amended		Included (Yes, No or N/A)	Report Section Reference
1. An EMPr must comply with section 24N of the Act (NEMA) and include -			
(a)	details of -		
	(i) the EAP who prepared the EMPr; and	**Yes**	**Part 1, Section 2; Appendix C**
	(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	**Yes**	
(b)	a detailed description of the aspects of the activity that are covered by the draft EMPr as identified by the project description;	**Yes**	**Part 1, Section 3**
(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	**Yes**	**Figure 1**
(d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	**Yes**	**Part 2, Section 3**
	(i) planning and design;		
	(ii) pre-construction and activities;		
	(iii) construction activities;		
	(iv) rehabilitation of the environment after construction and where applicable post closure;		
	(v) where relevant, operation activities;		
(e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	**Yes**	**Part 2, Sections 2 and 3**
(f)	a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to -	**Yes**	**Part 2, Section 3**
	(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 practices;		
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and		
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;		
(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Yes**	**Part 2, Sections 3 and 4**
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Yes**	**Part 2, Sections 3 and 4**
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	**Yes**	**Part 1 Section 4; Part 2 Sections 3 and 4**

Appendix 4 of the EIA Regulations of 2014, as amended		Included (Yes, No or N/A)	Report Section Reference
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	**Yes**	**Part 2, Sections 3 and 4**
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	**Yes**	**Part 2, Sections 3 and 4**
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	**Yes**	**Part 2, Sections 3 and 4**
(m)	an environmental awareness plan describing the manner in which-	**Yes**	**Part 1, Section 5**
	(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		
(n)	any specific information that may be required by the competent authority.	-	-

2. Impacts and Mitigation Measures

A number of potential environmental impacts that may arise during the project's construction and operational phases have been identified. These are outlined in **Table 3** and **Table 4** and mitigation measures are provided.

The Applicant and Contractor (if applicable) must familiarise themselves with the requirements of the EMPr, keeping in mind that other site-specific requirements as outlined in the EA must also be complied with.

Table 3: Construction Phase Management Measures

The construction phase management EMPr is intended to guide the Applicant and his contractors when the house is constructed on the platform.

CONSTRUCTION PHASE – GENERAL MANAGEMENT: (CONSTRUCTION OF HOUSE)							
NO	**PROJECT ACTIVITY** (Environmental Aspect)	**POTENTIAL IMPACT**	**OBJECTIVE AND TARGET**	**MITIGATION / MANAGEMENT MEASURES**	**RESPONSIBLE PARTY/PERSON (to implement mitigation measures)**	**MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY**	**Monitoring (Successfully Implemented / Corrective action required)**
1	**Pre-construction** (Administration)	**Environmental awareness.**	**Objective:** Ensure contractors and staff are aware of the required management measures stipulated in the EMPr. **Target:** Environmental Awareness Plan to be presented to all personnel working on site.	• This EMPr must form part of the contractual agreements with the specific contractors. • Present Environmental Awareness Plan and induct personnel on Environmental Matters during "toolbox" talks. • Keep proof of attendance on file.	Applicant and Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).
2	**Site clearance and preparation** (Vegetation removal)	**Soil erosion and sedimentation** by removal of vegetation and topsoil and compaction of heavy machinery resulting in increased runoff.	**Objective:** Prevent unnecessary habitat destruction. **Target:** All areas not demarcated for construction should remain vegetated.	• Demarcate all no-go areas, which is the areas that has not been disturbed and falls outside of the already created platform. • Runoff from the construction area must be managed to avoid erosion and pollution. • Specific construction areas shall be clearly communicated to the Contractors. All vehicles and activities shall be confined to the platform, to minimise environmental damage to the surrounding terrestrial vegetation. • Sensitive and/or no-go areas shall be clearly explained to workers during the induction programme (all surrounding properties).	Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).

