PHS CONSULTING
environmental, land-use, eco-tourism planning and management.

# ENVIRONMENTAL MANAGEMENT PROGRAMME:

## UNAUTHORISED ESTABLISHMENT OF FREE-RANGE CHICKEN HOUSES ON PORTION 349 OF FARM 811, TESLAARSDAL (CALEDON DIVISION)

Applicant: Graham Grindley-Ferris

Date: October 2026

Registered EAP: Paul Slabbert – EAPASA Reg. No. 2019/1036

Candidate EAP: Josie Howard - EAPASA Reg. No. 2025/19917

## DETAILS OF THE APPLICANT

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|---|---|---|
| **Applicant** | Mr Graham Grindley-Ferris | |
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## DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

| | | |
|---|---|---|
| **Company of EAP:** | PHS Consulting | |
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| **EAPASA registration no:** | Paul Slabbert – 2019/1036<br>Josie Howard – 2025/19917 (candidate EAP) | |

The curriculum vitae of the EAP is attached as **Appendix B.**

## DETAILS OF PROJECT

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|---|---|
| **Title:** | Unauthorised Establishment of Free-Range Chicken Houses on Portion 349 of Farm 811, Tesselaarsdal (Caledon Division) |
| **DEA&DP Reference No.** | 24G Consultation: 14/2/4/1/E4/5/0015/25 |
| **Process:** | Section 24G |
| **Report:** | Draft Environmental Management Programme |

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## KEY TERMS AND ABBREVIATIONS

**Auditing -** A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis to a predetermined standard.

**Contractor –**

(i) the main or specialised contractors as engaged by the Owner from time to time for the execution of the works, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the works;

(ii) any other contractor from time to time engaged by the Owner directly in connection with any part of the Works which is not a nominated subcontractor or a subcontractor to the main contractor.

**Council** – the local authority, Theewaterskloof Local Municipality, its successors in title or assigns.

**Department of Environmental Affairs and Development Planning (DEA&DP)**– the provincial authority for sustainable environmental management and integrated development planning.

**Developer/ Owner/Applicant** – Graham Grindley-Ferris

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

**Environmental Control Officer (ECO)** – a suitably qualified environmental consultant to be appointed by the Owner to oversee the implementation of the EMPr until the completion of works on the site.

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

**National Water Act (NWA)** – national legislation that provides principles for decision making on matters that relate to watercourse/water use/water bodies.

**Property –** Portion 349 of Farm 811, Tesselaarsdal (Caledon Division)

**Site -** Area where the proposed development will take place

**Workdays** – the days of the week excluding Sundays and public holidays.

**NOTE:** ALL CHANGES MADE TO THE EMPR AFTER THE PRE-APPLICATION PPP IS BLUE/UNDERLINED.

# SECTION 1: CONTEXTUAL INFORMATION

## 1.1. Introduction

PHS Consulting was appointed by Graham Grindley-Ferris to compile an Environmental Management Plan (EMPr) for the rectification of the unauthorized development of chicken houses on his property. An EMPr describes mitigation measures in detail, and is prescriptive, identifying specific individuals or organizations responsible for undertaking specific tasks to ensure that impacts on the environment are minimized during construction, operational and related activities. This process is undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA) and the EIA Regulations 2014, as amended.

As an open–ended document, information gained during on-going monitoring of procedures on site could lead to changes in the recommendations and specifications of this document. This document forms an agreement between the Department of Environmental Affairs and Development Planning (DEA&DP) and the Applicant that the environmentally sensitive features on the site will be suitably protected during the lifespan of the activity through the implementation of the applicable mitigation measures.

This EMPr is intended to guide and manage the construction and operational phases and general maintenance activities associated with the proposal. The construction phase is however already completed.

## 1.2. Project Background & Proposal

The activity is complete and currently operational.

The unauthorised establishment of free-range chicken houses took place on Portion 349 of Farm 811 (SG21 Code: C01300000000081100349). The property is 5.78ha in extent and is located inside the proclaimed Tesselaarsdal local area, 3km northeast of Tesselaarsdal and 15km southeast of Caledon within the Theewaterskloof Municipality (see Figure 1). The farm is accessed off an existing dirt road. The site has been used for agricultural practices for more than 20 years, transforming the majority of the property. The previous owners used the land for cattle grazing as part of a dairy operation.

The Applicant expanded his free-range hen operation from 3000 hens to 38 500 hens. Currently, there are 10 chicken houses on the property (Figure 2). 8 of these 10 houses are considered unlawful and require Environmental Authorisation. The unauthorised chicken houses can house approximately 35 500 hens. All chicken houses include a free-range grazing area that is grassed with scattered yellow wood trees. New gravel farm roads provide access to each hen house.

Non-infectious mortalities are fed to pigs kept on site, there are currently 8 pigs on the farm. Infectious mortalities are disposed of in a pre-designated area (small pit and hen compost), 10 m to right of the pigs. The volumes are very low (up to 5 a day).

Houses are cleaned at the end of each 80-week cycle, by means of dry sweeping. The manure and hay mixture is then collected by farmers who use it to supplement their fertiliser since it is a valuable resource. Floor areas are then

rinsed with a high-pressure hose. The wash water is directed onto the adjacent grassed and planted area used by the free-range chickens. Should these areas be saturated, any additional water is directed via stormwater channels to a retention area/pond (Appendix C).

Water usage is low and is calculated at approximately 6000 litres per day. Rainwater is collected from the various roofs and stored in jo-jo tanks adjacent to the chicken houses. Approximately 20 tanks (5 000 or 10 000 litre tanks) are located on the property for the collection of rainwater from the various hen house roofs and pack shed. It is estimated that roughly 300m$^3$ of rainwater is harvested per annum. The rainwater is supplemented by water that is pumped from the river into two dams are the property. Approximately 2000m$^3$ of water is pumped into the two dams per annum. The water is then pumped from the dams to three tank reticulation systems located close to the chicken houses. These tanks can store approximately 80 000 to 100 000 litres of water.




**Figure 1: Google Earth satellite image showing the location of the property.**

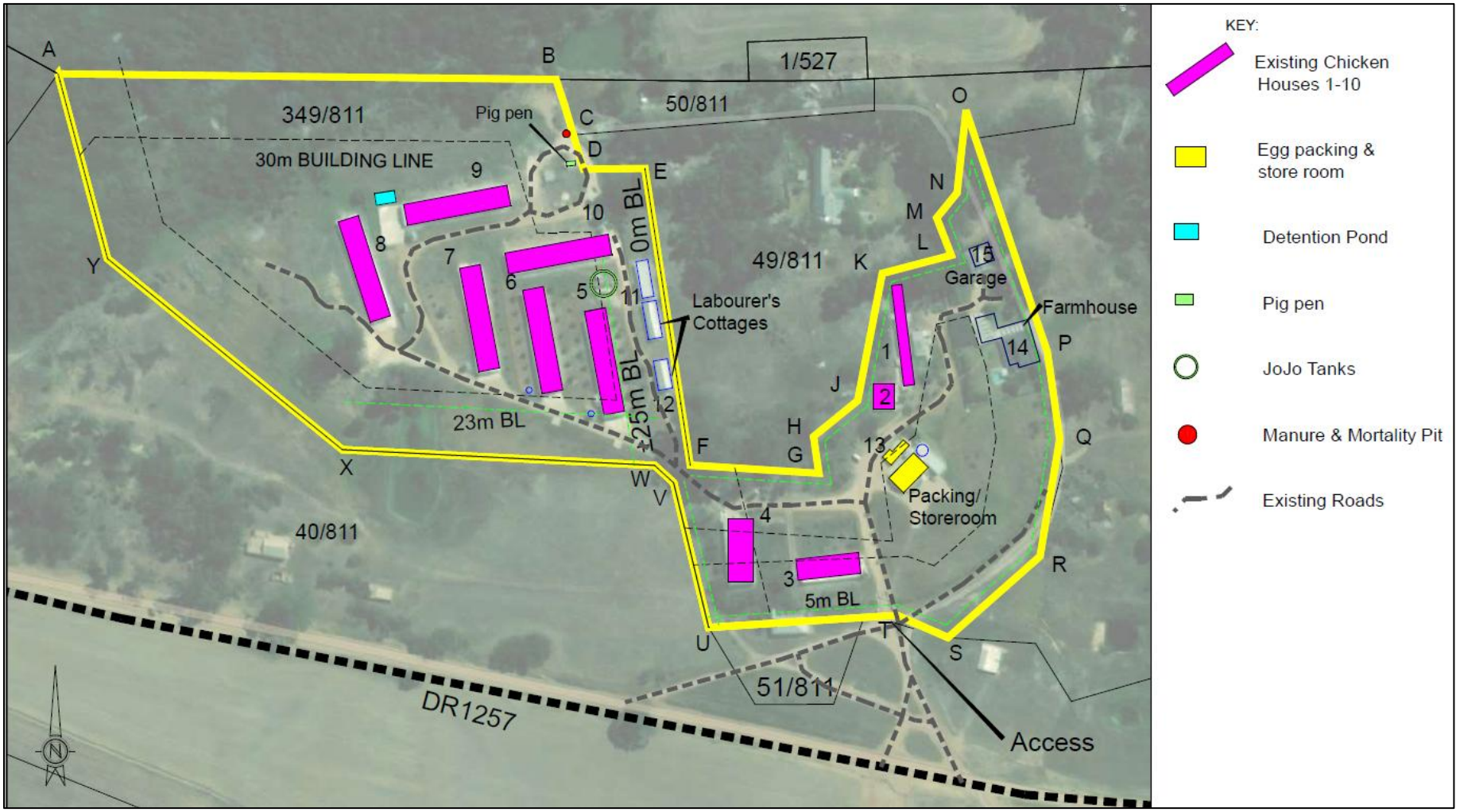



**Figure 2: Site layout.**

## 1.3. Environmental Attributes of the site

According to the SANBI Vegetation Map of 2018, Western Rûens Shale Renosterveld would historically have been present within the development footprint. At the time of development, this vegetation type was listed as 'Critically Endangered'. It should however be noted that the earliest available Google Earth Imagery which is dated 2004 shows the site as transformed agricultural fields/grassed lands. As such, no natural vegetation was present within the development footprint at the time of construction of the chicken houses.

