



**PROPOSED DEVELOPMENT OF FOUR NEW CHICKEN LAY HOUSES
ON THE EXISTING LAYER FARM ON REMAINING EXTENT OF
PORTION 147 AND PORTION 148 OF FARM HARTEBEEFONTEIN
472, HEKPOORT, GAUTENG PROVINCE**

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

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Prepared for:



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Today's Impact | Tomorrow's Legacy

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LIST OF ACRONYMS AND ABBREVIATIONS

CER	-	Contractors Environmental Representatives
DEA	-	Department of Environmental Affairs
DWS	-	Department of Water and Sanitation
ECO	-	Environmental Control Officer
EIA	-	Environmental Impact Assessment
EIR	-	Environmental Impact Report
EMP'r	-	Environmental Management Program Report
EPC	-	Engineering Procurement Contractor
ESA	-	Environmental Site Agent
GDARD	-	Gauteng Department of Agriculture and Rural Development
I&AP's	-	Interested and Affected Parties
IDP	-	Integrated Development Plan
NEMA	-	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	-	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NHRA	-	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	-	National Water Act, 1998 (Act No. 36 of 1998)
PHRA	-	Provincial Heritage Resources Agency
PPP	-	Public Participation Process
SAHRA	-	South African Heritage Resources Agency
SDF	-	Spatial Development Framework

GLOSSARY OF TERMS

Alien species: A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

Applicant: Any person who applies for an authorisation to undertake an activity or undertake an Environmental Process in terms of the Environmental Impact Assessment Regulations – National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as contemplated in the scheduled activities listed in Government Notice (GN) No R. 983, 984 and 985.

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.

Cumulative Impact: In relation to an activity, cumulative impact means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Ecology: The study of the interrelationships between organisms and their environments.

Environment: All physical, chemical and biological factors and conditions that influence an object.

Environmental Impact Assessment: In relation to an application, to which Scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Environmental Impact Report: In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Heritage resources: This means any place or object of cultural or archaeological significance.

Precipitation: Any form of water, such as rain, snow, sleet, or hail that falls to the earth's surface.

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Riparian: The area of land adjacent to a stream or river that is influenced by stream induced or related processes.

Soil compaction: Soil becoming dense by blows, vehicle passage or other type of loading. Wet soils compact easier than moist or dry soils.

1. INTRODUCTION

This Environmental Management Programme (EMPr), amongst others, describes the mitigation measures and identifies the specific people that will be responsible for implementation of the mitigation measures, in order to ensure that impacts on the environment are minimised during the construction, operational and decommissioning phases for the proposed project.

This EMPr must form part of the contractual agreement between the relevant contractor(s) and the developer.

1.1. NEMA Regulation 19(4) Report Compliance

Regulation 19(4) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations of 2017 provides the content requirements for Environmental Management Programmes. The table below lists the relevant requirements, indicates whether the relevant information is included in this report or not, and provides cross-references as to where the relevant information can be found in this report.

Table 1: Environmental Management Programme requirements in terms of the EIA Regulations of 2017.

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
(a)	(1) An EMPr must comply with section 24N of the Act and include- (a) details of - (i) the EAP who prepared the EMPr; and	Yes	Chapter 2
	(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae	Yes	Chapter 2
(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Yes	Chapter 3
(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Yes	Appendix A
(d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	Yes	Chapter 8
	(i) planning and design;	No	Chapter 8
	(ii) pre-construction and construction activities;	No	Chapter 8
	(iii) construction activities;	No	Chapter 8
	(iv) rehabilitation of the environment after construction and where applicable post closure; and	No	Chapter 9
(v) where relevant, operation activities;	Yes	Chapter 8	
(e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Yes	Chapters 5 and 8

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
(f)	a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to -	Yes	Chapter 8
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Yes	Chapter 8
	(ii) comply with any prescribed environmental management standards or practices;	Yes	Chapter 8
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	Yes	Chapter 8
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Yes	Chapter 8
(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Yes	Chapter 6 and 8
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Yes	Chapter 5 and 8
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Yes	Chapter 8
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Yes	Chapter 8
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Yes	Chapter 8
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Yes	Chapters 5, 6 and 8
(m)	an environmental awareness plan describing the manner in which-		Chapter 7
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Yes	Chapter 7
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Yes	Chapter 7
(n)	any specific information that may be required by the competent authority.	No	None up to date

1.2. Report Layout

The table below summarises the content layout of this report.

Table 2 Summary of report content layout.

Chapter	Chapter Heading	Content Summary
1	Introduction	Provides a brief background to the proposed project, and explains the compliance of this report with regards to Regulation 33 of the NEMA.
2	Environmental Assessment Practitioner	Provides details of the EAP who prepared this EMP'r, and provides information on the expertise of the EAP.
3	Project Description and Listed Activities Covered by this EMP'r	Provides a brief project description, and describes the relevant project phases and the NEMA Listed Activities triggered.
4	Existing Environmental and Impact Assessment Summary	Summarises the biophysical, social, economic and cultural aspects of the existing environment, and provides a summary of the impact assessment outcome.
5	Persons Responsible for Implementing this EMP'r	Provides information on the persons who will be responsible for implementing this EMP'r, and explains requirements with regards to on-site communication, site instruction entries, method statements, and record keeping.
6	Monitoring, Performance Assessment and Reporting on EMP'r Compliance	Provides information on monitoring, performance assessment and reporting on EMP'r Compliance, ECO site inspection reports, and photographs.
7	Environmental Awareness Plan	Provides information on environmental awareness and risk training, and basic rules of conduct. Also provides an environmental risk plan.
8	Impacts and Mitigation Measures	Provides EMP'rs for the relevant project phases.
9	Rehabilitation Measures	Provides rehabilitation measures and closure plan objectives.
10	Emergency Response Plan	Provides information on the emergency response plan.
11	Incident Register	Stipulates the content requirements for incident registers.
12	Guidelines with Regard to Vegetation	Provides guidelines regarding vegetation handling on site.

2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

This EMPr was prepared by Elana Mostert from Enviroworks, the Environmental Assessment Practitioner (EAP) who is undertaking this EIA process. The sections below provide the details of the EAP, and explain the EAP's expertise to prepare this EMPr.

2.1. Details of the EAP

Name:	Elana
Surname:	Mostert
Highest qualification:	MSc Botany (SU)
IAIAsa registered:	No. 5631
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2.2. Expertise of the EAP

Name of EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Elana Mostert	MSc in Botany (SU)	IAIAsa Registration: 5631	1.5

2.3. Curriculum Vitae of the EAP



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Elana Mostert

Relevant qualifications

MSc Botany (SU): Specialising in Invasion Biology & Fynbos Restoration

BSc Hons Plant Sciences- Ecology (UP)

BSc Environmental Sciences (UP)

Work experience

- March 2016- May 2017: Field assistant, Plant Ecologist at Department of Environmental Affairs (Oceans & Coasts)
- June 2017- current: Environmental Consultant at Enviroworks

Basic assessment experience

- The proposed construction of a cellular telecommunications base station and associated infrastructure on Portion 76 of Farm No. 106, Robertson, Western Cape Province, Coast to Coast Towers (Pty) Ltd.
- The proposed construction of a cellular telecommunications base station and associated infrastructure on Portion 1 of Farm No. 178, Fisantekraal, City of Cape Town, Western Cape Province, Coast to Coast Towers (Pty) Ltd.
- The proposed development of a telecommunication base station and associated infrastructure on Portion 8 of the Farm Delta no. 1003, Groot Drakenstein, Western Cape Province, Coast to Coast Towers (Pty) Ltd.