CONSTRUCTION PHASE – GENERAL MANAGEMENT: (CONSTRUCTION OF HOUSE)							
NO	**PROJECT ACTIVITY** (Environmental Aspect)	**POTENTIAL IMPACT**	**OBJECTIVE AND TARGET**	**MITIGATION / MANAGEMENT MEASURES**	**RESPONSIBLE PARTY/PERSON (to implement mitigation measures)**	**MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY**	**Monitoring (Successfully Implemented / Corrective action required)**
				• No material may be stored or dumped (temporarily or semi-permanent) into the exclusion/ no-go areas.			
3	**Construction activities**	**Dust and Noise impacts**	**Objective:** To limit adverse socio-economic impacts as far as possible. **Target:** To limit dust and noise generated on site.	• All disturbed surfaces must be monitored for dust during windy periods. It may be necessary to work straw into the disturbed surfaces to prevent dust, to keep wet or to quickly establish vegetative cover. • Vehicles and construction workers to remain on designated access routes, adhere to acceptable speed limits and keep within the demarcated work areas. • The Contractor shall endeavour to keep noise and vibration generating activities to a minimum. • Noisy activities that could cause a major disturbance should only be done during daylight hours, or unless otherwise approved by the Engineer/ECO.	Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).
4	**Construction Activities** (Employee toilet facilities)	**Ground- and surface water pollution** from improper sewerage disposal.	**Objective:** Prevent ground- and surface water pollution from sewage. **Target:** No sewage in contact with natural surface or groundwater.	• The Contractor shall ensure the provision and proper utilisation, maintenance and management of toilet, wash and waste facilities. • All leaking taps and equipment using water shall be regularly checked for leaks and drips. • Water for construction and drinking purposes shall be obtained from a sustainable source. • At least one chemical toilet must be made available on site for every 20 construction workers. All construction workers will be required to use the chemical toilet(s). • All temporary/portable toilets should be secured to the ground to prevent them from toppling due to wind or any other cause.	Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).

CONSTRUCTION PHASE – GENERAL MANAGEMENT: (CONSTRUCTION OF HOUSE)							
NO	**PROJECT ACTIVITY** (Environmental Aspect)	**POTENTIAL IMPACT**	**OBJECTIVE AND TARGET**	**MITIGATION / MANAGEMENT MEASURES**	**RESPONSIBLE PARTY/PERSON (to implement mitigation measures)**	**MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY**	**Monitoring (Successfully Implemented / Corrective action required)**
				• The chemical toilets shall be properly maintained and cleaned on a regular basis (at least once a week). • Sewage from the chemical toilets must be disposed of at a suitably licensed sewage disposal facility.			
5	**Construction Activities** (Fire prevention and control)	**Depletion of natural resources** or harm to humans and infrastructure	**Objective:** Prevent damage to vegetation and surrounding houses due to uncontrolled fires. **Target:** No fires.	• Smoking shall be prohibited near flammable substances and may only take place at designated smoking areas, and cigarette butts must be disposed of in lidded bins. • Open fires for heating and cooking should not be permitted. • Fire-fighting equipment shall always be available on site, in particular where flammable substances are being stored or used. • Any welding or other sources of heating of materials shall be done in a controlled environment and under appropriate supervision, in such a manner as to minimise the risk of fires and/or injury to staff. • Ensure that a working fire extinguisher is immediately at hand if any "HOT WORK" is undertaken e.g. welding, grinding, gas cutting etc. • The Contractor shall be held responsible for any damage caused as a result of fires caused by their employees or Sub-contractors.	Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).
6	**Waste management** (Waste disposal)	**Solid waste disposal**	**Objective:** Prevent pollution. **Target:** No littering.	• Solid waste shall be stored in an approved area in covered, tip-proof metal drums, preferably skip containers, for collection and disposal. • Disposal of solid waste shall be at a licensed landfill site.	Construction Contractors	Site Inspection/ maintenance activities	Periodic internal audits, and annual external

