



# **ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE EXPANSIONS TO TYDSTROOM'S HARTBEESPOORT HATCHERY & LAYER FARM, LOCATED ON PORTION 6 OF FARM 43 HOLFONTEIN 15 NOVEMBER 2018**

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 <p>Environmental Health &amp; Safety Legal Consulting</p>		<b>Title:</b> <b>ENVIRONMENTAL MANAGEMENT PROGRAMME          FOR THE EXPANSIONS TO TYDSTROOM'S          HARTBEESPOORT HATCHERY &amp; LAYER FARM,          LOCATED ON PORTION 6 OF FARM 43 HOLFFONTEIN</b>		
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## DEFINITIONS

Auditing:	A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis based to a (e.g. ISO 19011:2011) standard.
Biodiversity:	The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.
Contractor:	An employer, as defined in section 1 of the Occupational Health and Safety Act 85 of 1993, who performs construction work and includes principal contractors.
Environment:	A place where living, non-living and man-made features interact, and where life and diversity is sustained over time.
Evaporation:	The change by which any substance (e.g. water) is converted from a liquid state into and carried off as vapour.
Developer:	One who builds on land or alters the use of an existing building for some new purpose.
Independent:	Is independent and has no interest in any business related to the development site, nor will receive any payment or benefit other than fair remuneration for the task undertaken.
Groundwater:	Subsurface water in the zone in which permeable rocks, and often the overlying soil, are saturated under pressure equal to or greater than atmospheric.
Landowner:	Holder of the estate in land with considerable rights of ownership or, simply put, an owner of land.
Monitoring:	A systematic and objective observation of an organisation's activities and services conducted and reported on regularly.
Natural vegetation:	All existing vegetation species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on a site.
Pollution:	The result of the release into air, water or soil from any process or of any substance, which is capable of causing harm to man or other living organisms supported by the environment.
Protected Plants:	Plant species officially listed under the Threatened or Protected Species regulations as well as on the Protected Plants List (each province has such a list), and which may not be removed or transported without a permit to do so from the relevant provincial authority.
Red Data Species:	Plant and animal species officially listed in the Red Data Lists as being rare, endangered or threatened.
Rehabilitation:	Making the land useful again after a disturbance. It involves the recovery of ecosystem functions and processes in a degraded habitat. Rehabilitation does not necessarily re-establish the pre-disturbance condition, but does involve establishing geological and hydro logically stable landscapes that support the natural ecosystem mosaic.
Site:	Property(s) or area where the proposed development will take place.

## ACRONYMS

GDARD:	Gauteng Department of Agriculture and Rural Development
DWS:	Department of Water and Sanitation
ECO:	Environmental Control Officer
EA:	Environmental Authorisation
EIA:	Environmental Impact Assessment
EM:	Environmental Manager
EMP:	Environmental Management Programme
EO:	Environmental Officer
ER:	Engineer's Representative
I&AP:	Interested and Affected Party
IEM:	Integrated Environmental Management
PM:	Project Manager
SANS:	South African National Standards

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## **DEVELOPER'S COMMITMENT**

The facility has committed itself to a set of values that include the maintenance of good relations and transparent communications with all stakeholders, and the dynamic engagement of the larger community.

The facility undertakes to implement suitable management systems for all the areas and aspects of this operation. This will ensure that development itself and management of the project will comply with legal, technical, environmental and transformation policies and standards.

The facility, in drafting this EMP for implementation, intends to enable continuous improvement in legal compliance and the sustainable operation of the site.

The EMP intends to change the way in which the owners, the construction process they have commissioned and the contractor plan for and manage resources to achieve sustainability.

The satisfactory implementation of the EMP on site will require both the full support and commitment of all personnel.

## **CHAPTER 1**

### **1.1. Executive Summary**

This EMP has been prepared principally in compliance with the requirements of section 24N and Section 34 of the National Environmental Management Act 107 of 1998. This document, together with the conditions in the Environmental Authorisation, and the conditions in the Water Use Licence, must be adhered to.

The EMP must be included as part of all contract documentation for all contractors in the construction and operational phases of the development.

#### **The Author and Eco Impact Legal Consulting (Pty) Ltd ("Eco Impact")**

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions ("SACNASP") and a qualified EAP who holds a Masters Technologiae, Nature Conservation ("Vegetation Ecology and Biodiversity Assessment") degree from the Cape Peninsula University of Technology.

He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for

Environmental Management, North-West University qualifying him to audit to ISO/SANS environmental compliance and EMS standards.

He has been responsible for many environmental impact assessments and several EIA, waste license and atmospheric emission license applications as well as being involved in the implementation of several environmental management systems.

## **1.2. Project Description**

This section of the report is included in compliance with Section 24N (2) (e) of the National Environmental Management Act, 107 of 1998.

The proposed expansions to Tydstroom's Hartbeespoort Hatchery and layer farm, located on portion 6 of Farm 43 Holfontein in the Merafong City Local Municipality area.

Two additional layer house sites (marked site 3 and 4) of approximately 2.5 ha each in size with three chicken layer houses (each house will be 15m x 100m = 1 500m<sup>2</sup>) with a total infrastructure footprint of 4 500 m<sup>2</sup> on each of the 2.5ha site will be constructed. The total number of chickens on the property will be expanded with 34 980. Each house will accommodate 5 300 hens and 530 cocks = 5 830 chickens per house and 17 490 per site). Ablution facilities and store rooms will be constructed at sites 3 and 4 within the 2,5ha site footprint.

A 430 m in length and 5m wide access roads from the southern boundary road will be constructed to give access to site 3.

A 565 m in length and 5m wide access roads from the southern boundary road will be constructed to give access to site 4.

The site's power supply will be from existing ESKOM power lines and water from existing water tanks. A 200 cubic metres reservoir will be constructed next to the existing borehole and a 100mm UPVC water pipeline constructed from this reservoir to sites 3 and 4 to supply water.

An additional supervisor's house of ±250m<sup>2</sup> will be constructed next to the existing personnel houses north of site 3.

The existing hatchery building will be expanded by about 1 500 m<sup>2</sup> to increase the throughput capacity of the hatchery.

A 200 cubic metres reservoir will be constructed south of the existing reservoir to supply water to the hatchery.

An additional supervisor's house of ±250m<sup>2</sup> will be constructed next to the existing personnel houses north of the hatchery site.

