ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE COMPOSTING FACILITY ON THE REMAINDER OF FARM GROOTVLEI NO. 225, CALEDON

Zonderend Valley Farm (Pty) Ltd

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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 based to a predetermined standard.

Contractor –

(i) the main or specialised contractors as engaged by the landowner 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 landowner 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.

Environmental Assessment Practitioner (EAP) – a suitably qualified environmental consultant to be appointed by the Lanowner to develop the EMPr and/or conduct external auditing as required.

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.

Landowner/Operator - Zonderend Valley Farm (Pty) Ltd. The landowner/operator has the overall environmental responsibility to ensure that the implementation of the construction and operational requirements complies with the relevant legislation and the conditions of the approved EMPr.

Method statement (MS) describes the **environmental** management measures to be applied to the establishment and operation of the construction site during various phases of the project.

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 Environmental Management Waste Act (Act 59 of 2008) (NEMWA) – national legislation that provides principles for decision-making on matters related to waste storage, processing, managing etc.

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

Site - Area where the proposed development will take place

Site Manager / Waste Control Officer – A suitably qualified individual to be appointed by the Landowner to fulfill a combined function of managing the day-to-day operation of the composting facility and overseeing the implementation of the EMPr.

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

Works – the building construction operations and all related and incidental works such as, but not limited to, site works, earthworks, roads, landscaping and the installation of services in connection with the execution and carrying to completion of the development plan.

SECTION 1: CONTEXTUAL INFORMATION

1.1. Project Background

This report aims to supply an EMPr for the management of an organic composting facility located on the Remainder (RE) of farm Grootvlei 225, Caledon. The property is located approximately 20 kilometres northeast of Caledon and approximately 3 kilometres north of the N2 (refer Figure 1). The property is primarily a working vegetable, lucerne and canola farm. In addition, a poultry rearing facility has been established onsite. The establishment of a poultry rearing facility in conjunction with vegetable farming facilitates the implementation of circular agricultural practices. Circular agriculture focuses on closing nutrient loops and using minimal external inputs along with regenerative soil management practises to facilitate sustainable agriculture.

Sustainable crop production requires good soil fertility which often requires the application of manure, compost, or chemical fertilizers. In this sense, poultry rearing facilities produce a potentially valuable byproduct in the form of nutrient rich manure. In order to improve onsite agricultural efficiency and sustainability, the owner of the Remainder (RE) of farm Grootvlei 225, Caledon has established a composting facility onsite in which biodegradable organic poultry waste is broken down into nutrient rich compost that is then applied to the onsite agricultural fields and/or supplied to nearby contracted growers, thereby closing nutrient loops within the farm's operation. The composting facility is approximately 1,07ha in extent and was established partly on an old agricultural field and partly within an open area amongst alien invasive eucalyptus trees (refer Figure 2).

The composting method employed onsite involves the production of compost by layering organic matter in concrete bunkers where the initial micro-organism driven breakdown of organic matter takes place by means of a static process. Once this process is complete the material is transferred to long wind rows where the organic material is further broken down to form nutrient rich compost. This portion of the process involves regular mixing and watering (when required) of the composting rows to improve oxygen content, to mix in or remove moisture and to redistribute cooler and hotter portions of the pile. The material composted onsite includes wood shavings, chicken manure, minced day-old chicks and uninfected mortalities. No infected mortalities are composted onsite. Infected mortalities are managed and disposed of under strict guidance of the state veterinarian.

This EMPr describes facility management in detail, and is prescriptive, identifying specific individuals or organisations responsible for undertaking specific tasks to ensure that environmental impacts resulting from the operation of the composting facility are minimised. This EMPr is an open-ended document and information gained during on-going

monitoring of procedures on site could lead to changes in the recommendations and specifications of this document.

Summary of proposed facility

Completed:

- Construction of three static concrete composting bunkers (approximately 13m long x 3m wide x 1,2m high) (Figure 3).
- Construction of a metal canopy (with concrete footings) over the concrete composting bunkers (Figure 3).
- Installation of a 1000 m^3 JoJo tank and associated washing facilities – water under pressure is available at the site and the JoJo tank is fitted with a ball valve.
- Construction of a stormwater control channel west of the facility to capture and contain nutrient enriched stormwater (Figure 4).
- Construction of a stormwater control channel east of the facility to capture and contain nutrient enriched stormwater.
- Construction of two safety retention ponds associated with the stormwater control channels.
- Construction of a contour south of the facility to act as a stormwater divider between 'clean' and nutrient enriched land areas.
- Composting of organic material (wood shavings, chicken manure, minced day-old chicks and uninfected mortalities). The maximum amount of composting material onsite on any given day is 260 tons (Figure 5).

Access to the facility is existing via internal farm roads. The farms' **water** allocation is sufficient and water under pressure is available at the composting facility for washing and moisture addition purposes. Water sources include existing registered boreholes and surface water abstraction on the property. The current **sewage** system on the farm is in the form of septic tanks. The existing ablution and septic tank infrastructure can accommodate the employees that will be associated with the composting facility.

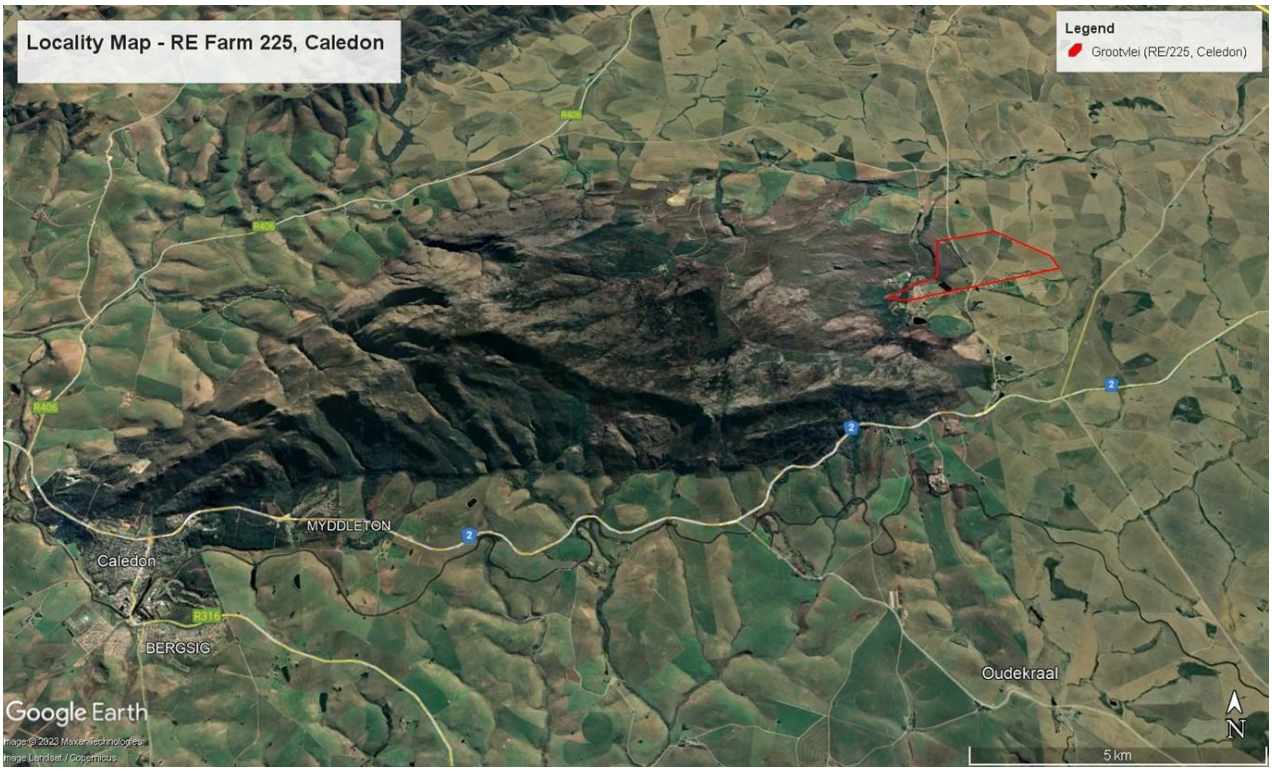


Figure 1: Location of the development site - Remainder (RE) of farm Grootvlei 225, Caledon.