The Hartebees River is located to the northwest of the site and the Klein River is located roughly 100m to the east of the site. According to the Freshwater Specialist, "The impacts associated with the existing activities are considered to be of an indirect nature and of very low risk, with no current evidence of habitat loss or hydrological alteration."

## 1.4. Purpose and Status of the EMPr

An Environmental Management Plan (EMPr) 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". EMPr's are therefore important tools for ensuring that the management actions arising from EIA processes are clearly defined and implemented through all phases of the project life cycle.

The EMPr forms part of the contract identifying and specifying the procedures to be followed by the Applicant in order to eliminate or reduce adverse impacts during the construction and operational phase. Should the owner or employee persistently fail to observe provisions of the EMPr, the Environmental Control Officer (ECO) should notify the relevant authority for a compliance audit, and possibly the prosecution of an individual or the removal of the individual from site.

The Environmental Contract ascribes legal status to the EMPr and any subsequent amendments thereto. The EMPr includes all relevant documentation within this report and/or referred to within it. The National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), and the respective Regulations are pertinent to this development. All activities on site must adhere and comply with the provisions of these Acts.

In general, the EMPr can consist of the following phases: planning & design; pre-construction activities; construction activities; rehabilitation &/or decommissioning; and lastly operational activities. However, the need to include all the above phases is dependent on the scale and scope of each individual project.

The construction of the chicken houses and roads has been completed therefore the Planning & Design and Construction Phases are complete. The EMPr focusses primarily on the operational phase of the development and is intended to guide operational aspects in line with relevant legislative requirements and the recommendations made by the specialist and/or consultant(s) as applicable. In addition, the freshwater ecologist has recommended mitigating measures to reduce the current negative impact. The following content is required in the EMPr in accordance with Appendix 4 of the EIA Regulations:

a) *details of–*

i. *the EAP who prepared the; and*

ii. *the expertise of that EAP to prepare an, including a curriculum vitae;*

b) *a detailed description of the aspects of the activity that are covered by and as identified by the project description;*

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;*

d) *a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including—*

i. *planning and design;*

ii. *pre-construction activities;*

iii. *construction activities;*

iv. *rehabilitation of the environment after construction and where applicable post closure;&*

v. *where relevant, operation activities;*

e) *a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to —*

i. *avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;*

ii. *comply with any prescribed environmental management standards or practices;*

iii. *comply with any applicable provisions of the Act regarding closure, where applicable; &*

iv. *comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;*

f) *the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);*

g) *the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);*

h) *an indication of the persons who will be responsible for the implementation of the impact management actions;*

i) *the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;*

j) *the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);*

k) *a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;*

l) *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;*

m) *any specific information that may be required by the competent authority.*

The EMPr forms part of the contract identifying and specifying the procedures to be followed by all contractors and employees of the facility to eliminate or reduce adverse impacts of the works on the environment. Should a contractor or employee persistently fail to observe the provisions of the EMPr, the Environmental Control Officer (ECO) can recommend that the employee be removed from the site. Should the owner or employee persistently fail to observe provisions of the EMPr, the ECO should notify the relevant authority for a compliance audit.

Copies of the EMPr will be made available to all senior personnel on site, who will be required to familiarize themselves with the contents of the document and to follow procedures accordingly.

The EMPr will include goals and objectives set to achieve the required environmental standards. The S24G report identified issues that will have to be addressed in the operational phase to ensure mitigated impact on the environment

The Applicant will be responsible for the overall implementation of the EMPr.

**NOTE: This EMPr incorporates the findings of the Aquatic Biodiversity Compliance Statement (April 2026) undertaken for the site. The identified risks have been incorporated into the EMPr, and additional general risks have been included. The EMPr must be implemented in conjunction with conditions contained in the Environmental Authorization. The applicant and ECO must use the above-mentioned documents throughout the operation of the development. The EMPr will also become a condition of Environmental Authorization.**

## 1.5. Relevant legislation and policies

This EMPr aims to highlight historic design, capacity, management, and use issues and proposes a means to manage these within the framework of environmental best practice, the guiding principles of the National Environmental Management Amendment Act (Act 62 of 2008).

The following is a list of the legislation that may be pertinent to the project and its long-term operational management. All activities on site must ensure compliance with the provisions of the legislation as applicable:

- The Constitution of the Republic of South Africa (Act 108 of 1996)
- National Environmental Management Act (Act 107 of 1998) – NEMA
- Government Notices 327, 325 and 324 in terms of NEMA – EIA Regulations
- The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) - NEMWA

- National Heritage Resources Act 1999 (Act 25 of 1999) - NHRA
- National Water Act 1998 (Act 36 of 1998) – NWA
- Occupational Health and Safety Act (No. 85 of 1993)
- Basic Conditions of Employment Act 75 of 1997
- Conservation of Agricultural Resources Act 43 of 1983

# SECTION 2: PROJECT PHASES

The construction of the chicken houses and access roads on Portion 349 of Farm 811 has been completed. As such the **Planning & Design and Construction Phases** have been completed. The development took place on existing agricultural fields/fallow lands.

The **Operational Phase** consists largely, of the day-to-day running of the free-range egg farm on the 5.78ha property (footprint 2.7 ha), including maintenance of infrastructure.

- Management of water resources (dams and rain water tanks)
- Erosion control and road maintenance
- Maintenance of chicken houses
- Maintenance and cleaning of pig pen
- Maintenance of composting area
- Maintenance of landscaped areas
- Waste management and disposal
- Management and maintenance of stormwater systems

# SECTION 3: RESPONSIBILITIES AND ENFORCEMENT OF THE EMPR

## 3.1 The Competent Authority

DEA&DP is the competent in this instance. This Directorate has overall responsibility for ensuring that the Applicant complies with the conditions of its EA as well as this EMPr once approved. During all phases of the EMPr the competant authority will have the following role to play:

- The authorities may perform random controls to check compliance.
- Review Monitoring and Audit reports, if required.
- Whenever necessary, the authorities are to aid in understanding and meeting the specified requirements.

- Recommend suitable corrective measures are undertaken by the Applicant where non-compliance has been reported.
- Enforcing compliance by the Applicant

## 3.2. The Applicant

The Applicant (Holder of the EA) is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the EMPr is implemented and that both the EMPr and the EA are always complied with. The Applicant is also responsible for ensuring that all other environmental related legislation is complied with (i.e. CARA). The Applicant is responsible for the development and implementation of the conditions of the EA.

Amongst the general responsibilities above the Applicant is also responsible for:

- Appointing an ECO and environmental auditor (where required).
- Take the necessary action in terms of non-compliances.
- Ensuring that all the Applicant's, staff, representatives, contractors, consultants and any other agent operating under the employ of the Applicant comply with the EA.
- Considering the ECO's observations and recommendations and acting where required.

The Applicant must ensure that he/she is fully familiar with the requirements of this EMPr, any relevant Environmental Authorisation, General Authorisation (water use) or any other legally binding documentation.

Environmental awareness training of all staff/contractors involved in the EMPr work activities will be completed by the Site Manager or ECO on their roles and responsibilities, compliance to the EMPr and required monitoring as outlined in Section 7 of this document. The Applicant must ensure that the required Environmental awareness training of all staff/contractors takes place.

## 3.3. Site Manager

An operations/site manager or similar (if not the Applicant), must be identified to assume overall responsibility for managing the site, employees, and contractors and for ensuring that the environmental management requirements are met. All decisions regarding environmental procedures and protocol must be approved by the site manager, who also has the authority to stop any activity in contravention of the EMPr.

The site manager will have the following environmental control responsibilities:

- Present environmental awareness training to all contractors/staff in conjunction with the ECO,
- Regularly monitor the site and operation of the facility for potential environmental issues,
- Consult with the ECO, landowner, and all staff/contractors to resolve emerging environmental issues,
- Issue any instructions from the ECO to the management team via an appropriate management tool, and

- Keep a Site Control Register consisting of the following sections:
    - The **Site Control Sheet** in which the findings from weekly site monitoring activities are consolidated until buffers and rehabilitated areas are established
    - The **Environmental Site Instruction Section** will be used to record all general site instructions relating to the protection of the environment and instructions issued by the site manager or ECO for the purpose of facilitating the issuing of the site instruction by the Owner until buffers and rehabilitated areas are established.
    - The **Incidents Reporting Section** will be used to record all incidents pertaining to environmental issues onsite as well as remedial actions steps that were or need to be taken until buffers and rehabilitated areas are established.
    - The **Complaints Register** will be used to record all complaints received and responses thereto until buffers and rehabilitated areas are established.

Please note the above list is not exhaustive, the responsibilities of the site manager are adaptive and extent beyond environmental control aspects.

## 3.4. Environmental Control Officer (ECO)

SINCE THE DEVELOPMENT ACTIVITIES ARE COMPLETE, NO ECO IS REQUIRED.

A suitably qualified individual will be designated and appointed by the Applicant to fulfill the role of Environmental Control Officer, to ensure and oversee the implementation of the EMPr onsite in its entirety. The role of the ECO is essentially seen as an interactive one and should include regular site visits. The responsibilities of the ECO will include:

- To conduct environmental awareness training on the operation of the facility and implementation of the EMPr,
- To review method statements and to determine the most environmentally sensitive options of *modus operandi* for the development tasks,
- To assist the contractor/site manager in finding environmentally responsible solutions to problems,
- To oversee the implementation of environmental procedures set out in this document,
- To report on environmental issues,
- To receive notice and minutes of all site meetings,
- To maintain open and direct communication with the landowner, site manager, contractors, and authorities,
- To monitor contractors, the EMPr and the implementation thereof; followed by reporting to the relevant authorities,
- To take immediate action on site where clearly defined no-go areas/actions are violated, or in danger of being violated, and to inform the landowner and site manager immediately,

- To keep an up-to-date record of works on site, as they relate to environmental issues in the Site Control Register including records of non-compliance incidents, and
- To be contactable by the public regarding matters of environmental concern as they relate to the development.