CONSTRUCTION PHASE – GENERAL MANAGEMENT: (CONSTRUCTION OF HOUSE)							
NO	**PROJECT ACTIVITY** (Environmental Aspect)	**POTENTIAL IMPACT**	**OBJECTIVE AND TARGET**	**MITIGATION / MANAGEMENT MEASURES**	**RESPONSIBLE PARTY/PERSON (to implement mitigation measures)**	**MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY**	**Monitoring (Successfully Implemented / Corrective action required)**
				• No waste shall be burned or buried on site. • No littering by construction workers shall be allowed. During the construction period, the facilities should be maintained in a neat and tidy condition and the site should be kept free of litter.		**Responsible Person/Party:** Applicant	audits (if required).
7	**Waste management** (Recycling)	**Depletion of natural resources**	**Objective:** Recycle. **Target:** Re-use construction materials where possible.	• Wherever possible, materials used or generated during construction shall be recycled or reused. • Where possible and practical waste shall be sorted for recycling purposes, into the following categories: paper, aluminium, metals (other than aluminium), organic waste and glass.	Construction Contractors	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).
8	**Construction Phase** (Emergency issues)	**Emergencies**	**Objective:** Comply with the EMPr measures. **Target:** No non-compliances to be received.	• The Construction Contractor should define emergency reporting procedures for the project, i.e. oil spills, fire etc. • Adopt standard emergency reporting procedures. • Ensure that all personnel are aware of emergency reporting procedures and their responsibilities. • Ensure immediate clean-up of any spills in accordance with relevant legislation. • Telephone numbers of emergency services, including the local firefighting service, should be placed in visible areas such as on the site office notice board and in the staff canteen.	Site Manager, Construction Contractors, personnel	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).

Table 4: Operational Phase Management Measures

The intention of providing an EMPr for the operational phase is to provide guidelines for management of infrastructure to safeguard the environment, i.e., the integrity of the sense of place etc., against negative environmental impacts.

NO.	PROJECT ACTIVITY (Environmental Aspect)	POTENTIAL IMPACT	OBJECTIVE AND TARGET	MITIGATION / MANAGEMENT MEASURES	RESPONSIBLE PARTY/PERSON (to implement mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	Monitoring (Successfully Implemented / Corrective action required)
Impacts on Aquatic Ecology and Indigenous Vegetation							
1	**Maintenance**	The potential impacts on freshwater features and indigenous vegetation associated with the works undertaken are the physical disturbance and loss of aquatic habitat and indigenous vegetation during construction.	**OBJECTIVE:** • The infilling of the watercourses needs to be removed and these areas rehabilitated to ensure that there are no blockages and reduce the risk of erosion. **TARGET:** • No erosion. • No alien vegetation invasion. • Improved aquatic habitat.	The following specific management measures should be implemented: • The areas where the road crosses the Unnamed stream should be redone in order to accommodate any flow that might come down the channel, without causing erosion downstream of the crossings. Any work on the road should be done in the dry summer months when rainfall and runoff is expected to be at its lowest. • Any future construction activities, including the construction of a house, should preferably be kept within the existing footprint of the disturbed areas, with all other activities kept outside of the 5m buffer zone from the centre of the stream channels. • No debris, or polluted runoff should be allowed within the stream channels during the construction of the house. • Should a house be constructed on the platform, the sewage system of such house should preferably be caught in a closed sewage tank/system.	Applicant	Site Inspection/ maintenance activities **Responsible Person/Party:** Applicant	Periodic internal audits, and annual external audits (if required).

3. Environmental Monitoring and Auditing of the Construction and Operational Phases

It will be incumbent for the Applicant to undertake periodic internal audits of the activities on site to ascertain compliance with the mitigation/management measures in the tables of the EMPr. These audits should also be supplemented by an external audit, if deemed to be required, the frequency of which will be indicated in the Conditions of the Environmental Authorisation, to establish compliance with the EMPr and with the Environmental Authorisation of the development and any other permits or licences in place (if applicable).