Figure 2: Site map indicating the location of the composting facility within the Remainder (RE) of farm Grootvlei 225, Caledon.

Figure 3: Static concrete composting bunkers on the Remainder (RE) of farm Grootvlei 225, Caledon.

Figure 4: Stormwater control channel west of the composting facility on the Remainder (RE) of farm Grootvlei 225, Caledon.

Figure 5: Composting wind rows that a regularly mixed and watered (when required) to improve oxygen content, to mix in or remove moisture and to redistribute cooler and hotter portions of the pile.

1.2. Purpose of the EMPr

The purpose of an EMPr is to ensure that the environmental impacts associated with the proposed activities are managed, mitigated, and kept to a minimum for the entirety of the project life cycle. In general, an EMPr can consist of the following phases: planning & design; pre-construction activities; construction activities; operational activities and rehabilitation &/or decommissioning. However, the need to include all the above phases depends on the scale and scope of each individual project.

The composting facility on the Remainder (RE) of farm Grootvlei 225, Caledon is already operational. As such the Planning & Design and Construction Phases have largely been completed. Decommissioning refers to the actual removal of the operating assets of the project after completion of the life cycle - in other words the decommissioning of the composting facility and related infrastructure. Decommissioning of the facility is not currently foreseen and therefore it is not further addressed in this document.

The current EMPr focusses primarily on the operational phase of the facility 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.

1.3. Status of the EMPr

The EMPr must form part of all contractual documents for this project. The EMPr includes all relevant documentation within this report and/or referred to within it. The approval of the EMPr by DEA&DP (Directorate: Waste Management) will require that the landowner and all appointed contractors must comply with the requirements therein. Any amendments/ changes/ upgrades to the EMPr will require submission to and approval by DEA&DP (Directorate: Waste Management).

1.4. Comment to the EMPr

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. The appointed EAP will hand over the EMP to the landowner/operator for implementation. Should the landowner/operator, contractor or employee persistently fail to observe the provisions of the EMPr, the auditing EAP can recommend remediation actions including notification of 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. Each contractor involved in the development and/or operation of the facility will be expected to sign for, and thus acknowledge receipt of the final EMPr, and thereby will be expected to abide by the specifications of the document, as well as annexures and any amendments thereto.

The EMPr will include goals and objectives set to achieve the required environmental standards.

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

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) and the requirements of the National Environmental Management Waste Act (Act 59 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
- National Environmental Management Waste Act (No 59 of 2008) - NEMWA
- National Norms and Standards for Organic Waste Composting (GN 561 of 2021)
- Natural Heritage Resources Act 1999 (Act 25 of 1999)
- National Water Act 1998 (Act 36 of 1998) – NWA
- Occupational Health and Safety Act (No. 85 of 1993)
- National Veld and Forest Fire Act, Act 101 of 1998
- Basic Conditions of Employment Act 75 of 1997
- Conservation of Agricultural Resources Act 43 of 1983
- National Building Regulations and Building Standards Act 103 of 1977

Please note: Organic waste composting facilities must register with a Waste Information System in terms of the National Waste Information Systems Regulations, 2012 published under Government Notice 625. In addition, all compost intended for use as fertilizers must be registered with the national department responsible for agriculture and must meet all the necessary requirements in terms of the Regulations Regarding Fertilizers published in GN 732 on 10 September 2012, including any amendments.

1.6. The competent authority

DEA&DP (Directorate: Waste Management) will review the EMPr and on approval they may have the following role to play:

- Review and monitor implementation of the EMPr;
- Review whether there is compliance by the landowner;
- Perform random control checks;
- Review ECO, incident and audit reports;
- Enforce legal mechanisms for contraventions of the EMPr.

SECTION 2: PROJECT PHASES

The composting facility on the Remainder (RE) of farm Grootvlei 225, Caledon is already operational. As such the Development Phase has been completed.

2.1. Development Phase

(a) Rationale for Site Location

The composting facility is located partially on old (unproductive) agricultural land and partly within an open area amongst alien invasive eucalyptus trees. The location of the composting facility has not resulted in negative environmental or agricultural impacts.

The rationale for the site location is as follows:

- The site is easily accessible by means of the existing road network.
- The site is centrally located within the property.
- The site area is level.
- The site area has been previously disturbed.
- The site is removed from residential land uses.
- The site is not visible from primary roads.
- The site is located adjacent to a substantial stand of alien invasive eucalyptus trees which offer wind protection.
- The site is located in close proximity to both the onsite source of organic waste/by-products and compost application areas for vegetable farming practices.

2.2. Operational Phase

The following activities related to the operation of the organic composting facility have been identified:

- Composting of a maximum of 260 tons of organic material (wood shavings, chicken manure, minced day-old chicks and uninfected mortalities) on any given day.
    - Approximately 1,5m^3 of wood shavings are added to the system weekly to cover hatchery waste and mortalities.
    - Approximately 250m^3 of chicken manure is delivered to the composting facility once every two months at the end of a production cycle. Delivery of manure takes place over a 3–4-day period.
    - Approximately 2,1 tons of hatchery waste is delivered to the facility weekly (Tuesdays and Fridays).
    - Mortalities are transported to the facility once a day (if required) in sealed drums.
- Conserve and protect onsite water resources
    - All nutrient enriched stormwater must be captured and appropriately treated/used to ensure onsite freshwater resources do not become contaminated.
- Maintain development infrastructure such as stormwater infrastructure and access road(s) in a good functional state.
    - Manage runoff from hardened surfaces such that erosion and polluted run-off is minimized.
- Cut a firebreak around the development once a year in November

  - Firebreaks should be within 15m of the development footprint and should not be more than 5m wide.
  - The site must be maintained free of cut material. All cut material not used in composting activities must be removed from the site.
- Expansion of the development footprint is permitted only after amendment of the approved EMP

SECTION 3: RESPONSIBILITIES AND ENFORCEMENT OF THE EMPR

3.1. The Landowner

The landowner is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The landowner has the overall environmental responsibility to ensure that the implementation of the construction and operational requirements complies with the relevant legislation and the conditions of the approved EMPr.

The landowner 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. Training on the requirements of the EMPr will be presented to the landowner by the EAP upon appointment.

Environmental awareness training of all staff/contractors involved in the EMPr work activities will be completed by the site manager or EAP on their roles and responsibilities, compliance to the EMPr and required monitoring as outlined in Section 8 of this document. The landowner must ensure that the required training of the in-house site manager / waste control officer (who will be responsible for environmental control on site) takes place.

3.2. Engineers and Contractors

The engineers and contractors, where applicable, are responsible for physically carrying certain development and maintenance activities. The responsibilities indicated here are also relevant to sub-contractors.

The responsibilities of the engineers and contractors include but are not limited to the following:

- Be conversant with the EMPr, any relevant Environmental Authorisation, GA or any other legally binding documentation;
- Have a responsibility to adhere to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;
- Be responsible for any remedial activities in response to an environmental incident;
- Review and amend any construction activities to align with the EMPr and Best Practice Principles;

- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.

3.3. Site Manager / Waste Control Officer

A suitably qualified individual must be appointed by the landowner to fulfill the combined function of managing the day-to-day operation of the composting facility and overseeing the implementation of the EMPr. The site manager/waste control officer will assume overall responsibility for managing the site, employees and contractors and ensure and oversee the implementation of the EMPr onsite in its entirety. All decisions regarding environmental procedures and protocol must be approved by the site manager/waste control officer, who also has the authority to stop any activity in contravention of the EMPr. The role of the site manager/waste control officer is interactive and must include daily site visits.