Reporting and record keeping by the ECO should include monthly monitoring reports should any construction take place. The ECO must keep photographic records of all site visits and records of communication to and from relevant authorities.

## 3.5 The Environmental Auditor

Where required by the EA an environmental auditor will be appointed by the Applicant. The auditor will be an independent environmental consultant. The auditor will carry out a compliance audit based on the EA and of all of the activities being undertaken.

## SECTION 4: IMPACTS AND MITIGATION

The following possible impacts and associated mitigation measures have been identified within the proposed scope of work for the operational phase of the development:

| | **Impact** | **Proposed mitigation** |
|---|---|---|
| 1 | Indirect impacts on wetland and riparian ecosystems - Water quality risks associated with washing of chicken houses | Mitigation in place (to be continued with):<br>• Chicken houses are dry-cleaned/swept and manure removed prior to washing therefore reducing the contaminants in the wash water<br>• Wash water is discharged into grassed swales, where it typically infiltrates or evaporates before reaching the riparian zone, thereby minimising the risk to the receiving freshwater system<br>Additional Mitigation:<br>• Construction of a small, vegetated settling/attenuation pond at the end of the grass swale, to further polish wash water before infiltration.<br>• Ensure that clean stormwater is diverted away from contaminated areas to prevent unnecessary mixing and mobilisation of pollutants during rainfall events.<br>• Use biodegradable, low-toxicity cleaning agents where possible, and strictly control quantities used during washing operations.<br>• Continue with dry-cleaning practices and ensure that all manure is promptly removed and stored/handled in a manner that prevents leaching or runoff.<br>• Engage with the Working for Water Programme to facilitate the phased removal of invasive alien tree species within the broader wetland and riparian zone, thereby improving ecosystem functioning and resilience to potential future impacts. Given the extensive scale and density of the infestation within the broader wetland area, such clearing efforts are beyond the reasonable capacity of the landowner to undertake independently and will require institutional support.<br>• Regularly inspect and maintain drainage pathways, swales, and infiltration areas to prevent blockages, erosion, or preferential flow paths towards the wetland.<br>• Twice a year the water quality of the Haartbees river must be tested upstream and downstream of the farm in October and March. |
| 2 | Indirect impacts on wetland and riparian ecosystems - Water quality risks associated with composting area | • Concrete base/lining of composting area must be expanded to accommodate any potential spill over.<br>• Swale-like retention area to be constructed around composting area to catch any run-off from composting area. |
| 3 | Waste generation | • Manure and hay mixture is removed from site by neighbouring farmers who use it to supplement their fertiliser.<br>• Broken eggs are fed to the pigs.<br>• Non-infectious mortalities are fed to the pigs.<br>• Infectious mortalities are disposed of in an on-site mortality pit.<br>• Minimise new materials brought on site.<br>• Reuse existing materials where possible.<br>• Maximise recycling and waste separation onsite.<br>• No burning of waste on site.<br>• Worker awareness on site regarding waste minimisation and recycling |

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| 4 | Odour generated from chicken houses | • Pens are thoroughly cleaned at the end of each cycle.<br>• Manure is removed from site at the end of the cycle.<br>• Mortalities must be immediately disposed of. |
| 5 | Odour generated from pig pen | • Pig pen is regularly cleaned – dry sweeping and power washing when necessary.<br>• Manure is removed from site. |

# SECTION 5: REQUIREMENTS AND OPERATIONAL GOALS

The S24G report identified several impacts and concerns that were addressed through the process. Many of the issues need to be mitigated by management procedures and therefore goals need to be set to ensure implementation of these measures. Management activities are described to achieve the objectives together with monitoring and target criteria.

## 5.1. Components of Operational Management

- Goals: The key environmental goals are set for the operation of the property.
- Objectives: These are set to meet the goals.
- Risk: If the goal is not achieved.
- Actions: Measures put in place to achieve objectives.
- Monitoring: To check if the objectives are achieved.
- Targets: Indicators of the effectiveness of the programme.
- Remedial Action: If targets aren't met.

## 5.2. Goals

The following goals were set to ensure minimal environmental impact during the operation and life cycle of the project:

1. Protect the surrounding natural environment
2. Ensure aesthetic appeal of the site
3. Create awareness of waste management and waste minimisation
4. Create awareness of water conservation and sewage management

| **Goal 1: Protect the surrounding natural environment** | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Risk** | **Actions** | **Monitoring** | **Targets** | **Remedial Action** |
| Implement Bio-security measures | • Contamination of wild birds<br>• Contamination of chickens | • Train all staff and contractors to ensure an understanding of bio-security measures<br>  ○ wash hands under supervision at least twice a day using various approved SABS safe cleaning agents and hand wash and sanitisers placed at each hen house and the pack station<br>  ○ all staff have to wash their boots in buckets containing SABS approved disinfectant and Virokil upon entering the farm and/or a chicken house<br>• Set strict biodiversity guidelines to be adhered to<br>  ○ all new hens that arrive on the farm to have a detailed vaccine and health certificate from reputable suppliers before being received and placed<br>  ○ no excess / loose chicken feed is left lying around the farm as that may attract wild birds, especially wild geese and ducks.<br>  ○ any excess manure (dry manure) is removed immediately, and all chicken camps and pathways are swept regularly to keep them clean of manure<br>  ○ all chicken houses are washed with appropriate cleaning agents and tested (via swabs) for bacteria and cleanliness before being used<br>  ○ restricted farm access - only approved vehicles and people onto farm | • Monitor management's bio-security guidelines<br>• Monitor staff training and actions<br>• Monitor staff's adherence to bio-security measures<br>• Monitor cleanliness of units according to baseline which has been set.<br>• Monitor adjacent water resources (if relevant) to ensure that no pollution of water takes place – bi-annual water quality tests.<br>• Minimise use of washing water to ensure that no run-off occurs<br>• Regular audits: Solitaire regularly employs food safety (INTERTEC) and hen safety/welfare auditors (Department of Agriculture) to verify that standard operating and management procedures meet legal requirements | • Ensure environmental health – for surrounding environment as well as for chickens<br>• Ensure that staff understands importance of bio-security measures. | • Operator to take immediate action against non-compliance<br>• Penalise individuals who do not comply to bio-security measures which have been implemented<br>• Deviation from job description must be dealt with in terms of contractual or employment terms of reference. |

| | | | | | |
|---|---|---|---|---|---|
| | | ○ all vehicles are washed with Virokill / appropriate cleaning agent before entering the farm. This includes both manually for deep wash using a 'foamer' and high-pressure washer and an automatic purpose-built vehicle wash spray containing Virokill or relevant washing agent<br>○ birds remain indoors should DAFF or SAPA issue this instruction due to an outbreak of bird flu (or other notifiable disease)<br>○ birds to remain indoors should a threat or notice of bird flu be reported within the broader region until further instructions<br>○ various vaccines are issued to the birds in line with veterinary practices. Solitaire contract Avimune, a specialist poultry service provider as well as SMT Laboratories to regularly test the health of the flock, immediately handle any potential health issues and ensure our biosecurity, hygiene and bacteria loads are managed in line with best practices<br>○ pest control procedures in place to remove or limit pets e.g. rats, mice, flees etc. Ecolab a pest control supplier is used.<br>• Determine baseline for regarding cleanliness of units<br>• Delegate responsibility to specific members of staff for aspects of biosecurity<br>• Remove manure after each rearing cycle<br>• Ensure that no accidental run-off from the units leaves the development footprint. | | | |

| | | | | | |
|---|---|---|---|---|---|
| Management & Conservation of Water Resources | • Contamination of water resources<br>• Overuse of water resources | • Minimize the use of wash water onsite.<br>• Dry-sweep chicken pens before high pressure washing.<br>• Minimize the use of wash water inside units such that the moisture left after high pressure washing can evaporate.<br>• No water used during washing of units to be re-used on site.<br>• Minimise water used on site for irrigation.<br>• Construction of a small, vegetated settling/attenuation pond at the end of the grass swale, to further polish wash water before infiltration.<br>• Ensure that clean stormwater is diverted away from contaminated areas to prevent unnecessary mixing and mobilisation of pollutants during rainfall events.<br>• Use biodegradable, low-toxicity cleaning agents where possible, and strictly control quantities used during washing operations.<br>• Continue with dry-cleaning practices and ensure that all manure is promptly removed and stored/handled in a manner that prevents leaching or runoff.<br>• Engage with the Working for Water Programme to facilitate the phased removal of invasive alien tree species within the broader wetland and riparian zone, thereby improving ecosystem functioning and resilience to potential future impacts.<br>• Concrete base/lining of composting area must be expanded to accommodate any potential spill over.<br>• Swale-like retention area to be constructed around concrete lining to trap any run-off from composting area. | • Monitor intake quality to ensure that no pollution is taking place.<br>• Measure usage through installation of water meters on abstraction point.<br>• Internal audit of the facility to ensure compliance with standard operating procedures<br>• Regularly inspect and maintain drainage pathways, swales, and infiltration areas to prevent blockages, erosion, or preferential flow paths towards the wetland.<br>• Bi-annual water quality testing (October and March) of Hartbees River up-stream and down-stream of the farm. | • Ensure that all water resources remain unpolluted.<br>• Ensure that irrigation system is leak free – all leaks to be repaired immediately. | • Report and repair infrastructure failure immediately.<br>• Operator to take immediate action against non-compliance.<br>• Penalise individuals who do not comply to bio-security measures which have been implemented.<br>• Deviation from job description must be dealt with in terms of contractual or employment terms of reference. |
| | | • ***Responsibility: Owner and Site Manager*** | • ***Responsibility: Site Manager*** | • ***Responsibility: Owner and Site Manager*** | • ***Responsibility: Owner and Site Manager*** |