The proposed alternative was considered based on the location within land owned by the applicant, avoidance of any sensitivity on site, and aligns the proposed project with the existing operations as well as surrounding land uses. No other location alternatives have been proposed for the project as this is the only site available for the applicant. The application is for expansion of similar facilities on the property. The proposed footprint is located on areas already identified for expansion with ESKOM Powerlines already constructed in order to supply the expanded layer sites with electricity. This was done when the existing facilities were constructed long ago, but the additional sites were never developed. The proposed hatchery expansion is on disturbed areas and the proposed three additional layer forms on areas that contains indigenous vegetation, but no threatened or protected species were recorded during the survey on the proposed impacted areas. Technology alternatives were not considered, as the applicant will be making use of the Best Practical Environmental Option that is available in the Poultry industry and currently used on the farm. The technology alternatives were screened out at the initiation phase of the project.

## **CHAPTER 2**

This section of the report is included in compliance with Section 24N (2) (e) of the National Environmental Management Act 107 of 1998.

It deals with issues relating to the implementation of the EMP.

### **2.1 Organizational Structure**

The organizational structure identifies and defines the responsibilities and authority of the various persons and organizations involved in the project. All instructions and official communications regarding environmental matters must follow the organizational structure.

The Environmental Official (EO), to whom the Engineer's Representative (ER) and/or Environmental Control Officer (ECO) must report and interact, must be the responsible client representative.

The EMP must be an agenda item at the monthly site and operations meetings and the responsible client representative(s) may attend these meetings in order to provide input with respect to compliance with the EMP.

### **2.2 Responsibilities and Functions of the Environmental Control Officer**

The ECO will be responsible for monitoring, reviewing and verifying compliance with the EMP and/or EA by all contractors and site management during site visits.

**The ECO duties in this regard will include the following:**

With the assistance, where necessary of the ER, to ensure all necessary environmental authorizations and permits have been obtained and are available and visible on site at the ER offices.

- monitor and verify that the EMP and/or EA is adhered to at all times and by taking action if the specifications are not followed;
- monitor and verify that environmental impacts are kept to a minimum;
- review and approve construction method statements, with input as appropriate from the ER;
- assist the contractor in finding environmentally responsible solutions to problems;
- report on the environmental issues at the site meetings and other meetings that may be called regarding environmental matters, if requested by ER;
- inspect the site and surrounding areas regularly with regard to compliance with the EMP and/or EA;
- monitor the environmental awareness training for all personnel coming onto site;
- advise management on the removal of person(s) and/or equipment not complying with the specifications, after collaboration with the ER. Recommendations must be recorded by the ER in a Site Instruction Book;
- ensure that activities on site comply with known legislation of relevance to the environment;
- recommend the issuing of penalties via the developer for contraventions of the EMP and/or EA;
- keep a photographic record of progress on site from an environmental perspective; and
- undertake a continual internal review of the EMP and/or EA and submit a report to the developer and the responsible GDARD Environmental Official according to EA conditions.

### **2.3 Agreed Work Plan and Site Visit Schedule of ECO**

After initial construction start-up site visit it is recommended that an ECO site visit be conducted once a month during construction.

Information recording activity on site, and any guidelines or instructions emanating from there will be routinely made available electronically to the developer and applicable contractors and a copy of the report must be available at the site office.

Clearly matters of urgency or immediate action may be channelled appropriately on an urgent basis.

## **2.4 Site Manager**

The site manager will have the following environmental control responsibilities:

- In conjunction with the ECO will present the environmental education programs to all persons employed on site.
- Consult with the ECO, landowner, developer and any contractor to resolve all environmental issues.
- Issue any instructions from the ECO to the management team via a formal site instruction book or appropriate management tool used for the purpose.
- Take responsibility for the penalty system. The ECO and developer recommendations must be considered when deciding whether or not to impose a penalty.
- The engineer will, via the ECO actions, be accountable for the overall implementation of the Environmental Management Programme.
- Keep a site diary and complaints register.

## **2.5 Contractors**

As part of any tender, the tendering contractor must submit a first draft of a contractor's programme, to the developer which must include the environmental considerations to be followed prior to appointment.

The appointed Contractor's representative will have the following responsibilities:

- Ensure that all staff is familiar with the Environmental Management Programme, which explains the environmental policy for the project.
- Allow for sufficient time between surveying the exact locations where services will be intended and actual construction, for the ECO to facilitate and instruct for the removal of plants, seeds and cuttings if necessary.
- The contractor must keep his personnel fully aware of environmental issues and ensure they show adequate consideration to all environmental aspects.
- Establish environmental signs to be erected on the construction site at locations identified by the ECO and approved by the engineer.
- Be responsible for the cost of the restoration of any damage caused, in environmentally sensitive areas, as a result of contractor responsibility regarding negligence. This must be done in accordance with the engineer / ECO's specifications.
- Take responsibility and active steps to avoid any increase in the fire hazard.
- The contractor must take responsibility for implementing all the relevant provisions of the EMP, or if he encounters difficulties with the specifications, he must discuss alternative approaches with the ECO and engineer prior to proceeding.

Failure to comply with the EMP may result in the application of fines as set out, and any reported non-compliance may result in the suspension of work or termination of a contract.

## **2.6 Record keeping of activities, inclusive of recording of non-compliances and corrective actions**

The site must keep a record of all activities relating to environmental matters on site, including:

- meetings attended;
- method statements received and approved;
- issues arising on site;
- cases of non-compliance with the EMP;
- corrective actions taken and penalties issued.

This information will be recorded in an appropriate manner in a site diary, registers, issues/warning book, etc.

## **2.7 Compliance with other legislation**

It is important that all on site staff are aware of other relevant legislation that may relate to the activities taking place on site, especially local authority required compliances.



## **CHAPTER 3**

### **Applicable Legislation, Policy and Environmental Principles**

#### **3.1 Applicable Legislation Identified**

1. ADVERTISING ON ROADS AND RIBBON DEVELOPMENT ACT, 21 OF 1940
2. BASIC CONDITIONS OF EMPLOYMENT ACT, 75 OF 1997
3. COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 130 OF 1993
4. CONSERVATION OF AGRICULTURAL RESOURCES ACT, 43 OF 1983
5. CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996
6. EMPLOYMENT EQUITY ACT, 55 OF 1998
7. ENVIRONMENT CONSERVATION ACT, 73 OF 1989
8. FENCING ACT, 31 OF 1963
9. HAZARDOUS SUBSTANCES ACT, 15 OF 1973
10. LABOUR RELATIONS ACT, 66 OF 1995
11. NATIONAL HEALTH ACT 61 OF 2003
12. NATIONAL HEALTH ACT 61 OF 2003 REGULATIONS RELATING TO THE MANAGEMENT OF HUMAN REMAINS
13. NATIONAL BUILDING REGULATIONS AND BUILDING STANDARDS ACT, 103 OF 1977
14. NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 107 OF 1998
15. NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 39 OF 2004
16. NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 10 OF 2004
17. NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 59 OF 2008
18. NATIONAL FORESTS ACT, 84 OF 1998
19. NATIONAL HERITAGE RESOURCES ACT, 25 OF 1999
20. NATIONAL VELD AND FOREST FIRE ACT, 101 OF 1998
21. NATIONAL WATER ACT, 36 OF 1998
22. OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993
23. TOBACCO PRODUCTS CONTROL ACT, 83 OF 1993

## **CHAPTER 4**

This section of the report is included in compliance with Section 24N (2) (e) of the National Environmental Management Act, 107 of 1998.