The site manager/waste control will have the following environmental control responsibilities:

- Conduct environmental awareness training on the operation of the facility and implementation of the EMPr;
- Monitor the site and operation of the facility for potential environmental issues on a daily basis,
- Consult with the landowner, and all staff/contractors to resolve emerging environmental issues ,
- Review method statements and determine the most environmentally sensitive options of *modus operandi* for the development tasks,
- Oversee the implementation of environmental procedures set out in this document,
- Report on environmental issues,
- Receive minutes of all site meetings,
- Maintain open and direct communication with the landowner, contractors, and authorities,
- Monitor contractors, the EMPr and the implementation thereof; followed by reporting to the relevant authorities,
- 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 immediately,
- 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,
- Be contactable by the public regarding matters of environmental concern as they relate to the development,
- Issue any instructions to the management team via an appropriate management tool,
- Keep photographic records of site visits and records of communication to and from relevant authorities,
- Keep a Site Control Register consisting of the following sections:
    - The **Site Control Sheet** will be used to set out weekly reports in which the findings from daily site monitoring activities are consolidated.
    - 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 for the purpose of facilitating the issuing of the site instruction by the landowner.
    - 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.

- The **Complaints Register** will be used to record all complaints received and responses thereto.

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

3.4. Environmental Reporting

In order to ensure that the necessary environmental issues are adequately addressed and recorded, the following environmental reporting shall be undertaken:

- An internal audit detailing the environmental performance of the facility must be conducted every 12 months by the owner of composting facility and an official report thereof must be prepared. These audit reports must be safely stored and made available to the external auditor as well as the environmental authority (upon request).
- External audits of the composting facility must be conducted every 24 months by an independent auditor (EAP) and official audit reports must be prepared documenting the findings. The external audit report must be submitted to the provincial authority upon request and must include (but is not limited to) the following
    - An indication of the compliance of the facility with the National Norms and Standards for Organic Waste Composting (GN 561 of 2021) and this EMPr as approved by the provincial authority.
    - An indication of compliance with requirements issued by the relevant authority either at national, provincial or local level.
    - An indication of any major environmental incidents or noncompliance that occurred and details of how the incidents or noncompliance were addressed.
    - An indication of the presence of records of safe disposal certificates for all hazardous or general waste removed from the facility.
    - An indication if hazardous waste is separated from general waste and that such waste is removed by a registered waste handling company for either recycling or disposal at a registered facility.
- Incident reporting
    - All incidents must be recorded, and the appointed site manager/waste control officer must be notified. See Appendix B for a template of an Incident Report to serve as a guideline for the recording and addressing of emergency incidents as and when they occur.

3.5. Record Keeping

The landowner should keep records of the following:

- Internal and external audit reports.
- A site control register:
    - The control register must outline daily 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
- Quantities of incoming compostable organic waste.

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 site manager/waste control officer shall keep photographic records of 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.

3.6. Method Statements

For any activity the Contractor is requested to submit a method statement (MS) for comment by the site manager/waste control officer. The method statement must provide a step-by-step plan (which may include a schematic diagram etc.) to inform the responsible person(s) on the process and actions to take in a sequential and logical manner, which aims to reduce the impact of undertaking the activity within a reasonable timeframe and cost.

The format should clearly indicate the following:

What - a brief description of the work to be undertaken;

How - a detailed description of the process of work, methods and materials;

Where - a description/sketch map of the locality of work; and

When - the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement to the site manager/waste control officer prior to the start of any construction activity. Work may not commence until the comments of the site manager/waste control officer have been received and taken into consideration, and the site manager/waste control officer has approved the method statement for implementation on site.

SECTION 4: IMPACTS AND MITIGATION

The following possible impacts and associated mitigation measures have been identified with the proposed scope of work for the project phases:

4.1. Operational Phase

	Impact	Activity	Proposed mitigation
1	Natural resource contamination	Given the nature of the onsite activities, all stormwater originating from the site will be highly nutrient enriched and can result in nutrient pollution of soil, surface water and groundwater resources.	• Minimize the use of wash water onsite as far as possible. • The facility must be managed such that all runoff originating from the site is diverted into a stormwater control channel. • All stormwater control channels must be suitably lined to prevent seepage into groundwater. • The overflow of stormwater channels need to be trapped and allowed to settle in a detention pond. • The nutrient rich stormwater originating from the site must be used as a moisture additive within the composting facility to enhance the composting process. • No nutrient enriched water may be released offsite. • All stormwater infrastructure must be regularly inspected and serviced to ensure design capacity and integrity is maintained. • To ensure suitable stormwater control capacity is maintained onsite, stormwater channels must be kept free from silt. The site manager must inspect the stormwater control channels on a weekly basis. The stormwater control channels must be cleared of any sedimentation (if required) during the dry season. Sediment removed must be disposed of at a registered waste facility. • All water that has entered the processing and storage areas must be treated as leachate. • To prevent nutrient rich leachate from percolating into the ground, the land areas where composting rows are established should be compacted to ensure that the soil drainage is poor or virtually impervious.
2	Generation of atmospheric emissions and odors	Composting trucks entering and exiting the facility transport potentially foul-smelling material. In addition, active composting piles emit volatile compounds.	• All manure must be covered during transport to the composting facility. • Mortalities and hatchery waste must be transported in sealed containers. • Upon arrival at the composting facility, all highly biodegradable materials (e.g., hatchery waste) must immediately be covered with and/or blended with a carbon source (e.g., wood shavings). • Optimizing certain variables can minimize composting emissions. The carbon-nitrogen ratio, temperature, moisture content (at least 25%), aeration, and pH must be monitored by the facility manager on a weekly basis to ensure optimal organic matter

			breakdown without production of excessive atmospheric emissions or odors. • The nearest farm residential uses are greater than 700m away, are shielded by the stand of alien eucalyptus trees and are not adversely affected.
3	Soil Erosion	The increased bare, hardened and compacted surfaces associated with the composting facility results in reduced surface roughness, increased run-off and increased erosion potential. Areas where stormwater runoff is concentrated are most likely to experience erosion.	• Wherever possible, ensure that the site is vegetated with perennial vegetation. • Establish and maintain suitable vegetation cover at all stormwater concentration points. These areas include road verges, the banks of stormwater channels, berms and other infrastructure that may increase surface runoff. • 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 stabilization is employed as soon as possible.
4	Generation of dust and noise	The movement of transport trucks to and from the facility on dirt roads will result in the generation of dust and noise. In addition, the use of machinery to move compost material within the site and mix compost for aeration purposes will also generate dust and noise.	• The level of dust and noise generated by composting activities will be insignificant in the broader agricultural landscape. Nevertheless, it is recommended that working hours are restricted to 07:00 to 18:00, and half day on Saturdays. No work may be undertaken on public holidays or Sundays. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent excessive noise. • It is recommended that a dustcart is available onsite to water down dusty roads, particularly during the dry summer months. • A suitable speed limit (20-40km/h) must be enforced on all access roads. • Ensure compliance with the provisions as set out in the National Environmental Management: Air Quality Act (NEM: AQA), National Dust Control Regulations (Notice 827 of 2013) and Western Cape Noise Control Regulations (P.N. 200/2013).
5	Visual impacts	Given the location of the facility visual impacts are expected to be negligible.	• Scrape and sweep all areas where compostable material is processed weekly to ensure that minimal compostable material is present outside the concrete bunkers and wind rows
6	Consumption of resources (water)	Inefficient use of valuable freshwater for cleaning of transport bins and moisture addition to the composting rows.	• Maintain all water infrastructure in a good working condition. • Ensure that all taps remain closed when not in use. • Educate all employees on the importance of natural resources and wise water use practices. • Should any leaks occur, these must be reported immediately and repaired as soon as possible. • Moisture content of the composting rows should be regularly monitored to prevent unnecessary watering. • When emptying transport bins, ensure all material is removed manually as far as practicably possible to minimize the need for wash water.
7	Attraction and breeding of flies	Composting activities have the potential to attract flies.	*With suitable management, this impact can be kept to a minimum. Flies are not currently an issue onsite. The flowing management measures should however continue to be followed: • All uninfected mortalities and hatchery waste delivered to the site must be covered/worked into the existing batches immediately.