The objectives of the environmental audit report, as per Regulation 34 and Appendix 7 of the EIA Regulations, 2014 as amended, is to:

a) report on-
- *(i) the level of compliance with the conditions of the environmental authorisation and the EMPr , and where applicable, the closure plan; and*
- *(ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieves the objectives and outcomes of the EMPr, and closure plan.*

b) identify and assess any new impacts and risks as a result of undertaking the activity;
c) evaluate the effectiveness of the EMPr, and where applicable, the closure plan;
d) identify shortcomings in the EMPr, and where applicable, the closure plan; and
e) identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.

Appendix A: Maps and figures:

Locality Map – *See Appendix A1 to the Section 24G Report*

Site Layout Plan – *See Appendix C1 to the Section 24G Report*

Appendix B: EAP's Curriculum Vitae

Curriculum Vitae

(Abbreviated Version)

Pieter de Villiers

CORNERSTONE
ENVIRONMENTAL CONSULTANTS

Personal Information

Full names:	Petrus Johannes de Villiers (Pieter)
Nationality:	South African
Languages:	Afrikaans and English
Profession:	Environmental Assessment Practitioner (EAP)
Accreditation	Registered EAP (Reg. No. 2019/1372); and Professional Natural Scientist (Pr.Sci.Nat 400210/15)
Position:	Director
Specialisation:	Environmental Services
Office Address:	Die Boord, Stellenbosch
Cell number:	083 243 0994
Office Tel:	021 887 9099
Email address:	pieter@cornerstoneenviro.co.za
Website:	www.cornerstoneenviro.co.za

Profile Summary

Pieter de Villiers is the founder of Cornerstone Environmental Consultants (Pty) Ltd.

Pieter has more than 19 years' experience in the environmental management field and is a registered Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and is a registered Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP). He holds a Baccalaureus Technologiae (B. Tech) Degree in Environmental Sciences from the Tshwane University of Technology, and has successfully completed the Management Development Programme at the University of Stellenbosch Business School. He has also successfully completed Aspects International's ISO 14001:1996 Lead Auditors Training course (IEMA's[1] Approved Auditors' Course), amongst others.

He gained experience as part of the environmental team at Golder Associates Africa (hereafter "Golder Associates"), an international consultancy firm, where he was mostly involved with projects in the heavy industrial and mining sectors as part of multi-disciplinary teams. Whilst at Golder Associates, he gained invaluable auditing experience in the mining sector, mostly conducting Environmental Management Systems and Compliance Audits in African countries outside the borders of South Africa.

Pieter also worked for a small, yet dynamic consultancy company, Withers Environmental Consultants in Stellenbosch, where his focus shifted to managing Environmental Impact Assessment processes in the residential, land development, telecommunication, renewable energy and Municipal bulk services sectors. He prepared Environmental Scoping Reports, Environmental Impact Reports, Environmental Management

[1] Institute of Environmental Management and Assessment

Programmes, Environmental Due Diligence Reports, Project Cost Estimates and Quotations, amongst others. He also acted as an Environmental Control Officer on construction projects ranging from housing developments to optic fibre duct installation projects. Pieter furthermore also managed and assisted junior staff in the office.

Pieter then joined Enviroworks, an environmental consultancy based in Bloemfontein, Free State Province, with a branch in Strand, Western Cape Province, as their General Manager. He provided leadership to all staff members in overseeing the company's projects and services, and acted as project reviewer. He furthermore functioned as a Senior Environmental Consultant and maintained projects of his own. Project related experience and responsibilities were to conduct and coordinate Environmental Impact Assessments and its associated public participation processes in several disciplines e.g. renewable energy projects, housing developments, industrial development, optic fibre duct installations and Section 24G rectification applications. His review work included review of Environmental Scoping Reports, Environmental Impact Reports, Environmental Management Programmes, Environmental Due Diligence Reports, Project Cost Estimates and Quotations, etc. He also acted as an Environmental Control Officer on construction projects.