Ecological Impact Assessment Specialist Report Experience

- Periodic maintenance of National Route 2 Section 4 between Riviersonderend (km 0.0) and Swellendam (km 56.9), Western Cape Province, SANRAL.
- Proposed construction of six lay houses and two new production (hen) houses at Frans Dam Farm, No 803 Portion 3 in Brandfort, Free State, Moreson Pluimvee Boerdery (Pty) Ltd.
- Proposed construction of a composting facility on Farm No 1136 Terugval Portion 1 in Brandfort, Free State, Moreson Pluimvee Boerdery (Pty) Ltd.
- Plant species translocation guidelines: Periodic maintenance of National Route 2 Section 4 between Riviersonderend (km 0.0) and Swellendam (km 56.9), Western Cape Province, SANRAL.
- Plant species identification study: Re-surfacing of the Donkergat Access Road located within the Langebaan 4 Special Forces Regiment Base, Langebaan, Western Cape, Department of Public Works.
- Proposed upgrading and building of related infrastructure for the R27 Gate and Geelbek Restaurant in the West Coast National Park, Western Cape, SANParks.
- Proposed development of the Mapungubwe Visitor Interpretation Centres and Overnight Facilities, Limpopo Province, SANParks.
- The proposed construction of a cellular telecommunications base station and associated infrastructure in Roodekrans, Gauteng, Coast to Coast Towers (Pty) Ltd.

- Preparation of a plan to control and eradicate invasive species as contemplated in Section 76 of the Act, National Environmental Management: Biodiversity Act, 2004 (Act No.10 Of 2004) (NEMBA) for Theewaterskloof Local Municipality.
- Compiling a biodiversity baseline database and vegetation survey of selected municipal properties for alien invasive vegetation and indigenous vegetation for Drakenstein Municipality.
- Proposed development of 100 erven on Erf 210 in Sutherland, Karoo Hoogland Local Municipality, Northern Cape, COGHSTA.
- The proposed development of Erf 3976 for a mixed use development in Hartswater, Phokwane Municipality, Northern Cape, Makespace Architects.
- 24G Application for the unlawful clearing of indigenous vegetation and construction of chicken lay houses, Molote City, North West Province.

Wetland Delineation and Section21 (c) & (i) Risk Matrix

- The proposed development of new sportsgrounds at Waterstone College, Olifantsvlei, Gauteng, CURO.
- The proposed expansion of a granite mine in Biesjesfontein, Springbok, Northern Cape, Greenmined.
- The proposed development of the OR Tambo Agricultural Hub, Eastern Cape, FemPlan.
- The proposed development of the Alfred Nzo Agricultural Hub, Eastern Cape, FemPlan.
- The proposed development of the Sarah Baartman Agricultural Hub, Eastern Cape, FemPlan.
- The proposed construction of a cellular telecommunications base station and associated infrastructure in Roodekrans, Gauteng, Coast to Coast Towers (Pty) Ltd.
- Proposed development of 100 erven on Erf 210 in Sutherland, Karoo Hoogland Local Municipality, Northern Cape, COGHSTA.
- The proposed development of Erf 3976 for a mixed use development in Hartswater, Phokwane Municipality, Northern Cape, Makespace Architects.
- 24G Application for the unlawful clearing of indigenous vegetation and construction of chicken lay houses, Molote City, North West Province.
- The proposed Zachtvlei Dam and bulk conveyance infrastructure, Lady Grey, Eastern Cape, Indwe Environmental Consulting for Joe Gqabi District Municipality.

Other experience

- Botanical inspection and recommendations for vegetation rehabilitation at 13 Duikerweg, Melkbosstrand, Western Cape.
- Ecological source characterization and identification, risk identification and assessment for the Source-Pathway-Receptor risk assessment and options analysis for the expansion of the ash disposal facility at Matimba Power Station, Limpopo Province.
- Quarterly monitoring assessment for the rehabilitation efforts on Portion 5 of Farm 830 Doornekraal, Malmesbury, Western Cape.
- Flora identification study for the re-surfacing of the Donkergat Access Road located within the Langebaan 4 Special Forces Regiment Base, Langebaan, Western Cape, Department of Public Works.
- Fauna and flora removal permits for the upgrading of intersections and resealing of road sections between Hotazel and Black Rock, Northern Cape, SMEC.
- Flora removal permit for the re-surfacing of the Donkergat Access Road located within the Langebaan 4 Special Forces Regiment Base, Langebaan, Western Cape, Department of Public Works.

- Flora removal permit and translocation guidelines for the periodic maintenance of National Route 2 Section 4 between Riviersonderend (km 0.0) and Swellendam (km 56.9), Western Cape Province, SANRAL.
- Alien Invasive Species Training for Staff & Management, Saldanha, Western Cape Province, Lafarge.

3. PROJECT DESCRIPTION AND LISTED ACTIVITIES COVERED BY THIS EMPR

3.1. Brief Project Description

Quantum Foods Holdings T/A Nulaid Eggs (The Applicant) appointed Enviroworks, an Independent Environmental Assessment Practitioner (EAP), to undertake the required Basic Assessment Process for the proposed development of four new layer houses on the existing poultry farm on Portion 147 and 148 of the Farm Hartebeesfontein 472, Hekpoort, Gauteng Province. Four existing layer houses will be demolished to build four new layer houses with a capacity of 30,000 chickens each.

Figure 1 below illustrates the facility illustrations. The locality can be viewed in Figure 2 below. The locality map indicates the existing poultry farm footprint. The existing houses will be demolished and replaced by new layer houses with an increased capacity. The existing footprint will thus be utilized and no new disturbance will be created.