			• Correct management of pH and temperature within the composting rows will control the spread of pests and diseases as larva/eggs/worms/bacteria can't live at optimal composting temperatures. • Ensure that the rows are not overwatered.
8	Leakage of potentially hazardous substances	Operation of trucks and machinery as part of the composting process can result in leaking or spilling of fuel or oil which is hazardous for the environment.	• All transport vehicles and machinery must be confined to access roads and approved development footprints. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent potential leaks.
9	Employment opportunities	The operation of the composting facility generates the opportunity to create additional direct and indirect employment opportunities.	• This is a positive impact. No mitigation required.

SECTION 5: DEVELOPMENT PHASE REQUIREMENTS

5.1. Planning and Design Requirements

The Planning & Design Phase has already been completed and the facility is currently operational. The design of the facility is such that the processing of raw organic material takes place separately from compost maturation. Highly biodegradable organic material (e.g., hatchery waste) that arrives at the composting facility is placed within concrete bunkers where the initial breakdown of the organic material takes place. Once the initial process has been completed, the immature compost is moved to the wind rows where compost maturation takes place. The windrows are frequently turned and watered (if required) until the composting process is complete. While both processing phases take place within the same facility, the raw organic material processing unit is geographically separated from the composting wind rows by means of a tree lane. This ensures that fully treated compost is not contaminated with runoff from untreated or partially treated compost, waste or raw materials.

The composting facility is located on a fenced working farm with access control points for biosecurity reasons. This prevents unauthorized access to the site and thereby all areas where organic waste is generated, received, stored, and processed.

Stormwater management measures that capture and store all nutrient enriched stormwater and leachate from the composting activities are already in place onsite. To ensure suitable management of nutrient enriched stormwater, a stormwater management plan has been outlined for the site (refer to section 6.3).

The approach road to the organic composting facility must have a hard surface for heavy vehicles, offloading compostable material, to prevent muddy areas during the wet season.

5.2. Construction Phase Requirements

The Construction Phase has already been completed and the facility is currently operational. Given the location of the development site and the small scale of construction activities undertaken, it is unlikely that notable environmental impacts would have resulted from the construction phase. Should any further construction be proposed, the contractor must submit a method statement to the appointed site manager/waste control officer for approval.

SECTION 6: OPERATIONAL PHASE REQUIREMENTS AND MANAGEMENT OBJECTIVES

Section 4 of this report identified several impacts and concerns related to the operation of the composting facility. Many of the impacts identified 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.

6.1. 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.

During the lifespan of human habitation people generally waste on a daily basis. This includes food waste, packaging (paper, plastic, cardboard), glass bottles, metal cans, sewage etc. Excessive use of water and electricity is also wastage.

To minimize potential environmental impacts, the measures outlined below should be integrated in the operation of the development daily.

(a) Water

Water for cleaning and moisture addition purposes (if required) in the facility will be supplied from an existing registered source. Onsite water usage will be managed according to water saving principles:

- All taps are to be fitted with flow reduction devices, aerators, and motion sensors to ensure water conservation and prevent that they can be left running;
- Washing facilities to be provided with flow reduction devised and adequate catchment to contain wash water;
- All hoses to be fitted with trigger gun spray nozzles to limit wastage;
- Physical brushing or sweeping used in preference to water cleansing wherever possible (e.g. cleaning Waste transport containers).
- Water infrastructure used at the facility should be included on a maintenance schedule to detect and repairs leaks.
- Nutrient enriched stormwater will be used for moisture addition to the composting rows as and when required.

(b) Sewage

Existing staff ablutions are available within the work yard adjacent to the existing poultry rearing facilities in the west of the site. These facilities make use of a septic tank system with sufficient capacity for additional staff as required.

(c) Construction Materials

Materials used in the life-cycle of the project should be focused on renewable and recyclable elements:

- Select building materials for durability to minimize maintenance or replacement;
- Use standard materials to increase the potential for re-use and re-cycling;
- Materials should be sourced locally where possible.

(d) Fire Management

Suitable firefighting and personal protective equipment must be kept onsite at all times. Firefighting equipment must be easily accessible and must be maintained in a good, working condition. Firebreaks must be established onsite in accordance with the relevant legislation - National Veld and Forest Fire Act, Act 101 of 1998 and/or local authority by-laws. No flammable material is permitted onsite, and the site must be maintained clear of any leaflitter and or cut/dried vegetation. Clear signs in at least two prevalent languages spoken within the area must be in place to inform the public that flammable substances are not permitted on the premises.

Appropriate fire safety training and training in firefighting techniques must be provided to all staff working onsite. There must be clear signage indicating where the firefighting equipment is in relation to the compost heaps and the equipment must be within a 10m distance from composting rows. It is recommended that a suitably anchored

container is kept onsite to store the required fire fighting equipment within the required distance from the composting rows.

Composting rows pose a unique fire risk as spontaneous combustion can occur if conditions are not suitably managed. The following measures must be taken to prevent spontaneous combustion fires from occurring:

- Monitor composting rows for hotspots – high temperature (76 to 80ºC), vents, smoke or burnt smell.
- Ensure temperature monitoring equipment can reach the center of the piles.
- Ensure adequate ventilation and moisture content (above 40%) of pile to release heat.
- Avoid large piles – no greater than 3,5m high.

In the case of spontaneous combustion fires, which start within the compost heaps (not on the surface), the following measures must be taken:

- Do not aerate the material – added airflow feeds chemical oxidation thus fuelling the fire.
- Equipment or operators should never climb on top of the material when a fire is suspected.
- Remove material from the pile until the burning sections are isolated and quenched.
    - Remove coolest material from the edges of the pile first.
    - As material is removed spread on the ground or stack in small piles to cool.
    - Apply water or chemicals to hot material.
        - Please note: A safety datasheet for each of the chemical products utilised and the facility must be kept onsite in an easily accessible location for all employees.

(e) Organic Material

The material composted onsite includes wood shavings, chicken manure, minced day-old chicks and uninfected mortalities. Composting organic by-products products originating from hatcheries and poultry rearing facilities is an effective and environmentally friendly means of waste disposal. No infected mortalities are composted within the onsite facility. Infected mortalities arising from the onsite poultry rearing facilities are managed and disposed of under strict guidance of the state veterinarian. Safe disposal certificates for hazardous waste removed from the facility must be kept on record for a minimum period of 5 years.

Wood shavings for composting purposes are obtained from Groenland Shavings in Grabouw. The wood shavings are used to cover the hatchery waste and mortalities, act as a source of carbon and given their size and texture, facilitate aeration and allow moisture to move through the composting piles. Approximately 1,5m^3 of wood shavings are fed into the facility every week.

Chicken manure is obtained from the onsite poultry rearing facilities. Manure is cleaned out from the facility at the end of every two-month rearing cycle, loaded onto a tip trailer and transported to the composting facility over a period of 3-4 days.

Minced day-old chicks originate from an affiliated hatchery facility in Caledon. Hatchery waste is transported to the facility every Tuesday and Friday with an approximate total of 2,1 tons being added weekly.

Mortalities occasionally arise from the onsite poultry rearing facilities. When mortalities occur, they are placed in sealed containers and transported to the composting facility every morning. Most mortalities occur when chicks are still small and an estimated 2,8 tons of mortalities are added to the facility over and 8-week cycle.

6.2. Standard Operating Procedures

The following general operating procedures should be followed:

1. Raw material handling - transport: Chicken manure will be cleaned out from the onsite chicken rearing facility once every two months – at the end of a production cycle. The manure will then be loaded onto a tip trailer, covered with a shade cloth to prevent spillage, and transported to the composting site. It will take approximately 3-4 days to transport the manure from one cycle to the composting facility. Should an uninfected mortality occur within the onsite chicken rearing facilities, these will immediately be placed within a closed container which will be collected and transported to the composting facility every morning (as required). Waste material originating from the affiliated hatchery in Caledon will be transported to the site in sealed drums every Tuesday and Friday. A speed limit of 20-40km/h will be enforced on all internal access roads.
2. Raw material handling – arrival at composting facility: Incoming raw materials will be inspected before entering the composting system. Non-conforming waste will be directed to a relevant licensed waste management facility. Upon arrival at the composting facility, all highly biodegradable materials (e.g., hatchery waste) will immediately be covered with and/or blended with a carbon source (e.g., wood shavings) or mature compost. Organic matter will be added to the concrete bunkers and then moved to the compost rows after approximately 2 months. The breakdown process will take place slightly quicker in the summer months.