### **COMPLIANCE**

#### **4.1 Monitoring and Auditing**

##### **4.1.1 Introduction**

In keeping with current environmental and associated legislation, all environmental management procedures and actions must be reviewed and refined on an ongoing basis.

This is in accordance with the dynamic nature of environmental management and allows for the timeous identification and mitigation of issues as they come to light.

The process of review and refinement, built into the requirements of the EMP, is known as monitoring and auditing.

##### **4.1.2. Roles and responsibilities**

Efficient implementation of the performance specifications, effective monitoring and auditing, as well as clear responsibility and accountability allocation requires that various role-players be defined for the construction implementation project.

Depending on the nature and scale of a project, implementing teams could be composed of any number of role-players, each with their own specified responsibilities.

Therefore, for the purpose of this document, the following role-players are defined, based purely on responsibility and accountability allocation. The actual designation of role-players may vary, but the responsibilities will largely remain as stated.

#### **4.1.2.1. Developer/landowner or custodian of the land**

The developer/landowner or custodian of the land is the person or organization with decision making capacity for the land in question, and thus ultimately accountable for what takes place on that land.

#### **4.1.2.2. Contractor**

Contractors are appointed to undertake the works as specified in the contract. It is the responsibility of the contractor to do whatever is necessary from their side to ensure that he or an appointed advisor is well versed in environmental studies, so that they may accurately and efficiently carry out the requirements of the environmental specification.

The contractor is liable for any and all remedial work required in terms of the environmental specification, resulting from his environmental negligence, mismanagement and / or non-compliance.

#### **4.1.2.3. Environmental Control Officer**

An environmental control officer will manage and undertake monthly environmental inspections for the duration of the construction phase of the project as required.

The contractors or line management are answerable to the ECO for non-compliance. Issues of non-compliance raised by the ECO/EO must be taken up by the project manager, and resolved as per the conditions of his contract.

Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation and not allowed for in the performance specification) must be endorsed by the project manager.

### **4.2 The Monitoring Procedure**

Environmental monitoring is the continuous evaluation of the status and condition of environmental elements. Its purpose is to detect change that takes place in the environment over time and involves the measuring and recording of physical, social and economic variables associated with development impacts.

Many techniques for environmental monitoring have been proposed, each detailing a specific protocol. Regardless of which technique is used, the ultimate aim is that each environmental management specification be checked by means of a system in which a score may be allocated for:

- to state compliance,
- partial compliance and
- non-compliance

Completed monitoring reports will be submitted to the project engineer, developer/landowner and the contractor, who will attend to issues. These reports must be kept on file and be made available upon request by any environmental authority requesting such.

All persons employed, the contractor or his sub-contractors, must abide by the requirements of these performance specifications as they apply to the works. Any employees, the contractor or his sub-contractors found to be in breach of any of the environmental specifications, may be ordered to vacate the site forthwith and/or be subject to a disciplinary process.

The order may be given orally or in writing by the ECO. Confirmation of an oral order will be given as soon as practicable, but lack of confirmation in writing must not be a cause for the offender to remain on site, or not be subject to a disciplinary process. Supervisory staff, the contractor or his sub-contractor may not direct any person to undertake any activities which would place such person in contravention of the EMP, legislation and specifications.

The contractor and staff are deemed not to have complied with the performance specifications if:

- There is evidence of wilful or accidental contravention of any specification included in the specification;
- There is evidence of the contractor carrying out activities not permitted in terms of the EMP, contract and / or the specification;
- There is evidence of environmental negligence and / or mismanagement resulting in negative impacts on the environment;
- Has failed to meet with the requirements of the approved schedule.

The contractor and developer/landowner will be informed via ECO monthly reports, as well as by means of direct instruction (if necessary) as to what corrective actions are required in terms of environmental compliance.

Disregard for an instruction, and failure to respond adequately to complaints from the public will be construed as non-compliance. Non-compliance may lead to parties being penalised.

In more serious cases, the ECO may give notice, and halt operations until such a time that the corrective action is taken and the site complies with the performance specifications.

In cases of persistent non-compliance, the contractor or staff may be evicted from site after disciplinary process is followed. Only the developer/landowner may issue such instruction, retaining any costs required to remedy situations perpetuated by environmental negligence, mismanagement and / or non-compliance.

#### 4.3 Retentions and Penalties

It is recommended that a penalty retention system be combined with the penalty system to both motivate and compel the contractor to adhere to the EMP for the duration of the contract.

In this way incentives may be created to perform (i.e. in the form of the retention amounts that will only be paid to the contractor at the end of the contract), without creating the misunderstanding that adherence to the EMP is optional.

Persistent non-compliance will not only result in the contractor forfeiting any retention amount, but he will also be fined.

Of importance is that the contract specifies exactly how the penalty and retention system will operate, as well as how any funds resultant from retentions and penalties will be utilised.

All such funds must be used to improve environmental conditions on the site in general.

Non-compliance	R 5 000.00 (ex VAT) per non-compliant act, per day until compliance is achieved
Casual Litter on site resulting from operation	R250 / offence / day
Disposal of any litter or construction material in non-specified area or by non-compliant means	R5000 / m <sup>3</sup> / per day
Dumping of cement, concrete, fuel or oil in an area or other than that authorised and suitable	R10 000 per offence / day
Failure to use portable / toilets	R100 / observed incident or evidence of human excrement on site

#### CONSTRUCTION AND REHABILITATION PHASE CIVIL CONTRACTOR

##### Goal for Construction Phase

##### Overall Goal for Construction (C):

Undertake the construction the development infrastructure in a way that:

- ensures that construction activities are properly managed in respect of environmental aspects and impacts;
- enables construction activities to be undertaken without significant disruption to other land uses in the area, in particular concerning noise impacts, dust, farming practices, traffic and roads;
- minimises the impact on the surrounding area;
- minimises impacts on avifauna and other fauna using the site; and
- minimises the impact on the heritage and historical value of the site
- minimise possible health impacts.

### Objectives

In order to meet this goal, the following objectives have been identified, together with the necessary actions and monitoring requirements.