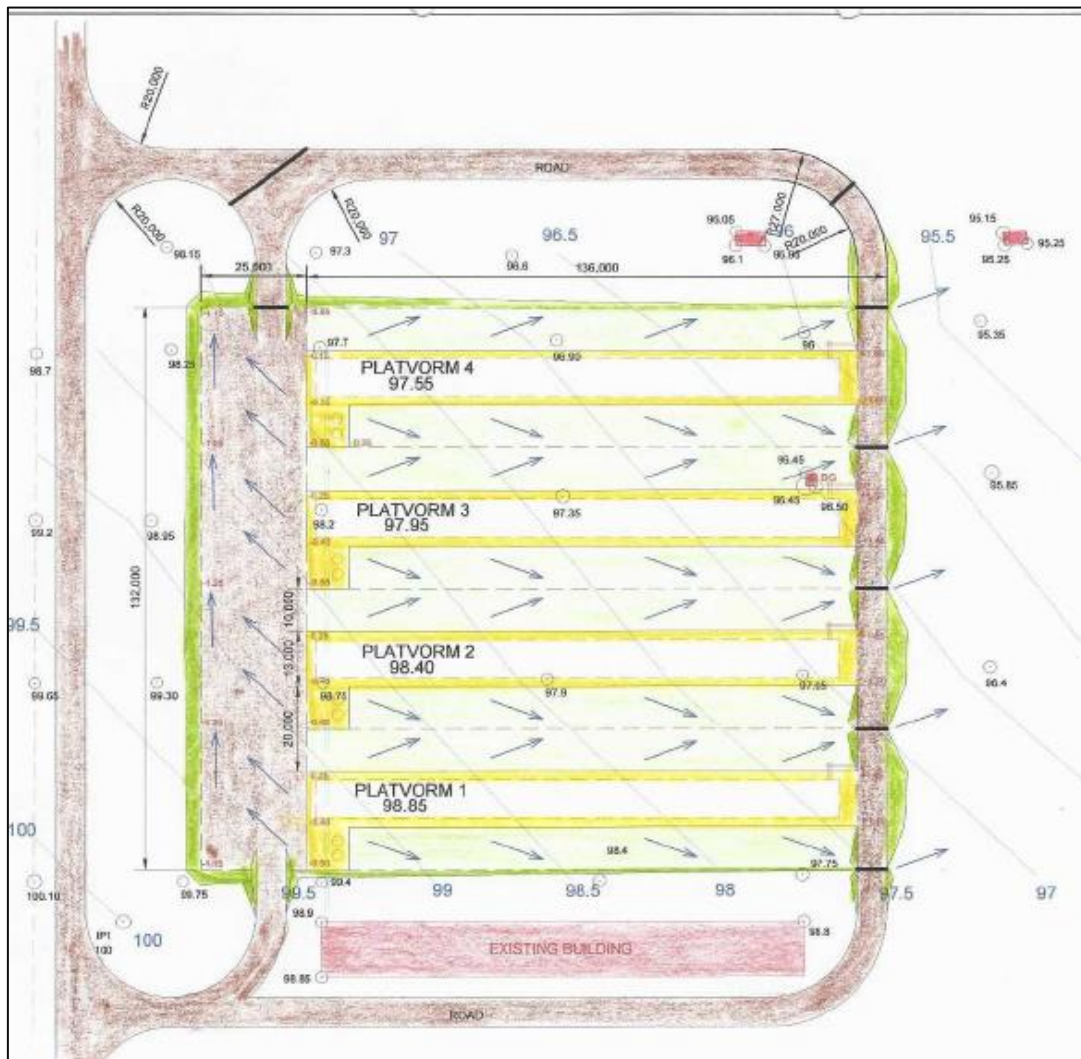


Figure 1 Facility illustrations

The proposed project is a listed activity in terms of Sections 24(2) and 24(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended). The Environmental Impact Assessment (EIA) Regulations, 2017 promulgated in terms of Chapter 5 of the NEMA provide for the control of certain activities that are listed in Government Notice Regulations No. (GN R) No. R324, R325 and R327. Activities listed in these notices must comply with the regulatory requirements listed in GN R No. R982, which prohibits such activities until written authorization is obtained from the competent authority. Such environmental authorization, which may be granted subject to conditions, will only be considered once there has been compliance with the EIA regulations, 2017.

3.2. Project Phase Description

The project consist of three phases:

- Construction Phase (includes planning, design, pre-construction, demolishing of old houses and construction activities)
- Operational Phase
- Decommissioning has not been included as it is not foreseen that the proposed development will be decommissioned, but rather that it will be upgraded and maintained.

3.2.1. Proposed operational activities

Quantum Foods Holdings T/A Nulaid Eggs proposes to demolish four existing layer houses on the property in order to upgrade them to four new best-practice environmental and technological layer houses.

Electricity:

Electricity is supplied from Eskom. Supply infrastructure and capacity already exists.

Water:

Water is used for general cleaning and for drinking water for chickens. Water is supplied from a borehole at a rate of 1052 kilolitres per month. Borehole water use is to be registered.

Layer house capacity:

Each layer house will have the capacity for 30 000 chickens.

Total capacity of four houses: $4 \times 30\,000 = 120\,000$ chickens.

The infrastructure will include internal paths surrounding the facilities on the north and east, and connecting houses. There is an existing access road to the west and south.

Houses will be approximately 9 meters in width and 104 m long, spaced at a minimum of 20 m apart. Run-off drainage can be viewed in the layout plan in Figure 1.

The houses will be serviced with semi-automated manure removal and feeding systems. The new layer houses will have:

- Vertical caging systems to house birds
- Drinking system
- Feeding system (automated)
- Silos for keeping feed
- Egg collection system
- Manure removal system (conveyor belt - automated)
- Ventilation system (no climate control).

Chicken life-cycle:

Chickens are received at 17 weeks of age and start to produce eggs from 20 weeks of age. Birds are depleted at 72 weeks of age. Birds are transported live to depots where they are sold live to the informal market.

Disease and health control:

Strick biosecurity procedures are in place. Quantum Foods has an emergency plan for serious disease outbreaks.

- A strict visitor register is kept at the gate and at sites and the site is access controlled with gates
- All vehicles are disinfected at the main gate before entering and leaving the site
- Hydrated lime and salt is spread at all entrances, walkways, truck paths, roads and in front of houses to control pathogens
- All entering persons are required to dip their shoes in disinfectant
- Health and safety signage and instructions will be displayed
- Protective gear will be supplied to employees
- Everyone is required to shower when entering and leaving the facility
- Change of clothing when entering egg rooms
- Hand sanitizer before entering egg- or layer-rooms
- All equipment is fumigated before entering facility
- Quantum Foods t/a Nulaid Eggs have an emergency response plan for Avian Influenza outbreak and will be assisted/supervised by veterinarians : Dr Scott Elliott (082 443 2460) and Dr Tiaan Cilliers (072 115 8259)
- Houses are dry cleaned regularly
- Houses are washed with water and disinfectant every 54 weeks.

Pest control:

The project will implement a strict fly and rodent control program. Flies are controlled by using larvicide and adulticides spray in and around houses, using bait traps and mortality pits. Pesticide control is checked daily.

Socio-economic:

The facility has a fair employment policy in terms of gender. Twenty three (23) people will be permanently employed, consisting of twelve (12) male and eleven (11) female employees of which all are previously disadvantaged.

3.3. NEMA Listed Activities Triggered

Table 3: Listed Activities applicable to this application.

Listed Activity	Project Activity / Component
GN No. 327 of 2014, as amended (Listing Notice 1)	
Activity 5:	The development and related operation of facilities or infrastructure for the concentration of- <i>(ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days.</i>
Activity 40:	The expansion and related operation of facilities for the concentration of poultry, excluding chicks younger than 20 days, where the capacity of the facility will be increased by- <i>(ii) more than 5 000 poultry per facility situated outside an urban area.</i>

4. ENVIRONMENTAL IMPACT STATEMENT

The sections below summarise the existing environment, and the outcome of the impact assessment that was undertaken for the proposed project.

4.1. The Receiving Environment

The proposed project is situated on an existing poultry farm near Hekpoort in Mogale City Local Municipality, close to the border of the North West Province. The area is relatively flat and in a rural-agricultural setting. The proposed development is surrounded by vacant vegetated land to the west and north, semi-vegetated vacant land and a cemetery to the east and layer houses to the south, opposite of the R560 road.