   Organic materials being processed onsite will be kept relatively moist (at least 25%) to minimize emissions of airborne pathogens and adequately aerated to control methane emissions. The incoming and processed waste within the facility will at no time exceed the design capacity of the storage or processing areas. The quantities of incoming compostable organic waste should be recorded on an ongoing basis and records from the previous 5 years should be kept onsite at all times.

All areas where the composting material is processed will be scrapped and swept on a regular basis to ensure minimal composting material is present outside windrows.

Prior to washing transport containers with water, all material will be physically swept out of the containers. The waste bins will then be washed on the concrete slab adjacent to the JoJo tank. The wastewater will run into the run-off trench and later be pumped onto the composting rows for moisture.

3. Turning: Litter temperature will be measured daily. When the litter reaches 65 degrees it will be turned with a compost turner. Moisture content will be maintained at approximately 60%. If it is too dry, nutrient enriched runoff will be pumped onto the rows if available, otherwise water from within the existing farming operation will be pumped onto the rows to maintain the moisture level. The rows will be turned until the heap reaches ambient temperature which indicates that the litter composting process is complete.
4. Application: After the composting process is complete, the compost will be spread on the lands with compost spreaders.

Please note: All general waste generated during the operation of the facility must be managed at a legally compliant waste management facility. Material that cannot be beneficial processed onsite must be safely stored until it can be transported to a suitably facility. Proof of waste recycled and safe disposal certificated must be kept onsite.

6.3. Stormwater Management

The nature of the onsite activities will result in nutrient enrichment of all stormwaters that move through the site. If not suitably managed, nutrient enriched stormwater can result in nutrient pollution of soil, surface water and groundwater resources. Therefore, the facility must be managed such that all runoff originating from the site is diverted into stormwater control channels from where the nutrient enriched stormwater can be appropriately utilized within the facility. Furthermore, all stormwater control channels must be suitably lined to prevent seepage into groundwater.

Given the topography and levels present within the site, it is estimated that drainage takes place primarily to the east/northeast and west of the facility. A contour has been developed to the south of the site. This contour acts as a barrier that prevents nutrient enriched stormwater from entering the adjacent fields. It also prevents 'clean' stormwater originating from the southern fields from entering the site and becoming nutrient enriched. An old road is located within the alien invasive eucalyptus stand to the north of the site. This road also acts to divert stormwater (Figure 6).

Primary onsite stormwater management measures comprise two stormwater control channels – one to the west of the facility and one to the east/northeast of the facility. Each of these stormwater control channels is connected to a safety retention pond which will provide additional storage in the event of channel overflow (refer to Figure 6). Stormwater that accumulates within the stormwater control channels will be pumped out and utilized for moisture addition as required for composting activities. The rate at which stormwater is pumped out of the channels must be managed to prevent overflow of the system. In instances where this is not possible, overflow into the designated safety retention areas is permitted.

In order to capture all nutrient enriched stormwater and prevent nutrient rich leachate from percolating into the ground, the land areas where composting rows are established should be compacted to ensure that the soil drainage is poor or virtually impervious.

All stormwater infrastructure must be inspected by the site manager on a weekly basis to ensure system integrity, functionality, and capacity. Should any leaks or damage be detected these must be repaired as soon as possible.

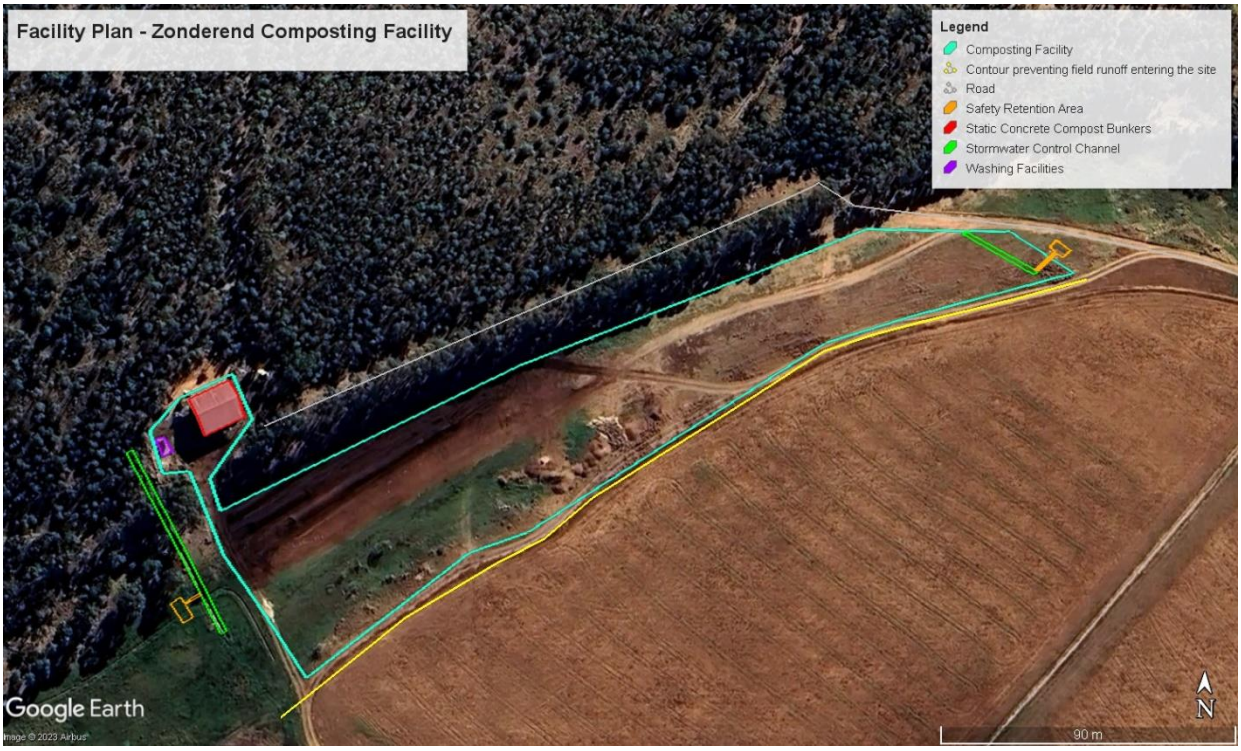


Figure 6: Facility Plan for Zonderend Composting site indicating the stormwater management measures.

6.4. Goals

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

1. Ensure effective stormwater management.
2. Minimize the generation of atmospheric emissions and odors.
3. Prevent and manage soil erosion.
4. Minimize the generation of dust and noise.
5. Maintain a neat and orderly facility.
6. Wise consumption of natural resources.
7. Prevent the attraction and breeding of pests.
8. Implement suitable fire risk management.
9. Establish suitable safety measures and emergency protocols.

Goal 1: Ensure effective stormwater management.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To ensure effective stormwater management, prevent the release of nutrient enriched stormwater from the site and prevent 'clean' stormwater from entering the compositing area.	• Natural resource contamination	• Minimize the use of wash water onsite. • Manage the facility such that all runoff originating from the site is diverted into stormwater control channels and overflow into detention ponds • Line all stormwater control channels with impermeable material to prevent seepage into groundwater. • Inspect and maintain all stormwater control channels on a regular basis. • The stormwater control channels must be cleared of any sedimentation (if required) during the dry season. • Nutrient enriched stormwater should be used as a moisture additive to enhance the composting process.	• Regular monitoring and maintenance of stormwater infrastructure. • Internal audit of the facility to ensure compliance with stormwater management requirements.	• Stormwater management plan in place and implemented (See Section 6.3)	• Report and repair infrastructure failure immediately. • Immediate action must be taken to contain any nutrient enriched stormwater released from the site as a result of infrastructure failure. • An incident report must be filled out and the site manager notified within 24hours after incident detection.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Owner and Site Manager***	***Responsibility: Owner and Site Manager***