Tertiary Education

Year:	**2005**
Qualification:	B. Tech Environmental Sciences
Institution:	Tshwane University of Technology (previously Technikon Pretoria)
Subjects:	Project: Environmental Technology IV, Environmental Resources IV, Environmental Rehabilitation IV, Environmental Social Science III, Water Quality Management IV, and Integrated Catchment Management IV.
Year:	**2002 - 2004**
Qualification:	N. Dip. Environmental Sciences
Institution:	Tshwane University of Technology
Subjects:	Environmental Management I, II & III, Environmental Resources I, II & III, Environmental Law, Communication skills, Chemistry IA, Geology I, Mathematics I, Entrepreneurial skills, Computer Skills, Applied Geology I & II, Environmental Geology II, Environmental Geohydrology III, Microbiology I, Geotechnology I, II & III, Environmental Chemistry II, Environmental Economy, Environmental Biotechnology II, Environmental Management Systems, Industrial Processes III, and Industrial Environmental Practice III.

Courses Attended

2017	Water Use Training: "Understanding Watercourses and Managing Impacts to their Characteristics" One day workshop
2014	Sharpening the tool: New techniques and methods in environmental impact assessment. Presented by SE Solutions
2010	Management Development Programme at the University of Stellenbosch Business School
2009	Golder Associates Africa Technical Writing Course
2007	Aspects International, ISO 14001:1996 Lead Auditors Training course, IEMA Approved Auditors Course
2006	St John Ambulance, First Aid Training Course Level 1
2006	International Association for Public Participation, IAP2 Certificate in Public Participation
2006	Golder Associates Africa, Project Sustainability Management
2006	National Occupational Safety and Health Consultancy: Health and Safety Representative Training Course
2006	Golder Associates Africa, Project Management Course

Work Experience

May 2014 to current **Cornerstone Environmental Consultants Stellenbosch, South Africa**

Independent Environmental Assessment Practitioner

Functions and experience: Director, Principle Environmental Assessment and Public Participation Practitioner and Environmental Auditor. Day-to-day running of the business and responsible for all decision-making and marketing of the services the company provide. Advise clients on a variety of aspects in the environmental management sphere and act as EAP and reviewer on all projects the company pursue. Pieter is also an Environmental Control Officer on construction projects and

has undertaken several Water Use Licence and Environmental Authorisation external audits.

September 2013 to May 2014

Enviroworks Environmental Consultants Bloemfontein and Strand, South Africa

General Manager and Senior Environmental Consultant

Functions and experience: Pieter was appointed as Enviroworks' General Manager for Enviroworks' two branches, the head office in Bloemfontein, Free State and the Western Cape office situated in Strand. Pieter provided leadership to staff in overseeing all company projects and services and acted as project reviewer. He also functioned as a Senior Environmental Consultant and maintained projects of his own. Project related experience and responsibilities were to conduct and coordinate Environmental Impact Assessments and its associated public participation processes in several disciplines e.g. renewable energy projects, housing developments, industrial development, optic fibre duct installations and Section 24G rectification applications. His review work included review of Environmental Scoping Reports, Environmental Impact Reports, Environmental Management Programmes, Environmental Due Diligence Reports, Project Cost Estimates and Quotations, etc. He also acted as an Environmental Control Officer on construction projects.

October 2009 to August 2013

Withers Environmental Consultants Stellenbosch, South Africa

Senior Environmental Consultant and Environmental Control Officer

Functions and experience: Responsible for conducting and coordinating Environmental Impact Assessments and its associated public participation process in several disciplines e.g. housing developments, industrial development, optic fibre duct installations and alternative energy projects. Compilation of Environmental Scoping Reports, Environmental Impact Reports, Environmental Management Programmes, Environmental Due Diligence Reports, Project Cost Estimates and Quotations, etc. Managing of junior staff in the office. Act as Environmental Control Officer on construction projects ranging from housing developments to optic fibre duct installation projects.