4.2. Public Participation

To support public interest and inform the EIA process, a public consultation process will proceed throughout the lifetime of the assessment. A diverse mix of authorities, stakeholders and interested and affected parties will be consulted during this time, representing the environment, social, economic and political realms of local and regional and national bodies.

Comments will be responded to during various stages of the public participation process in the Basic Assessment Report and will be addressed in project reports as relevant. It is considered that through public participation conducted by the EAP, parties will have had adequate opportunity to partake in this process and all concerns were addressed to ensure that all parties are in agreement with the proposed development.

4.3. Ecological Impact Assessment

Overall, the likely impacts associated with the development are likely to be low and there are no anticipated impacts of high significance. Consequently, it is suggested that the proposed development should be allowed to continue.

The proposed project is suggested to continue only if all recommended mitigation measures as per this Ecological report are adequately implemented and managed during the construction phase and operational phases of the proposed project. All necessary authorizations and permits must also be obtained prior to any commencement.

4.4. Environmental Impact Ratings

4.4.1. Potential Impacts during Construction Phase

Planning, design and construction phase	Layout Alternative 1		Layout Alternative 2	
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation
Nature of impact: Negative impact of haphazard placement of infrastructure on the environment.	Activity: The establishment of a main site office and storage site during the construction period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by construction activities.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Topsoil Removal and Soil Erosion	Activity: The clearing of topsoil and excavation for the establishment of building foundations may result in the destruction of fertile topsoil and soil erosion.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g. fuel and oil.	Activity: Spills could possibly occur on site and lead to the contamination of soil and groundwater.			
Significance rating:	M	L	-	-
Cumulative impact:	M	L	-	-
Nature of impact: Handling of general waste materials on the development site.	Activity: The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste.			
Significance rating:	M	L	-	-
Cumulative impact:	M	L	-	-
Nature of impact: Increased risk of veld fires.	Activity: Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard.			
Significance rating:	M	L	-	-
Cumulative impact:	L	-	-	-

Planning, design and construction phase	Layout Alternative 1		Layout Alternative 2	
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation
Nature of impact: Traffic impacts associated with the movement of construction vehicles on site.	Activity: The movement of vehicles on site may result in the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Traffic impacts associated with the movement of construction vehicle.	Activity: The movement of vehicles in the vicinity of the construction site may cause damage to road surfaces as well as increase in the traffic volume.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Direct impact on vegetation during construction and loss of species.	Activity: The construction of permanent structures on site will result in the loss of vegetation due to foundation excavation. No intact natural vegetation will be impacted since the proposed project will utilize and existing footprint.			
Significance rating:	L	L	-	-
Cumulative impact:	L	-	-	-
Nature of impact: Dust nuisance generated by the operation of machinery and vehicles.	Activity: The frequent upwelling of dust as consequence of the movement of vehicles and machinery on site may impact on worker health causing asthma and other respiratory conditions.			
Significance rating:	L	L	-	-
Cumulative impact:	M	-	-	-
Nature of impact: Fauna will be directly impacted as a result of construction activities and human presence at the site.	Activity: It is highly unlikely that any fauna will be directly affected by construction as the site does not pose a suitable habitat for indigenous fauna. Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to resident fauna but they are expected to move away during this period.			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Occupational Health and Safety.	Activity: During the construction phase accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken. Increased movement of vehicles may lead to increased accidents among local communities, construction workers and vehicle operators.			

Planning, design and construction phase	Layout Alternative 1		Layout Alternative 2	
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Presence of construction workers in the area.	Activity: Presence of construction workers in the area.			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: The creation of job opportunities during the construction phase.	Activity: The construction period will create a few job opportunities for individuals residing in the area.			
Significance rating:	L (+)	L (+)	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Damage and destruction of vertebrate fossils during excavation activities.	Activity: Excavation activities can result in the discovery of cultural and historical artefacts beneath the earth surface. Damage or loss can occur if the correct procedures are not followed. The likelihood of this happening is however very low since the site is previously disturbed and an existing footprint is being used.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Impact on the sense of place for surrounding users.	Activity: The movement of construction vehicles, machinery and personnel on site shall result in a visual impact on surrounding users. Furthermore to this, the storage of materials and excavation shall result in disturbance and an unsightly character.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Noise nuisance generated by construction works, vehicles and personnel.	Activity: The operating of vehicles and machinery on site results in the generation of noise disturbing users of the surrounding area.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-

4.4.2. Potential Impacts during Operational Phase

Operational Phase	Layout Alternative 1		Layout Alternative 2	
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation
Nature of impact: Handling of general waste materials on the development site.	Activity: The presence of personnel on site will increase the likelihood of littering and the dumping of solid waste.			
Significance rating:	M	L	-	-
Cumulative impact:	L	-	-	-
Nature of impact: Traffic impacts associated with the movement of vehicles on site.	Activity: The regular movement of vehicles would increase traffic flow and impede movement.			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Disturbance to fauna	Activity: Increased levels of noise, pollution, disturbance and human presence during operation of the poultry farm will be detrimental to resident fauna. Sensitive and shy fauna may move away from the area during the construction phase as a result of the noise and human activities. During the operational phase, interactions between the infrastructure considered here and fauna are likely to be very low. Fauna will most likely avoid the area due to human activity. The presence of live animals, animal feed and manure might attract predators, scavengers and unwanted pests. Any pesticides used to control pests can be a source of pollution.			
Significance rating:	L	L	-	-
Cumulative impact:	L	-	-	-
Nature of impact: Infestation of the area with Alien and Invasive Species.	Activity: Implementation of an Alien Invasive Species programme to control invasive alien plants.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Business/Work Opportunities	Activity: The project will contribute to the local economy.			
Significance rating:	M (+)	-	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Business/Work Opportunities	Activity: Job creation for Local Communities residing within the area.			
Significance rating:	M (+)	-	-	-

EMP'r: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE

Operational Phase	Layout Alternative 1		Layout Alternative 2	
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation
Cumulative impact:	-	-	-	-
Nature of impact: Visual Impact on the surrounding areas.	Activity: The proposed development will have a Visual Impact on surrounding area.			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Noise Impact on surrounding properties	Activity: Increased activities and employees may contribute to noise levels within the area.			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Possible health risk to farm workers from disease outbreaks	Activity: Possible health risk to farm workers from disease outbreaks			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Pollution of surface and groundwater by contaminated water from the chicken lay houses/project footprint.	Activity: Pollution of groundwater and surface water by contaminated water from the chicken lay houses/project footprint.			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Unpleasant Odours	Activity: Unpleasant Odours			
Significance rating:	L	L	-	-
Cumulative impact:	-	-	-	-
Nature of impact: Uncontrollable disease outbreak.	Activity: Uncontrollable disease outbreak			
Significance rating:	M	L	-	-
Cumulative impact:	-	-	-	-

4.4.3. RECOMMENDATIONS OF THE EAP

- The potential environmental impacts identified as part of this Basic Assessment Process are low and can easily be mitigated below an acceptable level.
- All mitigation measures must be adhered to as stipulated within the Environmental Management Program.
- It is recommended that borehole water be sampled and tested by a suitably qualified hydrologist/geo-hydrologist at regular intervals (quarterly or annually as deemed necessary by appointed specialist) to determine the suitability of water for poultry consumption and to detect any significant changes in water quality.
- From the findings of this BAR, it is recommended that the EA be granted for the proposed layer houses in adherence to the EMP'r as per the project description.