Goal 2: Minimize the generation of atmospheric emissions and odours.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To ensure optimal organic matter breakdown with minimal production of atmospheric emissions and odour.	• Nuisance to surrounding land users. • Offensive odours. • Health risks	• All manure must be covered during transport to the composting facility. • Uninfected mortalities and hatchery waste must be stored within closed containers when transported to the composting facility. • Upon arrival at the composting facility, all highly biodegradable materials (e.g., hatchery waste) must immediately be covered with covered and/or blended with a carbon source (e.g., wood shavings) or mature compost. • The carbon-nitrogen ratio, temperature, moisture content (at least 25%), aeration, and pH must be monitored by the facility manager on a weekly basis to ensure optimal organic matter breakdown without production of excessive atmospheric emissions or odors. • Employees involved with the composting facility must make use of appropriate personal protective equipment as required. • The nearest farm residential uses are greater than 700m away, shielded by a stand of alien eucalyptus trees and is not adversely affected.	• Implementation of the standard operating procedures for the facility will mitigate risks effectivity. • Problems encountered and/or complaints received will be recorded in the Complaints Register and addressed where required.	• Standard operating procedures developed, implemented, and regularly updated for both the composting facility (Section 6.2) and poultry rearing facilities to ensure effective collaboration. • Limited atmospheric emissions and odour production.	• Monitor processes to ensure consistency. • Develop standard operation procedures to minimise impacts. • Ensure all problems encountered and/or complaints raised are addressed timeously and thoroughly.
		Responsibility: Site Manager(s)	***Responsibility: Site Manager***	***Responsibility: Owner and Site Manager(s)***	***Responsibility: Owner and Site Manager(s)***

Goal 3: Prevent and manage soil erosion					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To minimise/ avoid erosion on site and on access road(s)	• Degradation of land • Over-use of access roads	• Wherever possible, ensure that the site is vegetated with perennial vegetation. • Establish and maintain suitable vegetation cover at all stormwater concentration points. • A suitable speed limit (20-40km/h) must be enforced on all access roads. • Ensure that all vehicles using the access road are road worthy. • Limit the number of trips made to and from the composting facility.	• Regular erosion monitoring must take place onsite and on the site access roads.	• Adaptive erosion management onsite. • Limited onsite erosion • Limited road deterioration	• Should any erosion be detected, the 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.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 4: Minimize the generation of dust and noise					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Keep dust and noise associated with the composting facilities to a minimum.	• Nuisance	• Restrict working hours to 07:00 to 18:00, and half day on Saturdays. No work may be undertaken on public holidays or Sundays. • All transport vehicles and machinery/equipment used onsite must be regularly maintained and kept in good working order to prevent excessive noise. • It is recommended that a dustcart is available onsite to water down dusty roads, particularly during the dry summer months. • A suitable speed limit (20-40km/h) must be enforced on all access roads. • Ensure compliance with the provisions as set out in the National Environmental Management: Air Quality Act (NEM: AQA), National Dust Control Regulations (Notice 827 of 2013) and Western Cape Noise Control Regulations (P.N. 200/2013).	• Internal audit to ensure compliance with all relevant legislation, SOPs and recommended management actions.	• SOPs developed, implemented and regularly updated. • Minimal dust and noise generated by the composting activities.	• Open a complaint register. • Address all complaints thoroughly and timeously.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 5: Maintain a neat and orderly facility.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Maintain the composting site as neat as possible.	• Nuisance • Fire risk	• Scrape and sweep all areas where compostable material is processed on a daily basis to ensure that minimal compostable material is present outside the bunded rows and storage piles. • Maintain the site clear of any dried/cut plant material. • Prevent weeds from proliferating onsite. • Place hydrated lime on sections of the road near the composting facility that vehicles drive through to disinfect the tires.	• Conduct regular visual inspectors to ensure site maintenance is at an acceptable standard.	• SOPs developed, implemented and regularly updated. • Neat and orderly facility	• Record any problems or complaints in the site dairy or complaints register. • Adress any issues as soon as possible.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 6: Wise consumption of natural resources.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Ensure wise water use onsite.	• Wastage or depletion of valuable resources, such as water, due to inefficient or redundant usage.	• Maintain all water infrastructure in a good working condition. • Ensure that all taps remain closed when not in use. • Educate all employees on the importance of natural resources and wise water use practices. • Should any leaks occur, these must be reported immediately and repaired as soon as possible. • Moisture content of the composting rows should be regularly monitored to prevent unnecessary watering. • When emptying transport bins, ensure all material is removed manually as far as practicably possible to minimize the need for wash water.	• Keep track of the water usage onsite. • Regularly monitor and maintain water infrastructure. • Regularly inspect onsite water use practices to ensure relevant rules are being follows.	• Minimize water use onsite through establishing a standard operating procedure for organic waste bin emptying and washing.	• Report and repair any faulty infrastructure immediately. • Reprimand any contractors or employees not abiding by standard operating procedures relating to water usage.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 7: Prevent the attraction and breeding of pests.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To mitigate and control the attraction of excessive pests as a result of the composting facility.	• Nuisance, pest, health risk	• All uninfected mortalities and minced day-old chicks delivered to the site must be covered/worked into the existing batches immediately. • Correct management of pH and temperature within the composting rows will control the spread of pests and diseases as larva/eggs/worms/bacteria can't live at optimal composting temperatures. • Ensure that the rows are not overwatered.	• The implementation of standard operating procedures will mitigate impacts effectively. • Conduct regular visual inspections. Should flies increase substantially, the underlying issue must be addressed immediately.	• SOPs developed, implemented and regularly updated. • Limited flies present onsite.	• Should flies increase substantially, the underlying cause must be determined and immediately addressed. • Record any complaints in a complaint register, investigate the complaint and address the issue as soon as possible.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 8: Implement suitable fire risk management.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
To ensure that no fires start within the facility or spreads to the facility from elsewhere on the farm.	• Loss of infrastructure • Greenhouse gas emissions	• Cut a firebreak around the development once a year in November. Firebreaks should be within 15m of the development footprint and should not be more than 5m wide. • The site must be maintained free from dry plant material or any other flammable debris • Fire beaters must be kept on site, and easily accessible at all times. • No open fires may be lit anywhere on the site. • Appropriate fire safety training must be provided to all staff working onsite. Compositing has the added risk of potential spontaneous combustion fires if conditions within composting piles are not suitably managed: • Monitor compost rows for hotspots – high temperature (76 to 80ºC), vents, smoke or burnt smell. • Ensure temperature monitoring equipment can reach the center of the piles.	• All firefighting equipment must be checked and maintained annually in October, before the start of the fire season. • The site must be regularly monitored for any accumulation of leaf litter, dry plant material or flammable debris. This must be removed. • The conditions within the composting rows must be monitored more frequently during the hot, dry summer months (November – March)	• Limit the fuel load onsite by removing all leaf litter, dry plant material and flammable debris. • Maintain optimal condition with the composting rows.	• Refer non-compliance to site manager. • In the case of a fire occurring on site, the site manager, safety steward, landowner and adjacent landowners are to be notified immediately. If localised, 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. In the case of spontaneous combustion fires, the following measures must be taken: • Do not aerate the material • Equipment or operators should never climb on top of the material when a fire is suspected. • Remove material from the pile until the burning

		• Ensure adequate ventilation and moisture content (above 40%) of pile to release heat. • Avoid large piles – no greater than 3,5m high.			sections are isolated and quenched. • Remove coolest material from the edges of the pile first. • As material is removed spread on the ground or stack in small piles to cool. • Apply water or chemicals to hot material.
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

Goal 9: Establish safety measures and emergency protocols.					
Objective	**Risk**	**Actions**	**Monitoring**	**Targets**	**Remedial Action**
Ensure that emergency protocol has been developed and is in place for the composting facility.	• Fire • Pollution • Injury • Infrastructure damage	• Develop and implement emergency procedures and plans to ensure the safety of employees and the facility. • All accidents and emergency situations are to be reported to the site manager, landowner and full details included in environmental audits. • Emergency contact numbers for fire department to be kept on site. • Appropriate fire safety training and training in firefighting techniques must be provided to all staff working onsite.	• Internal audit to ensure compliance with procedures and applicable legislation.	• Procedures developed, implemented and regularly updated.	• Refer non-compliance to site manager. • Development and implementation of Emergency Procedures in line with applicable legislation and standards.