| **Goal 2: To ensure aesthetic appeal of the site** | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Risk** | **Actions** | **Monitoring** | **Targets** | **Remedial Action** |
| To minimise/ avoid erosion within the cleared area and on access road(s) | • Degradation of access roads.<br>• Degradation of natural land areas.<br>• Possible sedimentation of onsite watercourses. | • The wetlands and associated buffer areas must be maintained in good ecological state with suitable vegetation cover.<br>• Establish and maintain suitable vegetation cover at all stormwater concentration points (e.g., on the lower property boundary)<br>• Ensure that all vehicles using the access road are road worthy. | • Regular erosion monitoring must take place onsite and on the site access roads. | • Adaptive erosion management onsite.<br>• Limited onsite erosion<br>• Limited road deterioration | • Should any erosion be detected, the ECO or site manager must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilisation is employed as soon as possible. |
| Maintenance of chicken houses. | • Decrease in aesthetic appeal<br>• Poor screening of development<br>• Poor maintenance of houses, fences and natural vegetation<br>• Poor maintenance of landscaped areas<br>• Contamination of wild birds and vice versa. | • All buildings and associated infrastructure that has been erected, must be neat, functional and visually neutral | • Monitor condition of units<br>• Monitor effect of lights on surrounding area<br>• Monitor fence for biosecurity<br>• All faults to be repaired immediately | • All units to be in an acceptable condition | • Deviation from job description must be dealt with in terms of contractual or employment terms of reference. |

| | | | | | |
|---|---|---|---|---|---|
| Maintenance of landscaped area outside of units –<br><br>Landscaping is to mitigate possible visual intrusion, act as a buffer against noise. | • Decrease in aesthetic appeal<br>• Inappropriate landscaping<br>• Poor screening of development<br>• Misuse of water | • Use only indigenous/ endemic water wise plants to act as buffer area between units and surrounding environment<br>• Implement guidelines for landscaped area<br>• Ensure visual screening<br>• Rain-sensor to be installed as part of automatic irrigation system | • Monitor landscaped area to ensure no alien vegetation<br>• Monitor water use on site<br>• Monitor irrigation system for effective use of water – adjust where necessary | • Ensure effective screening of development<br>• Ensure optimal & effective water use<br>• Ensure landscaped areas act as buffers<br>• Implement alien control programme | • Irrigation system to be kept in optimal condition<br>• Leaks to be repaired immediately |
| | | ***Responsibility: Owner and Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: ECO and Site Manager*** |

| **Goal 3: To create awareness of waste management and waste minimisation** | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Risk** | **Actions** | **Monitoring** | **Targets** | **Remedial Action** |
| To minimise and manage waste indoors | • Lack of onsite waste management | • Educate employees to sort waste<br>• Recycle waste<br>• Re-use waste where possible<br>• Reduce waste produced | • Check operational components if recycling is followed | • Recycling to be actively implemented by the operator, manager and staff | • Refer non- compliance to the operator and site manager |
| Manage operational waste (including manure) | • Irresponsible waste management<br>• Unsightly and smell<br>• Attraction of pests | • Once chicken houses have been cleaned, manure must be immediately removed from the property.<br>• No composting or storage of manure within the development footprint | • Monitor litter on a weekly basis<br>• Check suitable removal of manure from the development footprint. | • No waste or pollution incidents may occur<br>• Minimise waste to landfill so encourage re-use options | • Any non-compliance to be referred to operator |
| | | ***Responsibility: Owner and Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: Owner and Site Manager*** | ***Responsibility: ECO and Site Manager*** |

| **Goal 4: To create awareness of water conservation and sewage management** | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Risk** | **Actions** | **Monitoring** | **Targets** | **Remedial Action** |
| Responsible and sustainable water use and prevention of contamination of water resources. | • Water wastage<br>• Overloading of sewerage system | • Plant indigenous plants<br>• Water wise gardening<br>• Water gardens and pastures early in the morning or late at night<br>• Use permeable and semi-permeable hard surfaces<br>• Lock farm taps<br>• Development of water awareness interpretative signage | • Check water usage of staff ablutions and gardens | • Water use targets to be set according to water availability | • Water leaks, non-compliance to be reported to operator<br>• Increased awareness programme amongst staff |
| Manage Sewage system | • Mismanagement<br>• Unsightly and smell<br>• Poor functioning of septic system | • Follow cleaning schedule | • Monitor sewage system on a weekly basis | • No ground water pollution incidents may occur | • Any non-compliance to be referred to operator |
| | | ***Responsibility: Owner and Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: ECO and Site Manager*** |

| Goal 5: Stormwater Management | | | | | |
|---|---|---|---|---|---|
| **Objective** | **Risk** | **Actions** | **Monitoring** | **Targets** | **Remedial Action** |
| Successful implementation of the Stormwater Management. | Erosion<br><br>Pollution of Freshwater ecosystems | Solitaire's stormwater management revolves around the construction of vegetated stormwater swales along roads. Roads are shaped to push water off the surface, into a canal or stormwater swale. Swales will be vegetated and these help to trap run-off in general. These swales/canals then lead to small shallow detention ponds or more appropriately 'dry pans' considering the rate of evaporation and limited run-off. Any overflow, if applicable, will then be directed into dams surrounding the site. The Stormwater Management Plan (**Appendix C**) needs to be implemented and is summarised below:<br>• Dry-sweep pens, remove all manure and minimise usage of water inside units for washing. Units are to be washed by high pressure hoses (washing pumps) only once dry matter has been removed in order to eliminate any possible manure runoff.<br>• Negligible runoff is caused by the 'washing' of the chicken houses. Any possible runoff will enter the vegetated area located around the chicken houses where it dissipates. These areas will also contain trees which will assist with infiltration of any run-off.<br>• During rain events runoff flows from chicken houses through the vegetated areas where it dissipates. Any remaining runoff then enters the existing/ proposed road network (further dissipation). | Bi-annual water quality testing of the Haartbees River must be undertaken upstream and downstream of the farm, around October and March, to ensure that no water discharge from the facility is affecting the surrounding water resources | Implementation of the stormwater management plan to ensure stormwater exiting the site does not pollute any natural ecosystems. | If erosion has occurred, it must immediately be rehabilitated through stabilisation of embankments and revegetation, where applicable. |

| | | | | | |
|---|---|---|---|---|---|
| | | • Run-off from the road will be directed into the vegetated stormwater swales.<br>• Any run-off from the swales will be directed into the proposed detention ponds/ dry pans and existing dams.<br>• Runoff will accumulate in the detention pond/ dry pans / dam allowing any possible manure to settle.<br>• Use biodegradable, low-toxicity cleaning agents where possible, and strictly control quantities used during washing operations.<br>• Continue with dry-cleaning practices and ensure that all manure is promptly removed and stored/handled in a manner that prevents leaching or runoff.<br>• Regularly inspect and maintain drainage pathways, swales, and infiltration areas to prevent blockages, erosion, or preferential flow paths towards the wetland.<br>• The proposed stormwater management system will assist with dissipating & polishing runoff; and trapping any possible manure from the chicken houses to ensure that no run-off from the units ends up in freshwater features.<br>• No ingress of stormwater into the broiler units is to occur to protect runoff quality.<br>• Refuelling or maintenance of vehicles may only take place on designated, bunded surfaces.<br>• Maintain vegetation around the facility to enhance soil stability, minimize erosion, and provide natural filtration of any runoff. | | | |
| | | ***Responsibility: Owner and Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: Site Manager*** | ***Responsibility: ECO and Site Manager*** |

# SECTION 6: GENERAL MANAGEMENT REQUIREMENTS

The following items must be integrated into the management of the activity whenever relevant:

## a) Environmental awareness training

All employees (including seasonal laborers) involved in the operation of the agricultural fields must be briefed on their obligations towards environmental controls and methodologies. The briefing should take the form of an on-site talk and demonstration by the ECO, Site Manager and/or the Landowner. All environmental impacts and aspects and their mitigating measures must be discussed, explained, and communicated to employees.

The environmental awareness education program should commence with entry onto the site and is likely to be an ongoing process. All personnel must be made aware of the details of the EMPr which will be applicable to them. It must be ensured that staff members who are not proficient in the language of instruction are provided with training in a suitable alternative language.

A regularly updated record must be kept of all personnel attending the Environmental Awareness training sessions until buffers and rehabilitated areas are established.

As a minimum the training must include:

- Explanation of the **reason of complying** with the EMPr;
- Discussion of the potential **environmental impacts** of operational activities;
- Employees' **roles and responsibilities on site**, including emergency preparedness;
- Explanation of the **mitigation measures** that must be implemented when carrying out the activities;
- Explanation of the specifics of this **EMPr** and its specifications (no-go areas, etc.);
- Explanation of the **management structure** of individuals responsible for matters pertaining to the EMPr.

**Environmental meetings** can be held with management, and selected groups of supervisors and/or employee representatives. The meetings will aid in environmental awareness being generated at all levels, as well as assist in identifying new environmental issues, concerns, or potential pollution sources.

**On the job training** is an essential tool in environmental awareness. Employeeswill be suitably trained in order to identify, prevent, minimize or manage actions or behaviors that could potentially result in negative environmental impacts. Employees will be given details of the expected environmental issues and concerns specifically related to their occupation. Employees will be trained in how to respond if an environmental problem or source of environmental pollution arises. The training will be on-going, and all new employees will be provided with the same standard of training as existing employees.

### b) Site Communication Procedures

There is to be continual communication between the landowner, contractor (where relevant), site manager, and the ECO. The ECO will advise the Landowner on factors relating to the EMPr and all environmental matters on site until buffers and rehabilitated areas are established. The ECO is allowed to issue a directive for the suspension of any activities or operations that are required to be stopped as a matter of urgency to prevent serious adverse environmental impacts or potential. The ECO shall without delay report any such actions to the Landowner. Any issues and concerns raised should be addressed as far as possible in as short a timeframe as possible.

A digital Site Control Register will be kept for the purposes of recording on-site instructions and as a general record of environmental issues until buffers and rehabilitated areas are established. A photographic record of the site will also be kept for visual reference purposes. The Site Control Register will consist of the following sections:

1. The **Site Control Sheet** in which the findings from weekly site monitoring activities are consolidated until buffers and rehabilitated areas are established
2. The **Environmental Site Instruction Section** will be used to record all general site instructions relating to the protection of the environment and instructions issued by the site manager or ECO for the purpose of facilitating the issuing of the site instruction by the Owner until buffers and rehabilitated areas are established.
3. The **Incidents Reporting Section** will be used to record all incidents pertaining to environmental issues onsite as well as remedial actions steps that were or need to be taken until buffers and rehabilitated areas are established.
4. The **Complaints Register** will be used to record all complaints received and responses thereto until buffers and rehabilitated areas are established.