5. PERSONS RESPONSIBLE FOR IMPLEMENTING THIS EMPR

The “Responsibility” columns in the impact and mitigation tables provided below indicate which team member(s) are responsible for implementation of the identified mitigation measures, these team members include the following:

- Construction contractor(s);
- Construction manager;
- Applicant / Developer; and the
- Designated Environmental Officer.

The sections below list further supplementary measures, which should also be implemented by the relevant team members.

During the **construction phase**, the **construction contractor** will:

- Be responsible to have the EMP'r available on site at all times;
- Provide the applicant with a “Method Statement” which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMP'r; and
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonably possible.

During the **construction phase**, the **Contract Project Managers** will:

- Have the authority to stop work and issue fines;
- Receive reports from the ECO and report to the client;
- Enforce contractor obligations to the EMP'r; and,
- Support the ECO in his/her roles and responsibilities.

During the **construction phase**, the **Environmental Control Officer** will:

- Meet with the contractor and project manager to hand over the site and go through the content of the EMP'r, including the “do’s and don’ts” of the project, to ensure that the parties understand their responsibilities to the EMP'r;
- Be accountable for monitoring and auditing activities to ensure compliance with the EMP'r and the Environmental Authorisation;
- Work correctively with other role-players, but not be influenced in opinion and must report to the applicant only;

- May, in the event of there being a serious threat to or impact on the environment, correspond with the contract project manager to stop work;
- Complete an ECO checklist after each site inspection and distribute this to the project team within 5 days; and,
- Conduct a final environmental audit of the project on completion of construction and rehabilitation, for submission to the GDARD to review.

During the **operational phase** the applicant/developer, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Set aside a budget for maintenance;
- Maintain all facilities and infrastructure in good working order to effectively fulfil its intended purpose and to prevent negative environmental impacts;
- Not construct any additional buildings, infrastructure, etc. contrary to the Environmental Authorisation, without performing an environmental impact assessment where listed activities of the 2017 NEMA EIA Regulations are triggered; and
- To immediately remedy any aspects that contribute to negative environmental impacts.

5.1. On-site Communication

The following sections describe the site communication measures that will need to be implemented.

5.1.1. Site Instruction Entries

The Site Instruction book should be used for the recording of general site instructions as they relate to the works on site. It should also be used for the issuing of **stop work orders** for the purposes of immediately halting any particular activities of the contractor in lieu of the environmental risk that they may pose.

5.1.2. Method Statements

Method statements from the Contractor will be required for specific sensitive actions on request by the authorities or the ECO.

A method statement forms the baseline information on which work in sensitive environments takes place and is a “live document” allowing for modifications to be negotiated between the Contractor and ECO / Engineer, as circumstances unfold.

A method statement describes the scope of the intended work, step-by-step, in order for the ECO and Engineer to understand the Contractor’s intentions. This will enable them to assist in devising any

mitigation measures, which would minimise environmental impact during these tasks. For each instance wherein it is requested that the Contractor submit a method statement to the satisfaction of the ECO, 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 (if applicable); and
- **When** - the sequencing of actions with due commencement dates and completion date estimates.

All method statements will form part of the EMP'r documentation and are subject to all terms and conditions contained within the EMP'r main document.

The Contractor must submit the method statement to the ECO before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ECO.

5.1.3. Record Keeping

All records related to the implementation of this EMP'r (e.g. site instruction book, method statements) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years and should at any time be available for scrutiny by any relevant authorities.

5.1.4. Identification of Persons Responsible for Implementation of the EMP'r

Construction Phase

The construction contractor will:

- Be held responsible for the implementation of the EMP'r,
- Be responsible to have the EMP'r available on site at all times,
- Identify the need/extent, and be responsible for the implementation on of an environmental awareness-training program for construction staff, to be conversant with EMP'r content and their responsibilities before the commencement of construction,
- Be held responsible for compliance with all relevant aspects of the EMP'r,
- Be held responsible for all environmental issues on site, for one raining season after finishing of the construction phase to determine the effectiveness of the storm water control measures,
- Provide the applicant with a "Method Statement" which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMP'r,
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonable possible,
- After ceasing of construction activities, an environmental audit should be done, by the ECO, before commencing with the operational phase, to determine compliance with the EMP'r.

Operational Phase

- During this phase the applicant, will be responsible to prevent negative environmental impacts, and as such will be responsible for providing a budget for maintenance,
- Maintaining all approved infrastructure in good working order to effectively fulfil its intended purpose and to prevent negative environmental impacts,
- Not construct any additional buildings, infrastructure, etc. contrary to the approved Environmental Authorisation, without performing an environmental impact assessment to evaluate alternatives and environmental impacts,
- To immediately remedy any factors that contribute to negative environmental impacts, and
- To engage an independent auditor to do an annual environmental audit and to have the results in writing available at the administration offices of the Local Municipality.

Decommissioning

The activity will not be decommissioned in the future and therefore the only the construction activities has been assessed for decommissioning.

6. PERFORMANCE ASSESSMENT AND REPORTING ON EMP'R COMPLIANCE

6.1. Monitoring

Several monitoring actions are proposed which would be undertaken by various project role players. For detail on these actions, "Responsible Person/Party", and "Monitoring Frequency" associated with the identified mitigation measures, refer to the "Monitoring" column in the impact assessment tables below (Chapter 8).

6.2. Performance Assessment and Reporting on EMP'r Compliance

A suitably-qualified Environmental Control Officer (ECO) should be appointed by the Applicant / Developer to oversee the implementation of the construction and operational phase mitigation measures described in this EMP'r, as well as the conditions of authorisation as described in the Environmental Authorisation.

The ECO should have at least 5 years' experience as an ECO, or be supported by a qualified ECO. He/she may not be someone appointed by the contractor, engineer or other party involved with this project, other than the Applicant / Developer.

The following applies, amongst others, to the ECO's role:

- The ECO must undertake **bi-weekly site visits** during the **construction phase**,
- The ECO should undertake **bi-annual** site visits during the **operational phase of the project**;
- The ECO must **report to** the Applicant / Developer only ;
- Ground water sampling must be taken **quarterly/annually during the construction and operational phase**;
- The ECO should present an **environmental site induction / awareness training session** to all personnel before work on site commences, as are also described below; and
- After completion of the construction activities, an environmental audit should be undertaken by the ECO, before commencement of the operational phase, in order to determine compliance with the EMP'r and the Environmental Authorisation. The audit report should be submitted to the competent authority.

The ECO can recommend the stopping of works if in his/her opinion there is a serious threat to, or impact on the environment, caused directly from the construction and / or operational phase. This authority is to be limited to emergency situations where consultation with the engineer or applicant is not immediately available and proof of that made available. In all such work stoppage situations the ECO is to inform the engineer and applicant of the reasons for the stoppage as soon as possible.