		• There must be clear signage indicating where the firefighting equipment is in relation to the compost heaps and the equipment must be within a 10m distance.			
		Responsibility: Owner and Site Manager	***Responsibility: Site Manager***	***Responsibility: Site Manager***	***Responsibility: Site Manager***

SECTION 7: GENERAL MANAGEMENT REQUIREMENTS

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

a) Environmental awareness training

All contractor teams and employees involved in the development of, or operation of the facility 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 site manager/waste control officer and/or landowner. The education program should be aimed at all levels of management. 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. Contractor teams must also be aware of safety and emergency procedures to be followed.

A regularly updated record must be kept of all personnel attending the Environmental Awareness training sessions.

As a minimum the training must include:

- Explanation of the **reason of complying** with the EMPr;
- Discussion of the potential **environmental impacts** of construction and operation 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. Employees involved with the composting facility will be suitably trained in appropriate waste management practices 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) and site manager. The site manager will advise the landowner on factors relating to the EMPr and all environmental matters on site. The site manager is allowed to issue a warning 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 site manager 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. 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** will be used to set out weekly reports in which the findings from daily site monitoring activities are consolidated.
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 for the purpose of facilitating the issuing of the site instruction by the landowner.
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 taken.
4. The **Complaints Register** will be used to record all complaints received and responses thereto.

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

c) Noise Impacts

The site manager must take appropriate measures to limit the impact of unreasonable noise from composting activities. Should issues arise, appropriate measures should include holding discussions with affected parties to determine if there are times of the day when noise is less likely to be a problem, and restricting working hours as far as reasonably practical. Construction and operational activities to be limited to working hours weekdays (07:00 – 18:00) and half day Saturdays (08:00 – 13:00). No work may be undertaken on Sundays and public holidays and all vehicles and machinery used onsite should be maintained in a good, working condition.

d) Cleanliness of Roads

The site manager must ensure that transport vehicles or machinery used onsite do not spill or drop any materials such as organic waste or compost) onto public or private roads. If this should occur, the site manager must facilitate the necessary arrangements for the roads to be suitably cleaned.

The approach road to the organic composting facility must have a hard surface for heavy vehicles, offloading compostable material, to prevent muddy areas during the wet season.

Hydrated lime is placed on a section of the access road near the composting facility where vehicles drive through to disinfect the tyres.

e) Erosion Control

Care must be taken to prevent erosion of soils on the composting site and all roads used to access the site. Should any erosion be detected, the 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.

f) Emission Control

Emission control in vehicles will be reduced by implementing the following:

- All diesel vehicles must be maintained/ serviced to minimise unnecessary exhaust emissions,
- Vehicles with smoking exhausts must be repaired immediately,
- Speed limits must be adhered to; and,
- Vehicles and other diesel driven machinery must be switched off when not in use.

g) Dust Control

The site manager shall take appropriate measures, to the satisfaction of the site manger to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) for bare ground where needed. Watering of exposed working areas and site access roads may be considered for the control of dust during dry and windy conditions, although great care must be taken that this does not result in excessive run-off, and erosive action.

h) Trenching and Service Installation

To minimize trenching, where new service installation is required, these are to be installed above ground within the existing disturbance footprint of the facility. Where unavoidable, the excavation of trenches for service installation should be undertaken in a phased manner where possible, to allow for trenches to stand open for a maximum of three days only. Materials removed from trenches must be stockpiled in a suitable position and should be stabilised if backfilling is not expected to occur within the following two days.

Service installation should be coordinated to prevent the undue reopening of trenches for the installation of additional services. Since the majority of service infrastructure is already in place on the property, service installation and trenching is expected to be minimal.

i) Emergency

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

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, 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. If a spontaneous combustion fire is suspected, the measures outlined in Section 6(d) must be followed.

First Aid:

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

j) Public Complaints

A complaints register must be kept onsite. For all complaints received, the following must be recorded:

- Date of complaint
- Name of person who reported the complaint
- Details of the complaint
- How and when the issue was addressed

All public complaints received are to be registered by the site manager and addressed immediately. Public complaints and responses are to be recorded and included in the environmental audits by the site manager and EAP.

k) Vegetation Management

Alien invasive vegetation is imported/ non-indigenous plant material that can out-compete indigenous vegetation and result in negative environmental impacts. A substantial stand of alien invasive *Eucalyptus* trees is currently present north of the composting facility. Under normal circumstances these trees should be removed, however the presence of these trees at this locality has a positive impact as they offer visual screening, dust screening, noise screening and wind protection for the composting facility. It is therefore recommended that this stand remains in place. Furthermore, the landowner is currently involved with offsite alien invasive clearing operations in important natural areas. The removal of alien trees at these localities has a much greater positive environmental impact than what would be obtained from the removal of the onsite alien invasive trees.

l) Fuels

Fuels for use in operational machinery are to be stored in suitably equipped storage areas, inside the existing farm work yard located adjacent to the poultry rearing facility in the western portion of the site. These areas shall comply with general fire safety requirements. Impervious materials are to be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks. Quantities of fuels stored on site should be appropriate to the requirement for these substances on site.

Bulk fuel depots are to be placed within hardened bund areas; bunds are to have a holding capacity equal to 110% of the largest fuel container. The site manager is to ensure that he is aware of the effects of all substances on staff and the environment, and the correct action to take in the case of any incident involving these materials.

m) Rehabilitation after construction/maintenance

The site manager, landowner and/or contractor must ensure that all areas are cleaned up and rehabilitated after completion of construction or maintenance activities as relevant.

That includes the following actions:

- Removal of excess building/maintenance materials from the site,
- Removal and correct disposal/use of all stockpiles (e.g., soil resulting from excavation activities),
- Removal and correct disposal/use of all vegetation removed,

SECTION 8: MONITORING AND COMPLIANCE

8.1. 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 site manager, as well as a review of site documentation. Monitoring should include photographic records as outlined in section 3.5 of this document. An internal audit detailing the environmental performance of the facility must be conducted every 12 months by the owner of the composting facility and an official report thereof must be prepared. These audit reports must be safely stored and made available to the external auditor as well as the environmental authority (upon request). The internal auditor shall complete the performance record at the end of each table in section 8.2 of this document, as a record of transgressions or problems experienced on site, and how they were dealt with. External audits of the composting facility must be conducted every 24 months by an independent auditor (EAP) and official audit reports must be prepared documenting the findings.

8.2. Environmental Control Sheets

a. Communication

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Site Control Register	• To be updated on a regular basis	Site Manager
Public complaints	• To be recorded, along with records of responses to them in the Site Control Register	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 • Record of members attending training sessions to be kept, and updated regularly	Site Manager
Method Statements	• Method statements to indicate What, How, Where and When activities are to take place. • Method statements for each relevant activity to be submitted to ECO prior to the start of that activity on site. • 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**				

b. Site Preparation

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Vegetation clearance – fire break and removal of dried plant material.	• Fires may not be used as a method of vegetation clearance.	Contractor/Site Manger
Topsoil removal	• Topsoil to be removed from all work areas and stockpiled separately from subsoil. • Stockpiles should be suitably shaped to prevent leaching of nutrients, and stabilised.	Contractor/Site Manager
COMMENTS/ UPDATE		
RECORD OF PERFORMANCE		