This register must always remain on site and is to be made available for monitoring purposes by the DEA&DP/ local authority as required.

### c) Erosion Control

Care must be taken to prevent erosion of soils within the area, access road and nearby natural areas. Should any erosion be detected, the ECO or site manager must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilisation is employed as soon as possible.

d) Dust Control

The site manager shall take appropriate measures, to the satisfaction of the ECO to minimise the generation of dust nuisance. Watering of roads and exposed soils if required and maintaining a speed limit of 20km/h.

e) Emergency

All accidents and emergency situations are to be reported to the site manager, Landowner and ECO and full details included in environmental audits. Emergency contact numbers for fire department to be kept on site.

f) Fire:

In the case of a fire occurring on site, the site manager, and safety steward, landowner and adjacent landowners are to be notified immediately. If localised and posing a threat to humans, infrastructure or farming operations, effort should be made to extinguish the fire immediately, and if required, the assistance of the local fire department should be sought by the safety steward.

g) First Aid:

The site manager must provide and maintain a suitable first aid kit on site, with a member of staff suitably qualified in first aid on site during working hours, in accordance with the Occupational Health and Safety Act.

h) Vegetation Management

Alien invasive vegetation is imported/ non-indigenous plant material that can out-compete indigenous vegetation and must be removed from the site on an ongoing basis to conserve indigenous vegetation. Furthermore, alien invasive vegetation poses a fire risk as it increases the fuel load and fire intensity and may result in frequent and intense fires.

Clearing of alien invasive vegetation from the site must be undertaken as outlined in Section 2.1 of this document with regular maintenance clearing undertaken throughout the operational phase of the development.

# SECTION 7: MONITORING AND COMPLIANCE

## 7.1. Monitoring

The monitoring of works on site is necessary to demonstrate compliance with the specifications of the EMPr and to allow for problems or issues of non-conformance to be identified and appropriate corrective measures to minimize environmental damage to be implemented.

Monitoring should include daily visual checks by the site manager, checks on requirements for site activities by the ECO, as well as a review of site documentation. Monitoring should include photographic records. The ECO shall complete the performance record at the end of each table in section 7.2 of this document, as a record of transgressions or problems experienced on site, and how they were dealt with. Monitoring of the activities onsite by the ECO should take place 6-monthly (until buffers and rehabilitated areas are established) and an official report thereof must be prepared. These monitoring reports must be safely stored and made available to the auditor as well as the environmental competent authority (DEA&DP).

## 7.2. Environmental Control Sheets

### a. Communication

| TASK | MITIGATION AND ENVIRONMENTAL CONTROLS | ACTION |
|---|---|---|
| Site Control Register | • To be updated on a regular basis | ECO/Site Manager |
| Environmental Awareness education | • Each contractor team and all employees involved with the composting activity are to attend a training session prior to commencing work on site.<br>• Record of members attending training sessions to be kept and updated regularly. | ECO/Site Manager |
| Method Statements | • Method statements to indicate What, How, Where and When activities are to take place.<br>• Method statements for each relevant activity to be submitted to ECO prior to the start of that activity on site.<br>• Work is not to commence until method statement approved by ECO and Site Manager if necessary. | Contractor/Site Manager |
| **COMMENTS/ UPDATE** | | |

**RECORD OF PERFORMANCE**

| Acceptable | | Details of Transgression | Responsible Party | Action Taken | Date |
|---|---|---|---|---|---|
| Yes | No | | | | |
| | | | | | |

## 7.3. Review of the EMPr

The EMPr will be reviewed by the ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on site. The EMPr must be updated should any significant changes occur to the operations with regard to the composting site.

Any such changes or updates will be registered in the ECO's 6-monthly record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties on site.

## 7.4. Environmental Audits

A suitably qualified Environmental Auditor is to be appointed, at the expense of the Landowner, to undertake audits of compliance with the EMPr. This should happen 6 months after Environmental Authorization and 6 months after buffers and rehabilitated areas are established.

Objectives should be to audit compliances with the key components of the EMPr, to identify main areas requiring attention and recommend priority actions. The audit should cover a cross section of issues, including implementation of environmental controls, environmental management, and environmental monitoring.

Results of the audits should inform changes required to the specifications of the EMPr or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

The national, provincial and local authorities must be given access to audit or inspect the facility if so requested.

## 7.5. Record Keeping

The Landowner should keep records of the following:

- Monitoring reports (ECO Reports)
- A site control register:
    - The control register must outline monitoring undertaken by the site manager.
    - It is recommended that the register is in a digital format as this will ensure that all records are easily accessible for internal and external auditing requirements.
    - An incident and complaints register must form part of the overall site control register.
- Reviews of the EMPr,
- Amendments to the EMPr, EA or GA/ WULA

Records should be kept and must be made available for review on request, based on adequate motivation. Minutes of meetings on site must reflect environmental queries, complaints, actions agreed upon, dates of eventual compliance and must form part of the official environmental site record.

In addition to the summary report, the ECO shall keep photographic records of all site visits and an ad hoc record of incidents or events on site, especially in the case of transgressions from EMPr specifications. Such photographs are to be taken with an in-camera dating facility.

## 7.6. Incident reporting

Environmental incident reporting is a vital part of communication. Employees are required to report all environmental related problems, incidents, and pollution, so that the appropriate mitigation actions can be implemented timeously. See Appendix A for a template that can be used for incident reporting

The landowner and the site manager shall investigate the incident and record the following information:

- How the incident happened,
- The reasons the incident happened,
- How rehabilitation or clean up needs to take place,
- The nature of the impact that occurred,
- The type of work, process or equipment involved; and
- Recommendations to avoid future such incidents and/or occurrences.

The landowner shall also:

- Inform the ECO of all incidents that were reported, and
- consult with the ECO for recommendations on actions to be taken or implemented where appropriate (e.g., clean-ups).

# SECTION 8: TRANSGRESSIONS IN TERMS OF EMPR

The Landowner must comply with the requirements of this EMPr on an on-going basis and any failure on his part to do so will entitle the relevant competent authorities to **take corrective action against the transgressor**.

In the event that any activities are undertaken outside the scope of the adopted EMPr requirements, in terms of the action outlined within the given method statement, the responsible person(s) will potentially be subject to Section 24(F) of NEMA, and that appropriate enforcement and compliance requirements will follow by the competent authority.

Transgressions relate to actions by the landowner and operating team members whereby damage or harm is inflicted upon the environment or any feature thereof and where any of the conditions or specifications of the EMPr/ EA/ GA are infringed upon.

In the instance of environmental damage, the damage is, where possible, to be repaired and rehabilitated using appropriate measures, as specified and undertaken by appropriate specialists, for the account of the responsible party.

Issues of non-compliance noted by the ECO are to be communicated to the site manager, who holds the responsibility of ensuring that the relevant parties are made aware of the lack of compliance with EMPr specifications, and that appropriate action is taken to rectify the situation. Issues of non-compliance must be reported in the required ECO site visit report. The ECO will advise on appropriate corrective actions when necessary.

# APPENDIX A: INCIDENT REPORT TEMPLATE

**Environmental Incident Report**

| | |
|---|---|
| **Date:** | **File reference number:** |
| **Name:** | |
| **Exact location of incident:** | |

Section 1: Description of incident

| |
|---|
| |

Section 2: Remedial action required

| |
|---|
| |

Section 3: Relevant Documentation

| |
|---|
| |

Section 4: Steps to prevent recurrence

| |
|---|
| |

Section 5: Signatures

| | |
|---|---|
| Site manager: ..... | Date: ..... |
| ECO: ..... | Date: ..... |
| Landowner: ..... | Date: ..... |

# APPENDIX B: CV OF EAP

# *CURRICULUM VITAE of PAUL HENDRIK SLABBERT*

***ENVIRONMENTAL & HERITAGE IMPACT PRACTITIONER***

***EAPASA Reg 2020 • Ref: 2019/1036 & APHP Professional Heritage Practitioner***

## 1. PERSONAL DETAILS

| | |
|---|---|
| Born: | 23 May 1973 |
| Nationality: | South African |
| Drivers License: | Code EB |
| Languages: | Proficient in English and Afrikaans |

## 2. KEY COMPETENCIES

I've completed my BACCALAUREUS ARTIUM ET SCIENTIAE Honors degree at the Potchefstroom University for CHO in 1995. The degree is primarily focused on qualifying Town and Regional Planners, but due to the SCIENTIAE (Science) component it equipped and stimulated my passion for environmental planning. Geography & Environmental studies, Sociology, Statistics and Mathematics in the first year and Geography & Environmental studies, Sociology in the second year formed the bases of my environmental education and interest. Economics up to 3rd year level and Statistics, Project Management and Planning Legislation at 4th year level provided me with an advance understanding of the development industry. The Town and Regional Planning curriculum from 1st to 4th year covered the entire spectrum of the built, people, heritage, natural and aesthetic environment in relation to the potential impacts on the socio, economic and bio-physical environment.

I started my Environmental Assessment Practitioner (EAP) career in 1998 as a professional practicing initially in the eco-tourism development industry. My passion for environmental, heritage & land-use planning with associated management strategies enable me to facilitate with all role players to find workable solutions in order to implement sustainable development in Greenfield areas. Due to the ECA (Act No. 73 of 1989) Section 21 Activities identified in 1997/8 the projects I was involved with required authorisation ito the ECA. As a result I started to practice as an EAP obtaining authorisations for triggered developments. I gained experience in rural and urban development with the emphasis on environmental impact assessments and management. This enabled me to have various publications in leading eco-tourism magazines. I've been witness to the evolution of the EIA industry from ECA to NEMA up to the current EIA Regulations. I've been operating as a Principal EAP and Environmental Practice owner for over 20 years.