Upon failure by the contractor or his employee(s) to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the engineer to have the contractor's representative or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

6.2.1. ECO Site Inspection Reports

The ECO site inspection reports (also called "ECO checklists") will report on the compliance of the construction and operational phase mitigation measures contained in the EMP'r, as well as the conditions of approval described in the Environmental Authorisation. The report should be submitted to the applicant, within five (5) days of the ECO site inspection. Copies of the inspection reports should be kept on site.

The contractor's meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes form part of the official environmental record.

6.2.2. Photographs

Photographs of all environmental transgression during the construction and operational phase must be included in ECO reports. These photographs should be stored with other records related to this EMP'r. If captured in digital format, hard copies, in colour, must be kept with all other records relevant to the implementation of this EMP'r.

7. ENVIRONMENTAL AWARENESS PLAN

7.1. Environmental Awareness and Risk Training

All contractor team members involved in work on site are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMP'r, prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education / awareness programme should be aimed at all levels of management within the contractor team. See "basic rules of conduct" below.

7.1.1. Basic Rules of Conduct

The following list represents the basic *Do's* and *Don'ts* towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid. **NOTE: ALL new site personnel must** attend an environmental awareness/induction presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

DO:

- Clear your work areas of litter and building rubble at the end of each day – use the waste bins provided and prevent litter from being blown away by wind.
- Report all fuel or oil spills immediately and stop the spill from continuing.
- Dispose of cigarettes and matches carefully, so as to prevent veld fires (arson and littering is an offence).
- Confine work and storage of equipment to within the immediate work area.
- Use all safety equipment and comply with all safety procedures.
- Ensure a working fire extinguisher is immediately at hand if any "HOT WORK" is undertaken e.g. welding, grinding, gas cutting etc.
- Prevent excessive dust and noise.

DO NOT:

- Do not litter - report dirty or full facilities, i.e. full dustbins and dirty or blocked toilets.
- Do not make any fires.
- Do not enter any fenced off or demarcated areas.
- Do not allow waste, litter, oils or foreign materials into any storm water channels or drains or watercourses.

- Do not litter or leave food lying around.

8. IMPACTS AND MITIGATION MEASURES

A number of potential environmental impacts that may arise during the project have been identified. These are outlined in the table below, and mitigation measures are provided.

The tables below pertain to the construction and operational phases of the proposed chicken layer houses. **Decommissioning has not been included as it is not foreseen that the proposed development will be decommissioned, but rather that it will be upgraded and maintained.** However, in the event that the site is decommissioned, the construction phase impact and mitigation measures will be sufficient to mitigate impacts associated with this phase.

The Contractor must familiarise himself with the requirements of the EMP'r, keeping in mind that other site-specific requirements as outlined in the Environmental Authorisation must also be complied with.