Acceptable	Details of Transgression	Responsible	Action Taken	Date

Yes	No		Party		

c. Site Procedures

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Toilet facilities	• Suitable toilet facilities to be provided for all staff. • Toilets are to be kept in a hygienic condition.	Site Manager
Working hours	• To be limited to between 07h00 and 18h00 on weekdays, and 08h00 and 13h00 on Saturdays.	Site Manager
Cleanliness of public roads	• Organic materials spilled on private or public roads cleaned up.	Site Manager
Fire control	• A fire break is established around the facility annually in November. • Required firefighting equipment is available on site, and in working order. • No open fires are lit on site without approval of the ECO and Site Manager.	Site Manger
Material handling and storage	• Fuels to be stored in suitably equipped storage areas in the farms work yard adjacent to the existing poultry rearing facilities. • These areas shall comply with fire safety requirements. • Impervious materials are to be used to prevent contamination of the ground in the event of spillages or leaks.	Site Manager
Stockpiles	• Stockpiles of excavated materials must be suitably shaped, stabilised and covered with erosion blankets. • Excavated material must be utilized onsite as far as possible.	Site Manager
Waste management	• All waste to be stored in an appropriate area on site and protected against wind dispersal. • Waste to be removed on a regular basis for disposal at a permitted disposal site. • No burning or burying of refuse on site is allowed.	Site Manager
Stormwater management	• All stormwater originating from the composting facility must be captured in suitably lined stormwater control channels. • Nutrient enriched stormwater should be pumped out of the stormwater control channels and sprayed onto composting rows to add moisture. • The stormwater control channels must be cleared of any sedimentation (if required) during the dry season. • Suitable measures must be in place to prevent erosion resulting from diversion, restriction or increase in stormwater runoff.	Site Manager

Maintenance of equipment	• All mechanical equipment and work vehicles to be stored, serviced, and refuelled at designated areas in the farms' work yard. • Drip trays or impervious materials to be used to prevent contamination of ground.	Site Manager
Erosion control	• All cleared ground is to be suitably stabilised to prevent dust. • If ground is watered to prevent dust, care must be taken that runoff is not excessive, or erosive.	Site Manager
Dust control	• Movement of construction vehicles must be limited to approved haul and access routes. • If ground is watered to prevent dust, care must be taken that runoff is not excessive, or erosive.	Site Manager
Site rehabilitation	• All structures, equipment materials and facilities are to be removed from site on completion of the project. • Construction site shall be cleared and cleaned to the ECO's satisfaction	Contractor

COMMENTS/ UPDATE

RECORD OF PERFORMANCE

Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

d. Site Preparation Construction Activities

TASK	**MITIGATION AND ENVIRONMENTAL CONTROLS**	**ACTION**
Preparation of building materials	• Preparation of any materials to be limited to a batching plant, or the existing farm work yard.	Contractor
Earth shaping	• Works to be restricted to within approved boundaries of the site. • Bulldozer/ heavy machinery operators to be under constant supervision. • Use and excessive movement of heavy machinery to be avoided in areas of environmental sensitivity or high erosion potential.	Contractor
Excavation of trenches for service installation	• Trenching to be undertaken in a phased manner. • Trenches to stand open a maximum of 3 days for installation of services.	Contractor
Dewatering of trenches if flooded	• Water to be pumped to sedimentation ponds, not allowed to flow into adjacent land.	Contractor

Backfilling of trenches	• To be undertaken in a phased manner as services are installed. • Fill material to be replaced in same work area from which it originated as far as possible. • Fill material to be compacted to its approximate original density.	Contractor
Temporary stabilisation	• All areas in which services have been installed are to be stabilised as soon as possible after backfilling. • Monthly maintenance checks to be carried out and remedial action implemented where necessary.	Contractor/Site Manger

COMMENTS/ UPDATE					
RECORD OF PERFORMANCE					
Acceptable		**Details of Transgression**	**Responsible Party**	**Action Taken**	**Date**
Yes	**No**				

8.3. Review of the EMPr

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

Any such changes or updates will be registered in the site manager's weekly 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.

8.4. Environmental Audits

A suitably qualified EAP Environmental Auditor is to be appointed, at the expense of the landowner, to undertake audits of compliance with the EMPr. External audits of the composting facility must be conducted every 24 months by an independent auditor and official audit reports must be prepared documenting the findings.

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 the in the current document.

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

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

SECTION 9: 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**.

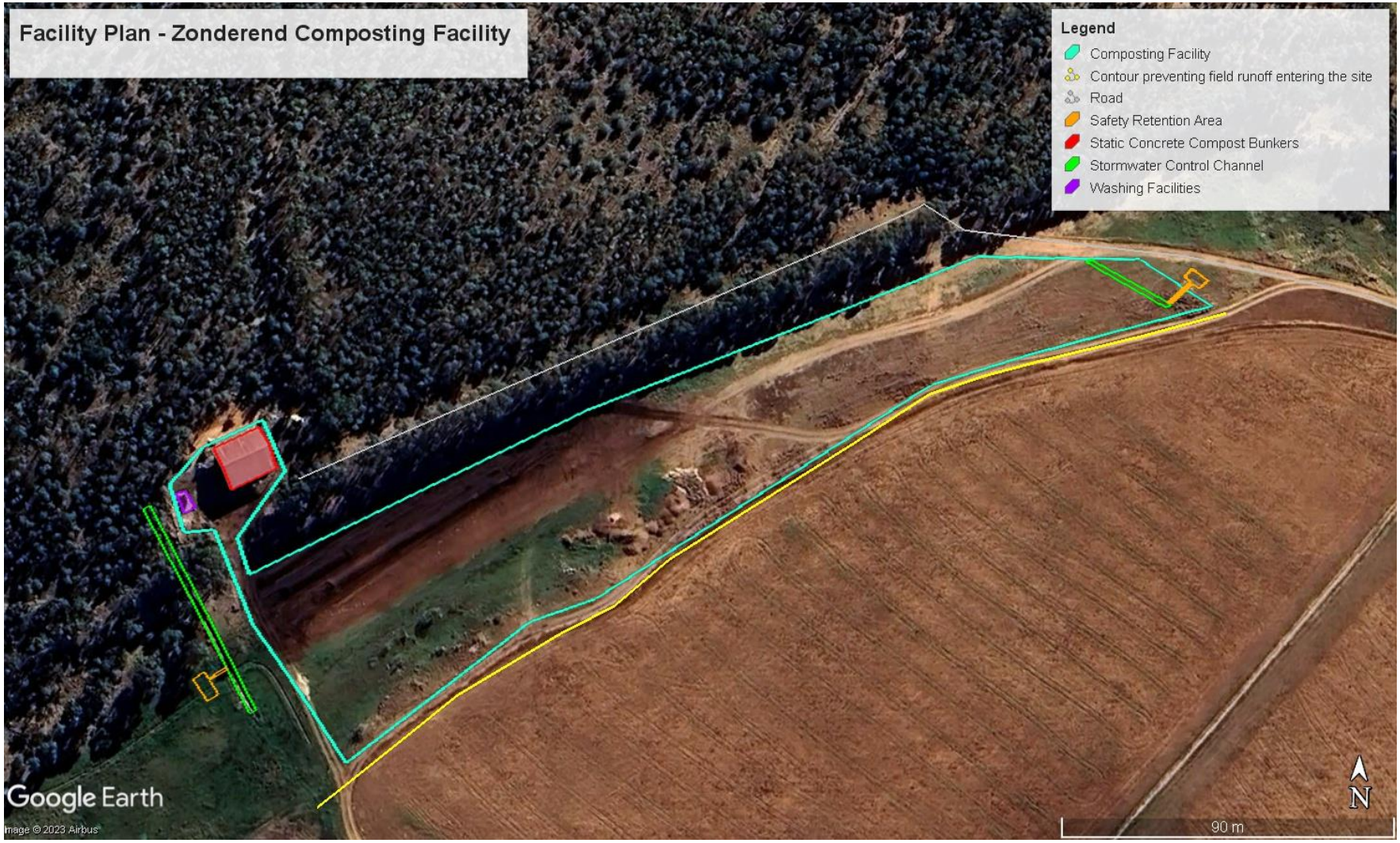
In the event that any activities are undertaken outside the scope of the adopted EMPr requirements, in terms of the action outlined within the given method statement, the responsible person(s) will potentially be subject to Section 24(F) of NEMA and that appropriate enforcement and compliance requirements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

Transgressions relate to actions by the landowner, contractor or contractor 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 site manager are to be communicated to relevant parties and appropriate action must be taken to rectify the situation. Issues of non-compliance must be reported in the required site visit report. The site manager will advise on appropriate corrective actions when necessary.

APPENDIX A: PREFERRED SDP - ZONDEREND COMPOSTING FACILITY



APPENDIX B: 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 C: CV OF EAP