### OBJECTIVE C1: WORKING HOURS

Civil & Construction Sites	
Mondays to Fridays	06h00 – 19h00
Saturdays & Public Holidays	06h00 – 17h00 (With permission)

Project Component/s	Development site; Water reticulation; Access roads.
Potential Impact	Surrounding landowners and residents are exposed to noise; potential traffic congestion; and dust generated from the development site.
Activities/Risk Sources	Nuisance.
Mitigation: Target/Objective	<ul style="list-style-type: none"> <li>• Effective communication with affected and surrounding landowners; addressing of any issues and concerns raised as far as possible in as short a timeframe as possible.</li> <li>• Construction activities should be restricted to weekday working hours.</li> <li>• Machinery and vehicles should be regularly maintained to prevent excessive noise.</li> <li>• All machinery and work activities must adhere to the requirements of the noise regulations.</li> <li>• Implement dust suppression if and when required.</li> <li>• Ensure delivery vehicles do not cause obstructions or delays to other road users through effective scheduling.</li> </ul>

Mitigation: Action/Control	Responsibility	Timeframe
Contractors may only be present on the site during the public time hours.	Developer and contractor.	Construction phase.

Performance indicator	Effective communication and procedures in place.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

### OBJECTIVE C2: SAFETY

Project Component/s	Development site; Access roads; Water reticulation; Adjacent landowners / users.
Potential Impact	Increased activity in the area may result in safety risks.
Activities/Risk Sources	The proposed development may result in an increase in crime levels.
Mitigation: Target/Objective	To protect all involved from incidents, injury or death.

<b>Mitigation: Action/Control</b>	<b>Responsibility</b>	<b>Timeframe</b>
Telephone numbers of emergency services, including the local fire-fighting services, must be posted conspicuously in the contractor's office and near the telephone. No firearms are permitted on the construction site, other than those authorised by the developer for the property security service provider if needed. Notices should be displayed at all public entrances to the property, warning visitors that they are entering a construction site.	Contractor	Construction phase

Performance indicator	Effective communication and procedures in place.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

### **OBJECTIVE C3: TRAFFIC / CONGESTION**

Project Component/s	Development site; Access roads; Water reticulation; Adjacent landowners / users.
Potential Impact	The construction machinery will only have a traffic impact on delivery to, and collection from the development site and are therefore regarded as negligible.
Activities/Risk Sources	The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. Deterioration of existing road as a result of heavy use by construction vehicles.
Mitigation: Target/Objective	<ul style="list-style-type: none"> <li>• Avoid peak traffic hours (07h00 – 08h00 and 17h00 – 18h00) as far as possible;</li> <li>• Implementation of strict traffic safety measures and speed limits for all construction / delivery vehicles;</li> <li>• Road condition be monitored and, if need be, repaired to its original condition should any damage occur as a result of the development.</li> </ul>

<b>Mitigation: Action/Control</b>	<b>Responsibility</b>	<b>Timeframe</b>
Implementation of strict traffic safety measures and speed limits for all construction / delivery vehicles. For security and safety reasons the speed limit on the property for all contractors' vehicles is 30 km per hour. The contractor is responsible for ensuring that all his employees, sub-contractors and delivery vehicles adhere to this rule.	Contractor	Construction phase

Performance indicator	Effective communication and procedures in place.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

### **OBJECTIVE C4: CONTRACTOR'S CAMP**

Project Component/s	Laydown area; Access roads.
Potential Impact	Degradation of the natural environment inside/outside of the laydown area.
Activities/Risk Sources	Setting up and operation of the contractor's camp.
Mitigation: Target/Objective	Construction camp must be neatly fenced and construction site must be neat and tidy.

<b>Mitigation: Action/Control</b>	<b>Responsibility</b>	<b>Timeframe</b>
The contractor's camp will be indicated by and to landowner management and the ECO on the site. The final location of the contractor's camp will be authorized by	Developer / Contractor	Construction phase

the ECO and landowner.		
Performance indicator	ECO in conjunction with the landowner will approve construction camp area.	
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.	

#### OBJECTIVE C5: WASTE MANAGEMENT

Project Component/s	Development site.
Potential Impact	General construction waste will be generated during the construction phase. Poor waste management practices on site may lead to dumping and windblown litter creating a negative visual impact and nuisance for adjacent landowners / users as well as impacting the natural environment.
Activities/Risk Sources	<ul style="list-style-type: none"> <li>• Dumping;</li> <li>• Windblown litter causing nuisance;</li> <li>• Pollution / degradation of the natural environment.</li> </ul>
Mitigation: Target/Objective	<ul style="list-style-type: none"> <li>• All waste generated, that is not recycled or re-used, on site shall be collected and disposed of at a registered landfill facility;</li> <li>• All safe disposal certificates and waste manifests from service providers to be kept and maintained;</li> <li>• All staff to receive training on correct waste management practices.</li> </ul>

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> <li>• A contractor appointed by the developer and engineer shall be tasked to ensure that waste management on site is conducted in accordance with NEMWA and applicable Regulations.</li> <li>• No on-site burying, dumping or stockpiling of any weeds and aliens or invasive species shall occur. Such should be removed from the site to a suitable dumping site from which seed cannot escape.</li> <li>• The disposal of waste should be considered as a last resort after having considered the re-use and recycling of waste during the construction phase.</li> <li>• Waste minimisation should be implemented, such as the avoidance, reduction, re-use and recycling of waste during construction, before considering the disposal of such waste.</li> </ul>	Contractor	Construction phase

Performance indicator	Waste management conducted in accordance with NEMWA and applicable Regulations. Adherence to the National Norms and Standards for the Storage of Waste in terms of Government Notice (GN) No. 926 of 29 November 2013.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

#### OBJECTIVE C6: ARCHAEOLOGY AND PALAEOLOGY MANAGEMENT

Project Component/s	Development site.
Potential Impact	The loss of cultural or heritage resources.
Activities/Risk Sources	Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.

Mitigation: Target/Objective	To protect and mitigate the potential loss of cultural and heritage resources.
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Mitigation: Action/Control	Responsibility	Timeframe
<p>Should any heritage or fossil remains be exposed during any excavation or related activities, these must immediately be reported to the provincial heritage resource authority (in terms of the National Heritage Resources Act, 1999 (Act No.25 of 1999) via the ECO.</p> <p>Heritage remains uncovered or disturbed during earthworks must not be disturbed until inspection and verified by the professional.</p> <p>Implementation of a chance find procedure.</p> <p>It is recommended that the presence of graves at Site 3 should be confirmed through social consultation and if the identified features are graves, the graves should ideally be retained in situ, and demarcated with an access gate for family members.</p> <p>It is recommended that a close examination of all excavations be made while they are occurring within the Malmani Formation dolomites. Should any fossil materials be identified, the excavations should be halted and SAHRA informed of the discovery. These examinations must be made by a professional palaeontologist and the investigation should be timed to coincide with the excavation of the trenches to accommodate building foundations.</p>	Contractor	Construction phase

Performance indicator	Protection of heritage resources.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

#### OBJECTIVE C7: FIRES

Project Component/s	Development site; Laydown / contractors camp.
Potential Impact	Uncontrolled fire on/off site, resulting in damage to the environment, property, injuries/death to personnel on site, or injuries/death to the public.
Activities/Risk Sources	Activities associated with facility construction / contractors camp.
Mitigation: Target/Objective	To protect and mitigate the safety of people, property, and the environment on and off site.