August 2004 to September 2009

Golder Associates Africa Johannesburg, South Africa

Environmental Scientist and Auditor (April 2006 to September 2009)

Functions and experience: Responsible for conducting and coordinating Environmental Impact Assessments in the industrial and mining sectors. Compilation of Environmental Scoping Reports, Environmental Impact Assessment Reports, Environmental Management Plans, Project Cost Estimates and Quotations, etc.
Audit-related experience in Environmental Management Systems, Compliance Audits, Due Diligence, Environmental Control Officer work and Phase 1 Environmental Site Assessments. Divisional Health and Safety representative.

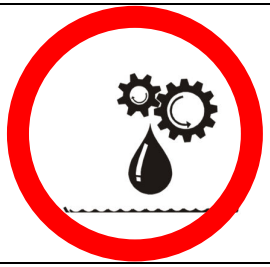
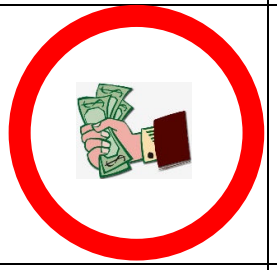
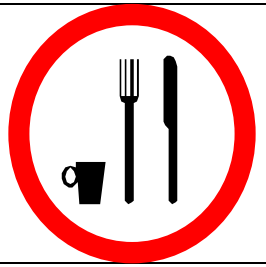
Surveillance Technician (August 2004 to March 2006)

Functions and experience: Tailings storage facility surveillance, Resource Management and Information Systems (REMIS) implementation and updating of the database, compiling quarterly environmental baseline monitoring reports and co-ordinating key performance indicators within the Surveillance Division. Divisional Health and Safety representative.

A full CV and Company Profile will be forwarded upon request. Also view www.cornerstoneenviro.co.za.

Appendix C: Environmental Awareness/Induction Training Material

PROTECTION OF THE ENVIRONMENT IS YOUR RESPONSIBILITY / BESKERMING VAN DIE OMGEWING IS JOU VERANTWOORDELIKHEID

					
REMAIN WITHIN WORKING AREAS BLY BINNE WERKGEBIEDE	PROTECT ANIMALS ON THE SITE BESKERM DIERE OP DIE KONSTRUKSIETERREIN	DO NOT HARM OR DAMAGE PLANTS AND ANIMALS. MOENIE PLANTE EN DIERE BESKADIG NIE.	USE RUBBISH BINS GEBRUIK ASBLIKKE	DO NOT LIGHT ANY FIRES WITHOUT PERMISSION MOENIE SONDER TOESTEMMING ENIGE VURE MAAK NIE	SMOKE CAUTIOUSLY ROOK VERSIGTIG
					
PREVENT OIL POLLUTION. USE DRIP TRAYS VOORKOM OLIE-BESOEDELING	USE TOILETS GEBRUIK DIE TOILETTE	DON'T SPEED/ SECURE LOADS RY STADIG/ MAAK VRAGTE VAS	CONTROL DUST BEHEER STOF	FINES OF BETWEEN R1000-R10000 BOETES TUSSEN R1000 - R10000	ONLY EAT IN DEMARCATED AREAS EET SLEGS IN GEMERKTE GEBIEDE
					
LIMIT NOISE VERMINDER GERAAS	ASK QUESTIONS VRA VRAE	KNOW THE EMERGENCY NUMBERS KEN DIE NOOD NOMMERS			

EMERGENCY NUMBERS

AMBULANCE
10177
Stellenbosch Municipality
021 808 8160
Department of Water and Sanitation
021 941 6000
Fire Services
0861 265 263