During my career to date I have accumulated experience in the following key areas:

**Impact Practitioner & Environmental Planner:**

- Environmental Impact Assessments [legislative & process],
- Heritage & Visual Impact Assessments [legislative & process],
- Mining; Processing & Industrial [legislative & process],

- Environmental Management [environmental control, management plans, Environmental & Social Management Systems],
- Conservation [management strategies, funding & alien vegetation],
- Power Generation [generation, distribution and powerline alignment]
- Land-Use [forward planning, feasibility study, business plan],
- Eco-tourism [trails, birding, recreation, construction, lodging],
- Community [facilitating, public participation, education],
- Water use authorisation [WULA's, GA's pollution prevention management plans and ELU's];
- Waste Management Licences [legislative & process];
- Air Emission Licences [legislative & process],
- Coastal Water Discharge Permits [legislative & process],
- Organizers [events, strategic, project management].

**Business & Corporate Reasonability:**

- Information on my Environmental Practice, PHS Consulting please view at www.phsconsulting.co.za
- For overview of my social and community engagement programme visit www.africanvisionfoundation.co.za

**Advanced Legislative Knowledge:**

Providing specialist services and managing and driving projects related to the following legislation:

- National Environmental Management Act (Act No. 107 of 1998) and 2017 Regulations;
- Environmental Conservation Act (Act No. 73 of 1989);
- National Heritage Resources Act (Act No. 25 of 1999);
- Land Use Planning Ordinance (Ordinance 15 of 1985);
- National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008);
- National Environmental Management: Waste Act (Act No. 59 of 2008);
- National Environmental Management: Air Quality Act (Act No. 39 of 2004);

- Mineral and Petroleum Resources Development Act (Act No. 28 of 2002);
- National Water Act (Act 36 of 1998);
- National Water Services Act (Act 108 of 1997).
- National Environmental Management Act (Act No. 107 of 1998); Public Participation Guideline (10 October 2012)

## 3. TERTIARY EDUCATION

**3.1 Honors Degree in B Art Et Scien (Planning)**

| | |
|---|---|
| Year/s of study: | 1992 – 1995 (received 96/03/04) |
| Institution: | University of Potchefstroom (PU for CHO) |
| Course Modules: | Geography and Environmental Studies<br>Industrial Sociology<br>Town & Regional Planning<br>Economics<br>Mathematics<br>Philosophy<br>Sociology<br>Statistics<br>Planning Legislation |
| Honors Thesis: | Sustainable Development of Ikageng Township |

## 4. REGISTRATIONS AND AFFILIATIONS

- Certified Member of the Environmental Assessment Practitioners Assocoation of South Africa – Reg 2019/1036
- Professional Certified Member of Association of Professional Heritage Practitioners (APHP)
- Professional Member of the International Association for Impact Assessment (IAIA)

## 5. EMPLOYMENT RECORD

**4.1 Current**

| | |
|---|---|
| Designation: | Self-Employed<br>Principal Environmental Assessment Practitioner<br>Heritage Assessment Practitioner<br>Environmental Planner |
| Period: | 1998 to current |
| Key responsibilities: | Environmental Practice (PHS Consulting) Owner that conduct, manage and review EIA's, Basic Assessments, Coastal Water Discharge Permit, Air Quality Licenses, Waste Management Licenses, Setback Line applications, |

Water Use Authorizations, General Authorizations, NEMA S24G Applications, Mining Permit and License applications. Authorisation and License compliance audits, EMP's, ECO work, Social and Labour plan compilations, Alien Eradication Management Plans, Fire Management Plans, Maintenance Management Plans, Wild Life Management Plans. Environmental feasibility planning, event organizing and Corporate Social Investment programmes.

PHS Consulting: As sole Member of the Close Corporation I currently employ two fulltime EAP's namely Amanda Fritz-Whyte and Nadine Duncan. We make use of various freelance EAP's and specialist consultants depending on the project type.

### 4.2 Pre PHS Consulting

Designation: Employed by OmniPlan
Period: 1997 to 1998
Key responsibilities: Planning Administration, Town Planning Applications, Constraint Analysis, Layout and Design, Community Presentations.

## 6. COURSE / CONFERENCE PARTICIPATION

### 5.1 Short courses completed

I attended various DEA&DP, APHP, IAIA, Fynbos & SANBI forum workshops, training programmes and conferences since 1999 to date.

## 7. LIST OF EIA PROJECTS TO DATE

Please note over the years in practice I conducted many projects and it's impossible to list them all. He is a summary of the most relevant EAP projects that illustrate my competence, knowledge and experience. **Please note that all projects listed below required the need to conduct Public and Authority Participation, the result is 25 years of consultation experience.**

| Major project | Tasks | Employer/client | Responsibility |
|---|---|---|---|
| Namaqualand Casino Development **1998** | Evaluate and assess various site alternatives for the development of a casino in Namaqualand. Assess bio-physical & socio-economic environments from Garies to Vioolsdrif to Pella inland environments. Assessment of the entire coastal environment from Groenrivier mouth to Alexander bay. Presented preferred site alternative to be included in national bid for license allocations | Namaqualand District Council | Act as researcher, public participation liaison and site assessment consultant |
| Barolong Archaeological Eco-tourism Assessment **1999 - 2000** | Investigate the feasibility to develop eco-tourism activities amongst the Barolong Tribe kraal systems on the highlands of the North West Province. After survey and mapping, proposed a feasible site close to Hartebeesfontein (NW). Planned hiking and mountain bike trails system in terms of bio- | Hartebeesfontein Farmers Association | Site Analysis, layout development, Heritage Practitioner (HP) and environmental management and ECO work |

| | | | |
|---|---|---|---|
| | physical and heritage constraints. Drafted a management plan for trail system and developed the trail system and product. Launched and operated initial phase until handover to landowners. | | |
| EIA's on 4x4 trails and overnight huts, **2000 - 2001** | Completed 3 x EIA's on 4x4 trails in the Du Toit Kloof and Hexriver mountains. Worked according to DECAS guidelines and ECA process at the time. | Private Landowners and conservancies | EAP |
| Anglo Gold Game Reserves – North West, Gauteng, Free State Provinces **2001** | Contracted as Environmental Management Officer for Anglo Gold mining group in Vaal Reefs. I drafted EMP's for all three of the Nature Reserves and Interpretation Centres. This was followed by ecotourism master plans to focus on sustainable use of the Reserves. I acted as ECO, for the building projects (Lodges) in the reserves and on most of the adjacent mining areas. Water Management and monitoring of water samples were part of the duties | Anglo Gold Ashanti | ECO, HP and IEM officer |
| Contracted by Uluntu Environments for trail planning and assessments **2002** | Status quo assessments on all trails and tracks conditions in the Rhodes Memorial, Devils Peak, Sandy Bay , Buffels Bay, Table Mountain and Cape Point areas of the Cape Peninsula National Park. Proposed rehabilitation plans, construction plans and new routes. Assess potential impact on new and disturbed areas. Construction implementation and ECO. | City of Cape Town, Cape Nature | Planning, Environmental Assessment & ECO |
| Kronendal Estate Residential Development – Houtbay, **2003** | Environmental Impact Assessment and EMP's | Dormacorp Pty Ltd & First Plan town and regional Planners | EAP |
| Community Centre site selection – Pringle Bay **2003** | Site Analyses in coastal zone, with comprehensive public participation. This was to determine a feasible site form both an environmental and community perspective | Hangklip Kleinmond Municipality | Site Assessor and Public participation Liaison |
| Mosaic Farm, Walkerbay Fynbos Conservancy, Stanford, Western Cape **2003 – 2005** | Project and Conservation Management contract, responsible for drafting and implementing a major, building restoration and alien clearance program. Planning and implementing the Walkerbay Fynbos Conservancy Hiking trail alignments and management plans. Responsible for assessing development footprints for overnight camps. Implementation of a fire management plan and action plan. | Hermanus Riviera Estates | Environmental Planner, HP, Implementing Agent and Assessor |
| Chairman Birdlife Walke Bay **2003 - 2005** | Established bird club and birding project in the Overberg and the Stanford Bird fair | Birdlife South Africa | Chairman (WB), Event Organiser and Community Liaison |
| Hoopjiesrivier, Free Range Chicken Farm (Farm 541 Caledon)– | Basic Assessment and EMP's | ITAKANE | EAP |

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| Karwyderskraal, **2006**<br><br>Heritage Heights (Portion 81 of the Farm 229) residential development – VanWyksdorp, **2006** | Visual Impact Assessment (VIA) and Heritage Impact Assessment (HIA) | Andre Snyman | VIA and HP |
| Kleinberg residential and retirement village development (erf 459) – Riviersonderend **2007** | Basic Assessment, EMP's and Landscape Planning | Jacob du Toit | EAP |
| Gansbaai Industrial extension (erf 210) – Gansbaai **2007** | Basic Assessment, EMP's | Overstrand Municipality | EAP |
| Kleinbaai harbour dredging – Gansbaai **2007** | Basic Assessment, EMP's | Overstrand Municipality | EAP & ECO |
| Langeberg Cheese factory (Portion 69 of Farm no.159) – Buffelsjag **2008** | Basic Assessment, EMP's | Langeberg Kaas Pty Ltd | EAP |
| Industrial development (erf 931)- Struisbaai **2008** | Basic Assessment, EMP's, Landscape Planning | Louis Greeff | EAP |
| Shopping Centre Development – Livingstone Zambia **2008** | EIA and EMP's | Shoprite Checkers | EAP |
| Billboard development (erf 35270) – Milnerton **2008** | Basic Assessment, EMP's | CK Outdoor Advertising Pty Ltd | EAP |
| Fick's Pool Restuarant – Hermanus **2008** | Basic Assessment, VIA and HIA | Overstrand Municipality | EAP. VIA & HP Practitioner |
| Residential Development (erf 1497) – Vermont **2009** | Basic Assessment, EMP's, Landscape Planning | CRISTATUS INV 85 CC | EAP |
| | Basic Assessment, EMP's | PJW Terblanche | EAP & ECO |