Mitigation: Action/Control	Responsibility	Timeframe
No open fires will be allowed on site and adequate fire fighting equipment should be available on site in good working order at all times as prescribed by the fire management protocols.	Contractor	Construction phase

Performance indicator	No fire occurred to damage the surrounding environment and land uses and management actions are in place should a fire occur.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

#### OBJECTIVE C8: AN EFFECTIVE MONITORING SYSTEM TO DETECT ANY LEAKAGE OR SPILLAGE OF ALL HAZARDOUS SUBSTANCES DURING THEIR TRANSPORT, HANDLING USAGE AND STORAGE. THIS MUST INCLUDE PRECAUTIONARY MEASURES TO LIMIT THE

## POSSIBILITY OF OIL AND OTHER TOXIC LIQUIDS FROM ENTERING THE SOIL OR STORM WATER SYSTEMS

Project Component/s	Development site; Access roads.
Potential Impact	Contamination of soil, storm water and ground water resources by hazardous substances.
Activities/Risk Sources	The handling, storage and use of hazardous substances.
Mitigation: Target/Objective	Prevention and mitigation of the environment contaminated as a result of exposure to hazardous substances.

Mitigation: Action/Control	Responsibility	Timeframe
The EA holder, Land Owner, Site Environmental Officer and Environmental Control officer will do daily, weekly and monthly inspections and report and monitor compliance with the management actions included in the EMPr and EA conditions. These monitoring and reporting requirements are recorded in several sections of the EMPr. Monitoring will focus on signs of spillages and procedures during handling and storage of dangerous goods as described in the EMPr. The section on storage and handling of dangerous goods in the EMPr will be enforced.	Contractor	Construction phase

Performance indicator	Impacts on hydrological features minimized and mitigated
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

## OBJECTIVE C9: DIESEL FUEL AND LUBRICANT HANDLING PROGRAMME

Project Component/s	Development site; Access roads.
Potential Impact	Contamination of soil, storm and ground water resources as a result of an oil/diesel/lubricant spill/leak.
Activities/Risk Sources	Activities associated with site construction; Activities associated with site operation.
Mitigation: Target/Objective	To protect and mitigate impacts of contaminants on the environment and hydrological features.

Mitigation: Action/Control	Responsibility	Timeframe
<p>Servicing of construction vehicles and machinery to take place of site. All vehicles must be in a good condition with no leakages leading to possible contamination of soil or water supplies. The following conditions related to the temporary fuel tanks must be implemented:</p> <p>The fuel tanks must be designed and installed in accordance with relevant Oil Industry standards and SANS codes where applicable for the aboveground storage tanks. The tanks must be located within a bund (110 % of the tanks capacity) in order to contain potential spills.</p> <p>During fuel tanker delivery, the tanker driver must be present at all times during product offloading. Should an incident occur the supply vehicle emergency cut-off switch must be activated to immediately stop fuel delivery. Flexible hoses with dry-break couplings and emergency isolation must be used. All spillage incidences and actions taken consequent thereto must be reported to the ECO and recorded in the site register.</p>	Contractor	Construction phase



All fuel and flammable liquids should be stored under secure and fenced conditions and in a bunded site with the volume of the bunding capable of holding 110% of the liquid.

The applicant must ensure that effective stock inventory monitoring and regular auditing take place for the early identification of possible leaks.

The requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), must be adhered to. Within three months of the tanks ceasing to be used the tanks must be removed at the expense of the applicant, and the site, including all associated infrastructure must be rehabilitated to the satisfaction of the relevant authority.

**Refuelling:**

Refuelling of equipment must be conducted from the bunded fuel tank and pump at the contractor's camp. Fuel tanks must be bunded and supplied with a concrete apron. The concreted refuelling apron will be constructed with a drain along its extremities to collect any diesel contaminated run-off and channel it to the oil trap where separated oil will be collected and disposed of in the oil recycling container and process. Any spills on the concrete apron or floor below the tank are to be treated with OT8 or Spillsolve or equivalent as per the product instructions.

A 500 litre drawn trailer to convey diesel to the equipment for re-fuelling may also be used. Such trailer will be drawn by a specified vehicle and driver, with alternate nominated as approved by the Project Engineer. Such tow vehicle may travel at 20kms per hour maximum at any time, be clearly identifiable as such, and may only tow the diesel cart should the pre requisite drip trays and emergency equipment be on the vehicle at the time. In situ refuelling activity may only take place during a standard specified daily time slot as displayed in the construction office, unless specific per day permission has been given to refuel at any other time by the ECO. This must be pre-recorded in the site record book. Staff will require instruction in the identification of diesel and oil leaks and the use of Spillsolve (or equivalent) products.

**On-Site emergency repairs:**

Only small mobile plant and emergency repairs are to take place on site. These will require the provision of drip trays and funnels to ensure that no oil or fuel leakages occur onto the ground. Should such spill take place, then the oil saturated soil is to be placed in suitable containers and disposed of at a hazardous waste disposal site. Any contamination of soil is to be treated with Spillsolve or similar product. Contaminated water as a result of an oil or fuel spillage on the area should similarly be treated in appropriate way, and the polluted water should not be specifically removed and not allowed to merge with run-off water collected in the trap collecting all run offs from the slab.

**Collection of contaminated spares and waste oils:**

Contaminated spares, oil filters, gaskets, water, etc. will be collected in separate holders at the designated storage facility for disposal at a licensed H:h site.

Staff will require instruction in:

<ul style="list-style-type: none"> <li>• Deleterious effects of oil / fuel on the environment</li> <li>• Identification of oil leaks</li> <li>• Handling of oil / fuel leaks into soil</li> <li>• Location and method in storage of contaminated spares</li> <li>• Fire prevention and emergency drills in case of an accident</li> </ul>		
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Performance indicator	Ensure that no spillages occur and if it does occur that it is handled and cleaned up accordingly.
Monitoring	This will be monitored by the ECO during site visits and recorded, reported and proof included in the audit report to be submitted once construction is completed.

#### **OBJECTIVE C10: APPROPRIATE HANDLING AND STORAGE OF CHEMICALS, HAZARDOUS SUBSTANCES AND WASTE (WASTE MANAGEMENT PLAN)**

The construction phase may involve the storage and handling of a variety of chemicals including adhesives, abrasives, oils and lubricants, paints and solvents. The main wastes expected to be generated by the construction of the infrastructure will include predominantly general solid waste in minimal amounts and potentially liquid waste, which may include hazardous waste.