8.1.1. Planning and Construction Phase

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1. ACTIVITY: PERMITS AND AUTHORISATIONS				
1.1	<p>Aspects: Legislative compliance.</p> <p>Impact: Non-compliance with South African environmental legislation.</p> <p>Objective: Ensure compliance with all triggered environmental legislation.</p> <p>Target: Commence site establishment with all permission and approvals received and on hand.</p>	Developer / Applicant	<p>Monitoring Action: Obtain copies of all permits; Record Keeping</p>	
	<p>Mitigation/Management Measures:</p> <p>a. The Developer is to have the following permits on commencement:</p> <ul style="list-style-type: none"> • Environmental Authorisation; • Environmental Management Program; and, • Building approval from the Municipality. 		<p>Responsible Person/Party: Developer</p> <p>Monitoring Frequency: Once off</p>	
2. ACTIVITY: SITE LAYOUT PLANNING				
2.1	<p>Aspects: Site Layout Plan.</p> <p>Impact: Negative impact on the environment of unmanaged and unplanned placement of Infrastructure.</p> <p>Objective: To ensure acceptable impact and management of environmental issues at the main site and storage site during construction by proper planning of layout of infrastructure placement.</p> <p>Target: All areas not demarcated for construction must remain vegetated and the impact must be minimised.</p>	Developer	<p>Monitoring Action: Record Keeping</p>	
	<p>Mitigation/Management Measures:</p> <p>a. Draw up and submit for approval a Site Layout Master Plan. This plan must show the final positions and extent of all permanent and temporary site structures and infrastructure;</p> <p>b. The planning for layout must be done in consultation on-site with the Environmental Control Officer (ECO);</p>		<p>Responsible Person/Party: Contract Project Manager / Engineer</p> <p>Monitoring Frequency: Once off</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>c. After the final layout has been approved, conduct a thorough footprint investigation to detect and map (by GPS) any protected plant species and animal burrows;</p> <p>d. The contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes;</p> <p>e. The contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times;</p> <p>f. No servicing of vehicles must be permitted on site, unless for emergency purposes;</p> <p>g. Stockpiles should not be situated such that they obstruct pathways;</p> <p>h. Location of storage area must take into account prevailing winds, distance to water bodies and general on-site topography;</p> <p>i. Animal burrows must be monitored by the ECO prior to construction for activity/presence of animal species. If detected, such animals must be removed and relocated by a qualified professional/contractor;</p> <p>j. Place infrastructure as far as possible on sites that have already been transformed; and,</p> <p>k. Facilities may not be used as staff accommodation.</p> <p>l. The Contractors camp layout must take into account availability of access for deliveries and services and any future works;</p> <p>m. The Contractors camp must be of sufficient size to accommodate the needs of all sub-contractors that may work on the project; and,</p> <p>n. The Contractor must implement the following as required:</p> <ul style="list-style-type: none"> • Suitable sanitation facilities, adequate for the number of staff on site (1 for every 15 personnel and 1 for each gender); and, • Facilities for solid waste collection. 			
<p>3. ACTIVITY: CONSTRUCTION PROGRAMME / SCHEDULE</p>			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
3.1	<p>Aspects: Project Management.</p> <p>Impact: Order and timing of construction activities and associated impacts.</p> <p>Objective: To Provide a clear indication of the order by which key construction activities will transpire.</p> <p>Target: Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections.</p>	Contract Project Manager / Contractor	<p>Monitoring Action: Meetings; Risk Register; ECO Audit Checklist; Photographs</p> <p>Responsible Person/Party: Contract Project Manager / Contractor / ECO</p> <p>Monitoring Frequency: Once off</p>	
	<p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed; Communicate any deviation from this schedule with all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made; Establish a risk register to identify and monitor potential factors which may result in setbacks/ delays on tasks within the project schedule; Hold management meetings with representatives of the project manager, contractor, engineer and other contributing parties to monitor and anticipate changes; and, Should circumstances/ incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the ECO Bi-Weekly Audit Checklist. 			
4. ACTIVITY: COMMUNICATION WITH LAND-OWNERS				
4.1	<p>Aspects: Landowner Consent.</p> <p>Impact: Disturbance of existing land use.</p> <p>Objective: Maintain a conflict-free relationship with landowners / users.</p> <p>Target: No complaints received from landowners / users of affected property.</p>	Contract Project Manager / Contractor	<p>Monitoring Action: Meetings; Risk Register.</p> <p>Responsible Person/Party: Contract Project Manager / Contractor / ECO</p>	
	<p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Landowners are to be aware and in agreement of site access arrangements; 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<ul style="list-style-type: none"> b. The landowner has to be requested to liaise with the site supervisor of the construction contractor prior to entering the construction footprint area for safety purposes; c. All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and, d. Any complaint or liaison with regard to environmental aspects, compensation or disorder to economic activities, must not be addressed by the contractor. A public complaint register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action. 		<p>Monitoring Frequency: Once off</p>	
5. ACTIVITY: SITE ESTABLISHMENT				
5.1	<p>Aspects: Demarcation of the site and vegetation removal. Impact: Direct impact on vegetation during construction and loss of species. Objective: Prevent unnecessary habitat destruction. Target: All areas not demarcated for construction must remain vegetated.</p>	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist.</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	
	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. No natural surfaces are to be marked other than using droppers, beacons or other artificial object; b. Ensure the upkeep of demarcation boundaries throughout the period of construction until rehabilitation has been completed; c. Construction areas must be fenced; d. Keep areas affected to a minimum, strictly prohibit any disturbance outside the demarcated foundation footprint area; e. Clear as little indigenous vegetation as possible, aim to maintain vegetation where it will not interfere with the construction or operation of the development, rehabilitate an acceptable vegetation layer according to rehabilitation recommendations of the relevant EMP'r, if possible; f. There must be a preconstruction environmental induction for all construction staff on site to ensure that basic environmental biodiversity principles are adhered to; 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>g. Restoration measures will be required to reinstate functionality in the disturbed soil and vegetation;</p> <p>h. No vegetation may be gathered for the purpose of creating fire;</p> <p>i. No fires are allowed on site;</p> <p>j. After the final layout has been approved, conduct a thorough footprint investigation to detect and map (by GPS) any protected plant species and active animal burrows;</p> <p>k. Indigenous vegetation unique to the area must be used during landscaping activities;</p> <p>l. No personnel are allowed to collect, harvest or destroy any species of flora on or off the site, unless specifically earmarked for removal;</p> <p>m. The construction and farming activities should be confined within the development footprint and avoid disturbing areas beyond the borders of the development footprint;</p> <p>n. Movement of vehicles and personnel should be restricted to the road area and within the development footprint as much as possible to limit trampling of indigenous species and further disturbing the area; AND,</p> <p>o. All disturbed and compacted soils need to be ripped, reprofiled and reseeded and/or replanted with indigenous species.</p>			
5.2	<p>Aspects: Topsoil stripping and conservation. Impact: Destruction of topsoil. Objective: Conserve and protect topsoil from erosion and destruction. Target: Topsoil condition maintained.</p> <p>Mitigation/Management Measures:</p> <p>a. Remove topsoil approximately 300mm deep from establishment area and stockpile areas;</p> <p>b. Topsoil stockpiles to be kept free from weeds;</p> <p>c. Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rain/storm water;</p>	Construction contractor	<p>Monitoring Action: ECO Audit Checklist; Photographs.</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<ul style="list-style-type: none"> d. Topsoil need to be stored on designated areas only. This need to be planned and indicated in the site-layout plan; e. Ensure that topsoil is not mixed with subsoil and/or any other excavated material; f. Provide containment and settlement facilities for effluents from concrete mixing and washing facilities; g. Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer need to be managed according to a detailed topsoil management plan; h. Provide spill containment facilities for hazardous materials like fuel and oil; i. Topsoil must be used in all rehabilitation activities, and may not be compacted to ensure that its plant support capacity remain of high quality; j. Implement suitable erosion prevention measures during the construction phase; k. Make use of surface erosion measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds); l. Stormwater management along any roadways and paths to reduce gulley erosion formation; m. Soil disturbance must be kept to a minimum within and around the development footprint; n. Freedom of surface water drainage through placing culvert drains beneath the roadway in a way that disperses the water over the entire width of the area will reduce the impacts of erosion through limiting water velocities and the scouring potential associated to high-velocity water; o. Correct site reinstatement and landscaping following any disturbances will abate channel and gulley formation. p. Soil erosion must be controlled as an ongoing management strategy throughout the various phases of the proposed development activities; 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>q. Disturbed areas, that will not form part of the operational footprint but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate indigenous vegetation and/or seed mixes;</p> <p>r. Sheet runoff from cleared areas, paved surfaces and access roads needs to be curtailed; it is advised to plant grass on the current bare areas between lay houses. Grass will cover and bind soil surface material. It will act as erosion control measure by slowing down runoff water but also assist in facilitating rain-water infiltration into the soil; and,</p> <p>s. Point-source discharges (such as road drains) should be dispersed to avoid the formation of gullies.</p>			
6. ACTIVITY: SITE INFRASTRUCTURE PLACEMENT AND OPERATION				
6.1	<p>Aspects: Structures and lay-down areas. Impact: Deterioration of site features and surrounding areas. Objective: Prevent the deterioration of site features like soil, rainwater runoff and erosion. Target: The preservation of site conditions evident on establishment of structures and lay-down areas.</p> <p>Mitigation/Management Measures:</p> <p>a. Locate all structures and storage areas, including offices, workshops and stores in approved locations as per the Site Layout Plan;</p> <p>b. The camp with storage and laydown areas are to be kept secure and neat with access control measures adopted during construction;</p> <p>c. Clearly define which activities are to occur within which areas of the site by erecting signage; and,</p> <p>d. All hazardous substances, such as fuel, oil, diesel, paint, etc., must be stored in a secondary containment system (trays or bund) which is capable of storing at least 110% of the liquid capacity. If bund areas are used, it must be sealed to avoid seepages.</p>	Construction contractor	<p>Monitoring Action: Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	
7. ACTIVITY: CONSTRUCTION SITE OPERATIONS				