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| Single Dwelling Development (erf 278) – Malgas **2009** | Scoping, EIA and EMP's | Swellendam Municipality | EAP |
| Petrol Filling Station (erf 1) – Swellendam **2009** | Basic Assessment, EMP's | West Point Processing Pty Ltd | EAP & ECO |
| Fish Processing Plant – St Helena Bay **2009** | VIA and HIA | Spirito Trade 82 Pty Ltd | VIA & HP Practitioner |
| Bloemendal Wine Estate – Durbanville **2009** | Environmental Management Programme Reports and Audits | Terblanche Transport | Environmental Auditor |
| Maandagskop and Airport Quarries – Mosselbay and George **2009** | | | |
| Matroosberg Reserve (Farm 424) Ceres **2010** | Basic Assessment & EMP's | Erfdeel Boerdery | EAP & ECO |
| Kleinbaai Harbour Expansion (Erf 423) - Gansbaai **2010** | Basic Assessment & EMP's | Overstrand Municipality | EAP |
| Retirement Village Development (Erf 5379 & 5300) – Onrusrivier **2010** | Basic Assessment, EMP's & ECO | Tweefonteine Ontwikkelings Trust | EAP & ECO |
| Industrial Development (Erf 2015) – Riversdale **2010** | Basic Assessment, EMP's & ECO | Hessequa Municipality | EAP & ECO |
| Residential Development (Erf 987) – De Kelders **2011** | Basic Assessment & EMP's | Hopefull Trust | EAP |
| Unlawful Vegetation Removal (Farm 237) - Elim **2011** | S 24 G & EMP | Moravian Church of Elim | EAP |
| Graveyard Development – Springbok, Okiep, Bergsig, Matjieskloof, Kommagas, Nababeep – Northern Cape **2011** | Basic Assessments & EMP's | Nama Khoi Local Municipality | EAP |
| Residential Development (Erf 8704) – Paarl **2011** | Basic Assessment & EMP's | Nevensaan Ontwikkelings | EAP |

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| Wetland Rehabilitation – Tesselaarsdal **2011** | Basic Assessment & EMP's | Department of Agriculture and Tesselaarsdal Action Group | EAP |
| Mushroom Farm Development (Farm 436/27) – Botrivier **2011** | Basic Assessment & EMP's<br>Waste Licence | Ocean Mushrooms | EAP & ECO |
| Blouberg Mine Development (Farm 88 & 91) – Melkbosstrand **2012** | Visual Impact Assessment | Tip Trans | Visual Assessor |
| Urban Expansion Residential Estate (Farm 436/5) – Botrivier **2012** | Scoping, EIA & EMP's | Crimson Properties | EAP |
| Cemetery Development (Erf 513 – Napier **2012** | Basic Assessment & EMP's | Cape Agulhas Municipality | EAP |
| Coastal Sidewalks Development (Erf 462) - Franskraal **2012** | Basic Assessment & EMP's | Overstrand Municipality | EAP |
| Riverside Residence Development (Farm 321) – Stanford **2012** | Basic Assessment & EMP's | Astrodome Investments | EAP |
| Eco- Village Development (Farm 483/2) - Caledon **2012** | Basic Assessment & EMP's | Theewaterskloof Municipality | EAP |
| Botrivier Windfarms – Botrivier **2013** | Appointed to oppose the development of windfarms outside regional allocated areas as part of the "Wind Rush" period. Scrutinise and evaluate Scoping & EIA Documents on behalf of opposition. Handling of Appeal. | Wildekrans Wine Estate and Botriver Community | Opposing EAP |
| Resort Development (Farm 213) – Bonnievale **2013** | S24 G & EMP's | De Hoek Trust | EAP |
| Commercial Development – Chililabombwe Zambia **2013** | EIA | Shoprite Checkers | EAP |
| Birding Route Development – South Africa **2013 to 2016** | Environmental Planning to establish and support birding development in all the South African Provinces | E Snell & Co Funder and BirdLife | Environmental Planner |

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| | | SA and SANPARKs Honorary Rangers | |
| Intensive Feed Farm Development (Farm 728/2) – Grabouw **2013** | Basic Assessment & EMP's | Babel Trading | EAP & ECO |
| Uilenvlei Private Nature Reserve, resort development – Uilkraalmond **2013** | Basic Assessment & EMP's | Southern Spirit Properties | Compile & Review EAP |
| Development of five Cemeteries - Upington **2014** | Basic Assessment & EMP's | Khara Hais Local Municipality | EAP & HP |
| Commercial Development – Mongu Zambia **2014** | EIA | Shoprite Checkers | EAP |
| Establish Hartenbos River Water Users Association – Hartenbos **2014** | Draft Constitution, verify ELU's conduct Public Consultation | Hartenbos River Water Users Association | Water Resource Consulting |
| Commercial Development Cabinda – Angola **2014** | EIA | Shoprite Checkers | EAP |
| Resort Development (Farm 633 & 273) – Swellendam **2014** | Basic Assessment & EMP's | Bakkelys Drift Properties | EAP |
| Natures Path Lifestyle Village - Keurboomstrand **2015** | Heritage Impact Assessment guiding the EIA process towards a more aesthetic SDP | Sharples Environmental | Heritage Impact Assessor (HP) |
| Hazardous Waste Assessment – Castle Mews Woodstock **– 2015** | Assess hazardous waste contamination in basement of old buildings, establishing the source and report finding the competent authorities. Assist with drafting management actions to clean-up and resolve. | Castle Mews | Waste Assessor |
| Commercial Development Kuito – Angola **2015** | EIA | Shoprite Checkers | EAP |
| Residential Development (Farm 142/14) – Rheebok **2015** | Basic Assessment & EMP's | Mercedes Trust | EAP & ECO |
| | | Shoprite Checkers | Water Assessor |

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| Water Act and Use Interpretations for Commercial off grid Systems – Western Cape **2015** | Site Assessments, Technology Assessment, Legislation Applicability, Interpretation of the Water Act. | | |
| Coastal Sidewalk and Trail Development – Kleinmond **2015** | Basic Assessment & EMP's | Overstrand Municipality | Review EAP |
| Wetland Rehabilitation Plan; Operational Environmental Management Plan and Environmental Liaison Committee – Sun Valley Mall Noordhoek **– 2015** | Rehabilitation Plan, OEMP & ELC | Shoprite Checkers and City of Cape Town | EAP & ECO |
| Air Emissions Licence (2 Neil Hare Rd) - Atlantis **2016** | Air Emissions Assessment | Malmesbury Sterilisasie Aanleg | EAP |
| Kenhardt Solar Power Farms and Power Lines – Northern Cape **2016-2018** | Appointed to investiage the development of solar farms an powerline distribution lines outside regional allocated areas as part of the "Solar Rush" period. Scrutinise and evaluate Scoping & EIA Documents on behalf of opposition. Handling of Appeal. | Dagab & Rooidam Farms | Analysing EAP |
| Jetty Development in Protected Area (Farm 480/136) – Stillbaai **2016** | Basic Assessment & EMP's | Koringfontein Farm | Review EAP |
| Intensive feed Farm (Farm 226) – Hermanus **2016** | Basic Assessment & EMP's | Bapchix | Review EAP & ECO |
| Industrial Development (Erf 1) - Caledon **2016** | Basic Assessment & EMP's | Theewaterskloof Municipality | EAP |
| Abalone Farm Development (Farm 421/1) – Doringbaai **2016** | Basic Assessment & EMP's | Doring Bay Abalone | Review EAP |
| Stander Mine (Farm 189/83) – Wilderness **2016** | Basic Assessment & EMP's | Viadro 127 | EAP & ECO |

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| ECO Lifestyle Estate & Nature Reserve, Hoek vd Berg (Farm 572) – Hermanus **2017** | Scoping EIA & EMP's, HIA | Saddle Path Properties | Review EAP, Heritage Assessor and Water Assessor |
| Abalone Farm Development (Farm 108) - Jacobsbaai **2017** | Basic Assessment & EMP's | Jacobsbaai Sea Products | Compile & Review EAP & ECO |
| Demolition Waste Management – Cape Peninsula **2017 ongoing** | Waste Management Plans for demolition and redevelopments | Shoprite Checkers | Waste Assessor |
| Resort Development (406/58) – Slanghoek **2017** | Basic Assessment & EMP's | Slanghoek Resort | Review EAP & Visual Assessor |
| Resort Development (Farm 627/1) - Stanford **2017** | Basic Assessment & EMP's | Philipskop | Review EAP |
| Intensive Feed Farm (Farm 541/6) – Karwyderskraal **2017** | Basic Assessment & EMP's | Itakane Trading | Review EAP & ECO |
| Henkershoek Mine (Farm 628) – Albertinia **2017** | Basic Assessment & EMP's | Viadro 127 | Compile & Review EAP |
| Heavy Minerals Prospecting (Alexcor Mining Right Area) – Alexanderbaai **2018** | Basic Assessment & EMP's | Vast Mineral Sands | EAP |
| Commercial Development Namibe – Angola **2018** | EIA | Shoprite Checkers | EAP |
| Resort Development (Farm 465) – Elgin **2018** | Basic Assessment & EMP's | On The Earth | Review EAP |
| Residential Development (Erf 1019) - Wilderness **2018** | Basic Assessment & EMP's | Costa | Compile & Review EAP |
| Residential Development (Erf 1156) – Witsand **2018** | Basic Assessment & EMP's | Westfield Trust | EAP & ECO |
| Van Der Stell Liquor Store – Stellenbosch **2019** | Heritage Impact Assessment | Shoprite Checkers | HP |