Project Component/s	Access roads; Construction camp / Laydown area; Storage areas.
Potential Impact	<ul style="list-style-type: none"> <li>• Release of contaminated water from contact with spilled chemicals.</li> <li>• Generation of contaminated wastes from used chemical containers.</li> <li>• Inefficient use of resources resulting in excessive waste generation.</li> <li>• Litter or contamination of the site or water through poor waste management practices.</li> <li>• Pollution of water and soil resources.</li> </ul>
Activities/Risk Sources	<ul style="list-style-type: none"> <li>• Vehicles associated with site preparation and earthworks.</li> <li>• Packaging and other construction wastes.</li> <li>• Hydrocarbon use and storage.</li> <li>• Spoil material from excavation, earthworks and site preparation.</li> </ul>
Mitigation: Target/Objective	<ul style="list-style-type: none"> <li>• To ensure that the storage and handling of chemicals and hydrocarbons on-site does not cause pollution to the environment or harm to persons.</li> <li>• To ensure that the storage and maintenance of machinery on-site does not cause pollution of the environment or harm to persons.</li> <li>• To comply with waste management guidelines.</li> <li>• To minimise production of waste.</li> <li>• To ensure appropriate waste storage and disposal.</li> <li>• To avoid environmental harm from waste disposal.</li> </ul>

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> <li>• Implement a site specific waste management plan during the construction phase.</li> <li>• Spill kits must be made available on-site for the clean-up of spills and leaks of contaminants.</li> <li>• Corrective action must be undertaken immediately if a complaint is received, or potential/actual leak or spill of polluting substance identified. This includes stopping the contaminant from further escaping, cleaning up the affected environment as much as practically possible and implementing preventive measures.</li> <li>• Implement an effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage.</li> </ul>	Contractor	Construction phase

<p>This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.</p> <ul style="list-style-type: none"> <li>• Leakage of fuels must be avoided at all times and if spillage occurs, it must be remediated immediately.</li> <li>• In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents.</li> <li>• Spilled cement, fly ash and concrete must be cleaned up as soon as possible and disposed of at a suitably licensed waste disposal site.</li> <li>• Any contaminated/polluted soil removed from the site must be disposed of at a licensed hazardous waste disposal facility.</li> <li>• All stored fuels to be maintained within a sealed bund and on a sealed surface. The bund must be at least 110% of the volume of the total containers.</li> <li>• Adjacent fuelling areas situated around fuel tanks must be provided with an impervious layer or drip trays must be used during refuelling.</li> <li>• Areas around fuel tanks must be appropriately bunded or contained in an appropriate manner as per the requirements of SABS 089:1999 Part 1.</li> <li>• Fuel storage areas must be inspected regularly to ensure bund stability, integrity, and function.</li> <li>• Oily water from bunds at the substations must be removed from site by licensed contractors.</li> <li>• The storage of flammable and combustible liquids such as oils will be in designated areas which are appropriately bunded, and stored in compliance with MSDS files.</li> <li>• Any storage and disposal permits/approvals which may be required must be obtained, and the conditions attached to such permits and approvals will be compiled with and copies kept on site in the environmental file.</li> <li>• Transport of all hazardous substances must be in accordance with the relevant legislation and regulations.</li> <li>• Construction sub-contractors must provide specific detailed waste management plans to deal with all waste streams.</li> <li>• Specific areas must be designated on-site for the temporary management of various waste streams, i.e. general refuse, construction waste (wood and metal scrap) and contaminated waste as required. Location of such areas must seek to minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage and vermin control.</li> <li>• Where practically possible, construction and general wastes on-site must be reused or recycled. Bins and skips must be available on-site for collection, separation, and storage of waste streams (such as wood, metals, general refuse etc.).</li> <li>• Disposal of waste must be in accordance with relevant legislative requirements, including the use of licensed contractors and disposal at appropriately licensed</li> </ul>		
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<p>waste disposal sites.</p> <ul style="list-style-type: none"> <li>Hydrocarbon waste must be contained and stored in sealed containers within an appropriately bunded area.</li> <li>Waste and surplus dangerous goods must be kept to a minimum and must be transported by approved waste transporters to sites designated for their disposal and copies of the safe disposal slips must be kept in the environment file on site.</li> <li>Documentation (waste manifest) must be maintained detailing the quantity, nature, and fate of any regulated waste. Waste disposal records must be available for review at any time.</li> <li>An incident/complaints register must be established and maintained on-site.</li> <li>The sediment control and water quality structures used on-site must be monitored and maintained in a fully operational state at all times.</li> <li>An integrated waste management approach that is based on waste minimisation must be used and must incorporate reduction, recycling, re-use and disposal where appropriate</li> <li>Upon the completion of construction, the area must be cleared of potentially polluting materials.</li> <li>Dispose of all solid waste collected at an appropriately registered waste disposal site. Waste disposal shall be in accordance with all relevant legislation and under no circumstances may waste be burnt on site.</li> <li>Where a registered waste site is not available close to the construction site, provide a method statement with regard to waste management.</li> <li>The storage of waste must comply with the National Environmental Management: Waste Act, (Act No. 59 of 2008) National Norms and Standards for Storage of Waste, 2013.</li> </ul>		
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Performance indicator	<ul style="list-style-type: none"> <li>Limited chemical spills outside of designated storage areas;</li> <li>No water or soil contamination by spills;</li> <li>No complaints received regarding waste on site or indiscriminate dumping;</li> <li>Internal site audits ensuring that waste segregation, recycling and reuse is occurring appropriately;</li> <li>Provision of all appropriate waste manifests for all waste streams.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>Observation and supervision of chemical storage and handling practices and vehicle maintenance throughout construction phase;</li> <li>A complaints register must be maintained, in which any complaints from the community will be logged;</li> <li>Observation and supervision of waste management practices throughout construction phase;</li> <li>Waste collection will be monitored on a regular basis;</li> <li>Waste documentation completed;</li> <li>A complaints register will be maintained, in which any complaints from the community will be logged;</li> <li>Complaints will be investigated and, if appropriate, acted upon;</li> <li>An incident reporting system will be used to record non-conformances to the EMPr;</li> </ul> <p>This will be monitored by the ECO during site visits and recorded,</p>

	reported and proof included in the audit report to be submitted once construction is completed.
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#### **OBJECTIVE C11: EFFECTIVE MANAGEMENT OF CONCRETE BATCHING AREA**

Project Component/s	Concrete batching area.
Potential Impact	<ul style="list-style-type: none"> <li>• Dust emissions.</li> <li>• Release of contaminated water, pollution of ground water resources.</li> <li>• Ground, soil pollution.</li> <li>• Generation of contaminated wastes from used chemical containers.</li> <li>• Inefficient use of resources resulting in excessive waste generation.</li> </ul>
Activities/Risk Sources	<ul style="list-style-type: none"> <li>• Operation of the batching area.</li> <li>• Packaging and other construction wastes.</li> <li>• Hydrocarbon use and storage.</li> <li>• Spoil material from excavation, earthworks and site preparation.</li> </ul>
Mitigation: Target/Objective	To ensure that the operation of the batching area does not cause pollution to the environment or harm to persons.

<b>Mitigation: Action/Control</b>	<b>Responsibility</b>	<b>Timeframe</b>
<ul style="list-style-type: none"> <li>• Concrete batching areas to be sited such that impacts on the environment or the amenity of the local community from noise, odour or polluting emissions are minimised;</li> <li>• Access and exit routes for heavy transport vehicles should be planned to minimise noise and dust impacts on the environment;</li> <li>• The concrete batching area should demonstrate good maintenance practices, including regular sweeping to prevent dust build-up;</li> <li>• The prevailing wind direction should be considered to ensure that bunkers and conveyors are sited in a sheltered position to minimise the effects of the wind;</li> <li>• Aggregate material should be delivered in a damp condition, and water sprays or a dust suppression agent should be correctly applied to reduce dust emissions and reduce water usage;</li> <li>• The site should be designed and constructed such that clean storm water, including roof runoff, is diverted away from contaminated areas and directed to the storm water discharge system;</li> <li>• Any liquids stored on site, including admixtures, fuels and lubricants, should be stored in accordance with applicable legislation;</li> <li>• Contaminated storm water and process wastewater should be captured and recycled where possible. A wastewater collection and recycling system should be designed to collect and filter contaminated water;</li> <li>• Process waste water and contaminated storm water collected from the entire site should be diverted to a settling pond, or series of ponds, such that the water can be reused in the concrete batching process. The settling pond or series of ponds should be lined with an impervious liner capable of containing all contaminants found within the water they are designed to collect;</li> <li>• Areas where spills of oils and chemicals may occur should be equipped with easily accessible spill control kits to assist in prompt and effective spill control;</li> </ul>	Contractor	Construction phase

<ul style="list-style-type: none"> <li>• Ensure that all practicable steps are taken to minimise the adverse effect that noise emissions. This responsibility includes not only the noise emitted from the plant and equipment but also associated noise sources, such as radios, loudspeakers and alarms;</li> <li>• Where possible, waste concrete should be used for construction purposes at the batching area or project site;</li> <li>• The batching area to be monitored by the ECO to ensure that the plant is operating according to its environmental objectives and within legislative requirements.</li> </ul>		
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Performance indicator	<ul style="list-style-type: none"> <li>• No complaints regarding dust or contamination;</li> <li>• No water or soil contamination by chemical spills;</li> <li>• No complaints received regarding waste on site or indiscriminate dumping.</li> </ul>
Monitoring	<p>Observation and supervision of chemical storage and handling practices and vehicle maintenance throughout construction phase. A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>An incident reporting system will be used to record non-conformances to the EMP.</p> <p>Developer or appointed ECO must monitor indicators listed above to ensure that they have been met for the construction phase.</p>

## OBJECTIVE C12: DUST MANAGEMENT

Project Component/s	General construction activities; Concrete batching area; Transport of materials to and from sites.
Potential Impact	Create a nuisance to property owners / users adjacent to the development.
Activities/Risk Sources	Windblown dust from stockpiles, excavated or cleared areas, and which vehicles may be entrained may affect property owners / users adjacent to the development.
Mitigation: Target/Objective	<ul style="list-style-type: none"> <li>• Dust suppression by wetting / covering stockpiles;</li> <li>• Limit vehicle speeds for all vehicles.</li> </ul>

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> <li>• Dust suppression by wetting / covering stockpiles;</li> <li>• Limit vehicle speeds for all vehicles.</li> <li>• Ensure compliance with the provisions as set out in the National Environmental Management: Air Quality Act (NEMA: AQA), National Dust Control Regulations (Notice 827 of 2013).</li> </ul>	Contractor	Construction phase

Performance indicator	No complaints regarding dust.
Monitoring	<p>A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>A complaints register will be maintained, in which any complaints from</p>

	<p>the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>Developer or appointed ECO must monitor indicators listed above to ensure that they have been met for the construction phase.</p>
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#### OBJECTIVE C13: NOISE CONTROL

Project Component/s	General construction activities; Concrete batching area; Transport of materials to and from sites.
Potential Impact	Create a nuisance to property owners / users adjacent to the development.
Activities/Risk Sources	Noise from construction vehicles and machinery during construction.
Mitigation: Target/Objective	Ensure construction vehicles and machinery operates in compliance with the required legislation.

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> <li>Construction and deliveries may only be conducted during working hours as defined above.</li> <li>Ensure compliance with the provisions as set out in legislation.</li> </ul>	Contractor	Construction phase

Performance indicator	No complaints regarding dust.
Monitoring	<p>A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon.</p> <p>Developer or appointed ECO must monitor indicators listed above to ensure that they have been met for the construction phase.</p>

#### OBJECTIVE C14: NOISE CONTROL

Project Component/s	General construction activities; Transport of materials to and from sites.
Potential Impact	Possible Bio-Security impacts.
Activities/Risk Sources	Possible spread of diseases.
Mitigation: Target/Objective	Avoid spread of diseases and death of chickens.

Mitigation: Action/Control	Responsibility	Timeframe
<p>No loitering is allowed.</p> <p>Nobody may live/sleep over</p> <p>No poultry products allowed on the farm</p> <p>Must comply with hatchery rules and regulations</p> <p>All vehicles will be sprayed by HBP Hatchery security staff on entry and exit.</p>	Contractor	Construction phase

Performance indicator	Comply with bio-security requirements
Monitoring	Developer or appointed ECO must monitor indicators listed above to ensure that they have been met for the construction phase.

## **OPERATIONAL PHASE**

Regular monitoring must be conducted during the operation to ensure that rehabilitation measures have been successful, and to determine whether any unstable cut and fill area need to be stabilized, especially after heavy rains.

A clean-up procedure will be conducted on a regular basis in order to ensure that litter, oil spills etc., are cleaned timeously and pollution of the watercourse is minimized.

Stormwater management structures must be cleaned and maintained on a regular basis in order to minimize erosion that can cause siltation of aquatic systems. This will require regular inspections of the stormwater infrastructure to confirm its functionality.