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| Weir and Pipeline Development (Huiskloof River) – Botrivier **2019** | S24G & EMP's | Erin de Vigne | EAP |
| Crocodile Diving Facility (Erf 48) – Birkenhead **2019** | Cape Nature Permitting & EMP | Afrikanos | EAP |
| Abalone Farm Development (Farm 6/453) – Gouritsrivier **2019** | Basic Assessment & EMP's | Aqunion | Compile & Review EAP |
| Heavy Minerals Prospecting (Trans Hex Mining Right Area) – Hondelipbaai **2019** | Basic Assessment & EMP's | Saxon | EAP |
| Intensive Chicken Farm (Farm 487) – Caledon **2019** | Basic Assessment & EMP's | Elgin Free Range Chickens | Review EAP |
| Agricultural Cultivation (Farm 3/497) – Malgas **2019** | Scoping, EIA & EMP's | Eksteen Familie Trust | Review EAP |
| Airport Quarry (Farm 129/208) – George **2019** | Scoping, EIA & EMP's | Mercedes Trust | Compile & Review EAP |
| Constantia Emporium Retail Centre - **2020** | Heritage Interpretation Story & Signage | Shoprite Checkers | HP |
| Commercial Retail Development – City of Cape Town **2017 – 2020** | Environmental Management Plans & Environmental Control Officers various projects, Delft, Sun Valley, Constantia, Sitari, Brackenfell, Paarl, Table View and Gordons Bay. | Shoprite Checkers | EMP & ECO |
| Heavy Mineral Mines – Alexcor Northern Cape **2020 – 2021** | Environmental Impact Study | Deep Blue Minerals | EAP |
| Free Range Chicken Farms – **2020 – 2021** | Environmental Impact Assessment | Elgin Free Range Chickens | EAP |
| Sitari Retail Centre - **2021** | Heritage Interpretation Story & Signage | Shoprite Checkers | HP |
| Hoop Urban Expansion – Overberg **2022** | Environmental Impact Study<br>Heritage and Visual Impact Study | Hoop Trust | EAP & HIA |

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| EFRC Abattoir – **2022** | Environmental Impact Assessment | Elgin Free Range | EAP |
| Atlantis Air Quality - **2022** | Atmospheric Impact Assessment | Atlantis Processors | EAP |
| Cape Winelands Airport – City of Cape Town **2021 – 2023** | Environmental Impact Assessment | Cape Winelands Airport | EAP |
| West Point Processors (Fish Meal & Oil) – St Helena Bay **2019 – 2023** | Environmental & Atmospheric Impact Study | TerraSan Group | EAP |
| Sea Concession 2A, Heavy Mineral Mine – Port Nolloth **2023-2024** | Environmental Impact Assessment & EMP | Whale Head Minerals | EAP |
| Memorialisation of Hardekraaltjie Cemetery – **2024** | Heritage Assessment | University of Stellenbosch | HP |
| Rogland Sand Mine – Albertinia – **2024** | Basic Assessment & EMP | Terblanche Transport | EAP |
| Revitalization of Stellenbosch Mills Square - **2024** | Heritage Assessment | Shoprite Checkers | HP |

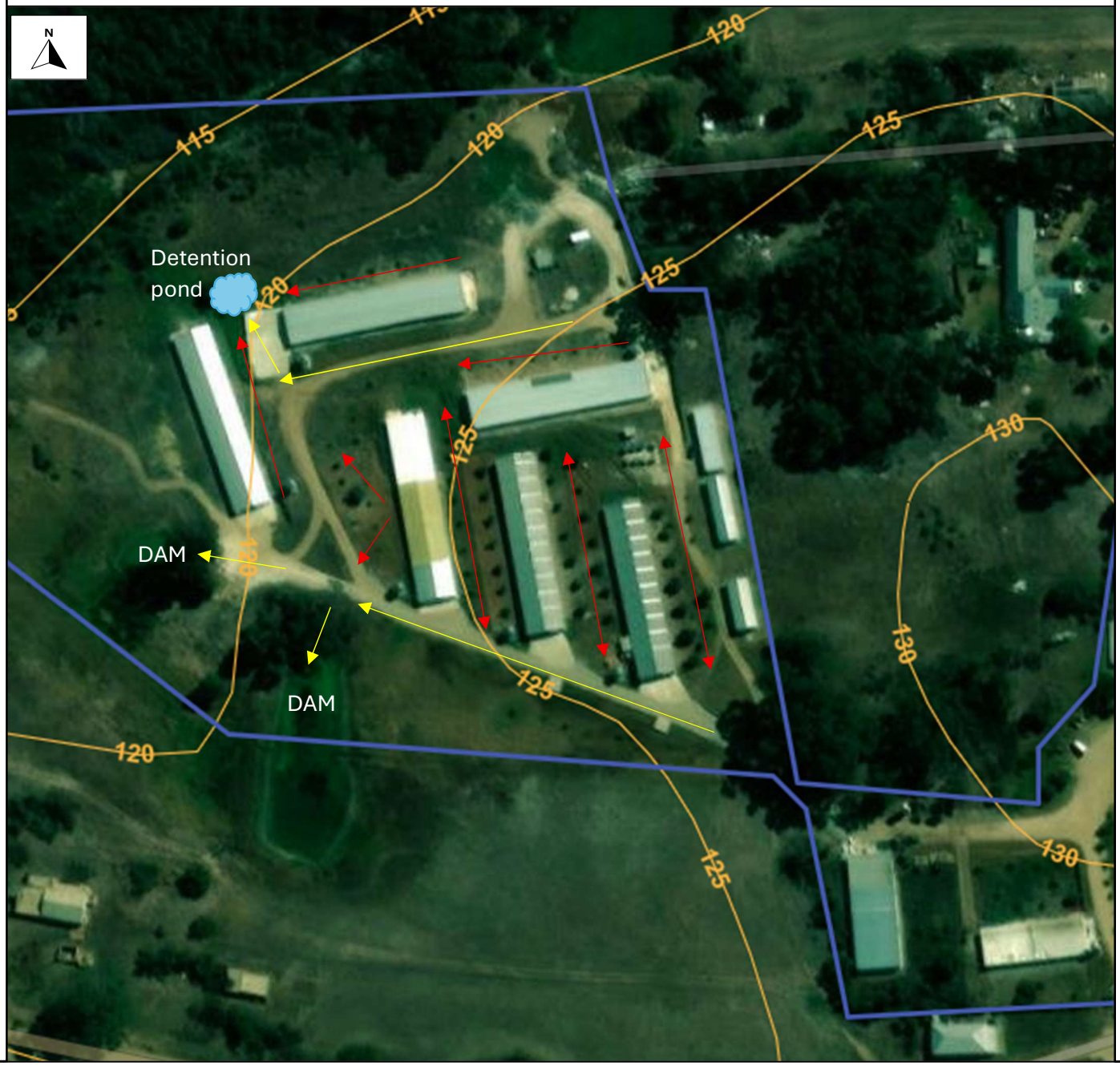
**References:**


1. **Shoprite Checkers - Leon Myburgh (084 223 4788) lemyburgh@shoprite.co.za.**
2. **Cape Winelands Airport - Nick Ferguson (082 374 8769) nick@capewinelands.aero**
3. **West Point Processors - Marthin Potgieter (082 551 0217) marthin@saldanha.co.za**

# APPENDIX C: STORMWATER MANAGEMENT

# SOLITAIRE CHICKEN HOUSES: STORMWATER MANAGEMENT PLAN

The stormwater management plan revolves around the construction of vegetated stormwater swales along roads, designed to accumulate any runoff in designated dry pans. Roads are shaped to push water off the surface, into a canal / stormwater swale. Swales will be vegetated and these help to trap run-off in general. These swales/canals then lead to small shallow detention ponds or more appropriately 'dry pans' considering the rate of evaporation and limited run-off. Any overflow, if applicable, will then be directed into existing dams/ retention ponds surrounding the site.




**STORMWATER SWALES:**

These act as buffers and are simple but effective tools for managing water movement on farms, including around chicken houses. They intercept, slow, filter, and infiltrate water that might otherwise carry pollutants from chicken houses into the wider environment. This protects soil, downstream water quality, and reduces erosion. Stormwater swales fulfil the following roles:

- Roads act as channels that speed up stormwater flow, carrying soil, manure, feathers, feed particles, and other pollutants from chicken houses. Swales intercept this runoff before it leaves the road surface, slowing it down.

- Swales are shallow, vegetated ditches designed to spread and slow the water. Slower water has less erosive power, which reduces the risk of gullies forming and decreases the amount of sediment and contaminants carried away.

- Vegetation in swales traps suspended solids (dust, litter, manure particles) that might wash off from chicken houses. Microbial action in the soil and plant roots helps break down organic matter and nutrients like nitrogen and phosphorus.

- Instead of all water rushing into streams or dams, swales allow infiltration into the soil. This reduces the volume of surface runoff and protects nearby water bodies from contamination.

- Strategically placed swales along farm roads divert runoff away from sensitive areas (i.e. watercourses) and direct water into designated containment areas (e.g., dry pans/ detention ponds).

- By managing flow and filtering contaminants at the source, swales minimize the risk of nutrient enrichment or pathogen spread in nearby rivers and dams.

**PROCESS / FLOW:**

- Dry-sweep pens, remove all manure and minimise water usage inside units for washing. Units are to be washed by high pressure hoses (washing pumps) only once dry matter has been removed to eliminate any possible manure runoff.

- Negligible runoff is caused by the 'washing'. However, any possible runoff will enter the vegetated area, adjacent to the chicken houses, where it dissipates. These areas will also contain trees which will assist with infiltration of any run-off.

- During rain events runoff flows from free range areas where it dissipates. Any remaining runoff then enters the existing/ proposed road network (further dissipation).

- Run-off from the road will be directed into the vegetated stormwater swales along the roads of the chicken houses.

- Any run-off from the swales will be directed into the proposed detention ponds/ dry pans. Any overflow, if applicable, will be directed into the dams/ detention ponds on site.

- The proposed stormwater management system will assist with dissipating & polishing runoff; and trapping any possible manure from the chicken houses to ensure that no run-off from the units ends up in freshwater features.

- No ingress of stormwater into the broiler units is to occur to protect runoff quality.

- Contain all sweepings and dispose of to the relevant re-use location.

- Implement erosion control measures, such as silt fences or erosion blankets along slopes, to prevent soil runoff, where applicable.

- Refuelling / maintenance of vehicles: only take place on designated, bunded surfaces.

- Maintain vegetation around the facility to enhance soil stability, minimize erosion, and provide natural filtration of any runoff.

- Regularly inspect and maintain drainage pathways, swales, and infiltration areas to prevent blockages, erosion, or preferential flow paths towards the wetland.