## **CHAPTER 6**

### **EXTERNAL AUDITING**

The key to a successful EMP is appropriate monitoring and review to ensure effective functioning of the EMP and to identify and implement corrective measures in a timely manner. In the event where discrepancies are identified, the problem must be investigated and attended to. All the results obtained during environmental monitoring must be documented for audit purposes.

An audit of the environmental management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards. Audits should be conducted during the construction phase of the facility to ensure adherence to the management measures contained in the EMP. The construction audit schedule will be determined by the conditions of the EA. The frequency of the construction and operational audits may vary and will be synchronised with the construction schedule.

## **CHAPTER 7**

### **DECOMMISSIONING PHASE**

As the final phase in the project cycle, decommissioning may present positive environmental opportunities associated with the return of the land for alternative use and the cessation of impacts associated with operational activities. However, depending on the nature of the operational activity, the need to manage risks and potential residual impacts may remain well after operations have ceased.

The decommissioning phase EMP provides specific guidance with respect to the management of the environmental risks associated with the decommissioning stage of a project.

Closure and decommissioning impacts are likely to be similar to the construction phase impacts. The management actions and control under the construction phase EMP need to be implemented to mitigate the negative impacts on the environment and to restore the property to its natural state.

A decommissioning phase is where a structure is removed or otherwise modified to make it incapable for re-use for the original design purpose.

The results of environmental monitoring during the decommissioning phase will be used to assess the impact of the decommissioning on the surrounding environment and demonstrate compliance with regulatory requirements.

The actual scope of the decommissioning environmental monitoring will be established following consultation with the regulatory authorities. The format of decommission management strategy will probably be similar to that of earlier development phases and consist of the following:

- Management Principles
  - Develop monitoring procedures in accordance with standard protocols and the requirements of the environmental legislation.



- Undertake environmental monitoring during the decommissioning phase as shown below.

Environmental monitoring during the decommission phase will include terrestrial flora rehabilitation monitoring.

## **CHAPTER 8**

### **REHABILITATION SPECIFICATIONS AND SITE CLEAN-UP**

The contractors must ensure that all temporary structures, equipment, materials and facilities used or created on site for, or during construction activities, are removed once the project has been completed. The construction sites must be cleared, and cleaned to the satisfaction of the developer.

Stabilisation and rehabilitation must take place immediately after construction operations have been completed. No vehicles or unauthorised personnel must be allowed onto areas that have been rehabilitated.

The areas impacted during construction must be stabilised and shaped according to the natural surrounding contours. If topsoil was removed during construction the topsoil must be used to stabilise the impacted areas.

If erosion occurred the ECO must be informed immediately who will then recommend erosion mitigation measures to be implemented.

Alien vegetation monitoring of the rehabilitated areas and surrounds must be conducted on an annual basis and if alien vegetation is detected the ECO must be informed immediately who will then recommend eradication methods.

## **CHAPTER 9**

### **ENVIRONMENTAL AWARENESS INDUCTION COURSE MATERIAL**

This section of the report is included in compliance with Section 24N (3) (c) of the National Environmental Management Act 107 of 1998.

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## WHAT IS THE ENVIRONMENT?

- Soil
- Water
- Plants
- People
- Animals
- Air we breathe

size houses

smaller houses



• Air conditioning, cars &

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## WHY MUST WE LOOK AFTER THE ENVIRONMENT?

- It affects us all as well as future generations
- We have a right to a healthy environment
- A Policy and System will be signed

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## HOW DO WE LOOK AFTER THE ENVIRONMENT?

- Report problems to your supervisor/ foreman
- Team work
- Follow the rules in the EMP



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## WORKING AREAS

Workers & equipment must  
stay inside the site  
boundaries at all times



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## RIVERS & STREAMS

- Do not swim in or drink from streams
- Do not throw oil, petrol, diesel, concrete or rubbish in the stream
- Do not work in the stream without direct instruction
- Do not damage the banks or vegetation of the stream



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## ANIMALS

- Do not injure or kill any animals on the site
- Ask your supervisor or Contract's Manager to remove animals found on site



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## TREES AND FLOWERS

- Do not damage or cut down any trees or plants without permission
- Do not pick flowers



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## SMOKING AND FIRE

- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Do not light any fires without permission
- Know the positions of fire fighting equipment
- Report all fires
- Do not burn rubbish or vegetation without permission



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## PETROL, OIL AND DIESEL

- Work with petrol, oil & diesel in marked areas
- Report any petrol, oil & diesel leaks or spills to your supervisor
- Use a drip tray under vehicles & machinery
- Empty drip trays after rain & throw away where instructed



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## DUST

Try to avoid producing dust



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## NOISE

- Do not make loud noises around the site, especially near schools and homes
- Report or repair noisy vehicles



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## TOILETS

- Use the toilets provided
- Report full or leaking toilets



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## EATING

- Only eat in demarcated eating areas
- Never eat near a river or stream
- Put packaging & leftover food into rubbish bins



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## RUBBISH

- Do not litter – put all rubbish (especially cement bags) into the bins provided
- Report full bins to your supervisor
- The responsible person should empty bins regularly



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## TRUCKS AND DRIVING

- Always keep to the speed limit
- Drivers - check & report leaks and vehicles that belch smoke
- Ensure loads are secure & do not spill



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## EMERGENCY PHONE NUMBERS

Know all the emergency phone numbers:

- Ambulance:
- Fire:
- Police: 10111



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## FINES AND PENALTIES

- Spot fines of between R20 and R2000
- Your company may be fined
- Removal from site
- Construction may be stopped



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## PROBLEMS - WHAT TO DO!

- Report any breaks, floods, fires, leaks and injuries to your supervisor
- Ask questions!



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## WASTE MANAGEMENT

- Waste minimization
- Reduce, reuse, recycle
- Separation at source





ATTENDANCE REGISTER FOR .....	
PLACE .....	TRAINER.....
NAME & SURNAME	SIGNED
SIGNED .....	DATE & TIME .....

## **CHAPTER 10**

### **COMPLIANCE WITH THE ENVIRONMENTAL AUTHORISATION**

All conditions of the Environmental Authorisation must be adhered to onsite during the construction-, operational-, decommissioning- and rehabilitation phases of the proposed project. A copy of the Environmental Authorisation must be available on site together with the EMP and all contractors on site must sign the Declaration of Understanding as proof of awareness and understanding of all the conditions to be adhered to on site in terms of the EA and EMP.

### **REFERENCES**

City of Cape Town (2002) Environmental Management Programme (Version 5) for Civil Engineering Construction Activities.

DEA&DP: Environmental Management Programme. Version 5 (04/2002). Guideline Document for the ECO / ESO and the ER

Department of Water Affairs and Forestry, February 2005. Environmental Best Practice Specifications: Construction Integrated Environmental Management Sub-Series No. IEMS 1.6. Third Edition. Pretoria.