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
7.1	<p>Aspects: Security and fencing. Impact: Prevent danger to trespassing of persons. Objective: Keep the site secure from trespassing or theft and keep animals out. Target: Site remains secure during construction with no incidences of trespassing, theft and injury or death to animals.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Be responsive to open or closed status of gates; New or the upkeep of fences must be align to ensure safety of animals and maintain a reliable boundary area; Limit clearing of vegetation for fencing to the removal of trees and shrubs within 1 m of the fence line. All undergrowth must be maintained; Should construction activities require the removal of fences or gates to execute tasks, this must be replaced as soon as possible following completion; and, In all cases, the landowners on whose property any use of fences or gates, must be consulted, to ensure that parties are informed of construction activity, schedules and vehicle movement. 		<p>Monitoring Action: Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	
7.2	<p>Aspects: Existing Services and Infrastructure. Impact: Damage to existing services and infrastructure. Objective: No damages to existing services and infrastructure. Target: No damages to existing services and infrastructure.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Take cognisance of the position of existing services and infrastructure (e.g. roads, pipelines, power lines and telephone services) that may get damaged due to construction activities; Ensure that existing services are not damaged or disrupted unless required by the contract and with the permission of the project manager; and, In the event that infrastructure is damaged or services interrupted during construction, it will be done at the expense of the Contractor and shall receive top priority over all other activities. 	Construction contractor	<p>Monitoring Action: Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
7.3	<p>Aspects: Traffic. Impact: Impact on traffic. Objective: Minimise the disruption of road users. Target: Minimal disruption of road users.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> All vehicles must be road-worthy and drivers must be qualified, made aware of the potential road safety issues and need for strict speed limits; Vehicles used for transport of materials and sand must be fitted with tarpaulins to prevent the release of such material or items onto road surfaces; Construction vehicles may not leave the designated roads and tracks and turnaround points must be limited to specific sites; Abnormal loads must not be transported after dark; Abnormal loads must be timed to avoid times of year when traffic volumes are likely to be higher, as would be expected over national holidays, weekends and school holiday periods; Transport of materials must be limited to the least amount of trips possible; and Traffic deviations around the construction area must be planned in conjunction with the local authority to ensure safe and free flow of traffic. Safety signs must be utilised. 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	
7.4	<p>Aspects: Traffic. Impact: Traffic impacts associated with the movement of construction vehicles on site. Objective: To minimise the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site. Target: Minimal destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.</p>	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p><u>Mitigation/Management Measures:</u></p> <ul style="list-style-type: none"> a. During construction create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas; b. Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (storm water and erosion management plan required); c. Monitor the establishment of (alien) invasive species and remove as soon as detected, before regenerative material can be formed; d. Abnormal loads and machinery must avoid movement over gravel roads during and immediately after rainfall events, so as to limit destruction of road surfaces and sedimentation of downhill rivers/streams; e. All vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to be licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so; f. Construction vehicles may not leave the designated roads and tracks, whilst U-Turns are prohibited on all roads; g. Signage is to be placed on vehicles at all times; h. All construction vehicles must adhere to construction sites and avoid off road to minimise impact on vegetation and soil; i. After decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program; j. Construction-related vehicles and machinery may not operate on site without reflective safety signage, car-top lights and reflective personnel gear. 		<p>Contractor</p> <p><u>Monitoring Frequency:</u> Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
7.5	<p>Aspects: Erosion Control. Impact: Loss of topsoil, formation of bare soil and deterioration of habitat quality. Objective: Prevent soil erosion. Target: No signs of soil erosion are evident on site.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Disturb as little ground area as possible, stabilize that area as quickly as possible, control drainage through the area, and trap sediment on site; Conserve topsoil with its leaf litter and organic matter, and re-apply this material to local disturbed areas to promote the growth of local native vegetation; Apply erosion control measures before the rainy season begins and after each season of construction, preferably immediately following construction; and, Maintain and reapply erosion control measures until vegetation is successfully established. 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	
7.6	<p>Aspects: Handling of general – and hazardous waste materials on the construction site. Impact: The presence of personnel and construction operations will increase the likelihood of littering and dumping of solid waste. Objective: Management and disposal of general – and hazardous waste in an appropriate manner. Target: No record of pollution or site contamination by solid waste.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> An adequate number of scavenger proof litter bins are to be placed throughout the site. Two waste bins at least must be present, one (1) for hazardous waste and one (1) for non-hazardous waste at each working site. Dumping of waste on site is prohibited; Waste sorting and separation should form part of the environmental induction and awareness programme, to encourage personnel to collect waste paper, glass and metal waste separately; 	Construction Contractor	<p>Monitoring Action: ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<ul style="list-style-type: none"> c. Keep all work sites including storage areas, offices and workshops neat and tidy; d. Dedicate a demarcated and signposted storage area on site for the collection of construction waste; e. All domestic waste is to be removed from site and disposed of at a registered solid waste landfill site; f. Care should be taken to ensure that no waste fall off disposal vehicles on-route to the landfill. If needed, a tarpaulin can be utilised; g. The burning or burying of solid waste on site is prohibited. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste; h. Littering by construction workers shall not be permitted; i. Workers from the immediate area need to be encouraged to take their waste with them at the end of each day; j. General refuse/rubbish shall be removed from site on a weekly basis to an approved registered landfill site or as soon as the waste bins are reaching full capacity; k. Minimise waste by sorting wastes into recyclable and non-recyclable waste; l. Ablution facilities must be serviced by a registered service provider, cleaned at least once a week, and safe disposal slips must be on file at the site office; m. Hazardous waste must be sorted from non-hazardous waste and disposed of at a hazardous treatment facility, records and proof of disposal must be kept; n. A register must be kept of the quantities of waste disposed and proof of disposal must be available at the site office; o. Water drainage should be properly planned and addressed to drain water from the site and prevent any accumulation on site; p. Stormwater management should maintain the natural flow regime as far as possible; q. Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	This is to prevent any litter, rubble or possible pollution to enter the surrounding environment in general.			
7.7	<p>Aspects: Sewage waste. Impact: Pollution and site contamination due to sewage. Objective: Provide facilities for appropriate collection and disposal of sewage. Target: No record of pollution or site contamination by sewage.</p>	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	
	<p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Provide portable chemical ablution facilities, situated at convenient locations in proximity to work areas. This must be in relation to the quantity of users on site, with 1 ablution facility per 15 users and for each gender; Locations for the placement of ablution facilities include the workshop and areas for resting and eating; Ablution facilities are to be maintained and cleaned regularly to ensure functionality and an adequate level of hygiene; Drinking water facilities, comprising of a water tank with a manual tap can be combined with hand washing facilities near site ablution; and, Only toilet paper is to be flushed down the chemical ablution facility. Personnel are to be informed on sanitary implementation as part of the environmental awareness. 			
7.8	<p>Aspects: Dust Generation and visual Impact. Impact: Dust nuisance from site operations and visual impact of site operations on surrounding land owners. Objective: To avoid dust from excavated materials and construction activity and unnecessary visual impact caused by site operations. Target: Minimise the incidence of dust generation and visual impact.</p>	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency:</p>	
	<p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Implement dust suppression measures by watering (or acceptable methods) areas to be cleared as well as already exposed surfaces with damaged soil particles, particularly during dry, windy periods; Ensure all vehicles remain on designated roads; 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<ul style="list-style-type: none"> c. Dust masks are to be supplied to workers; d. The transfer of soil or aggregate must be done over the shortest possible distance; e. Access roads are to be kept clean; f. Surface material that is scraped off during construction must be conserved and used for rehabilitation. Any spoil material must be disposed of in a manner that appears natural; g. Lay-down area(s) must be screened with shade cloth in an earth tone or other appropriate neutral colour; h. Site offices and structures must be limited to one location and carefully situated to reduce visual intrusion. Roofs must be grey and non-reflective; i. Lights within the construction camp must face directly downwards; j. Avoid shiny materials in structures. Where possible shiny metal structures must be darkened or screened to prevent glare; k. Litter must be strictly controlled, as the spread thereof through wind could have a very negative visual impact; and, l. The minimum amount of topsoil and vegetation must be removed during construction and must be conserved and used for final rehabilitation. 		Monthly	
7.9	<p>Aspects: Noise Generation. Impact: Noise nuisance from site operations. Objective: To avoid excessive noise generation from site operations. Target: Minimise the incidence of noise generation.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Should multiple activities result in the excessive generation of noise, it must be strived to coordinate the incidence of these at the same time; b. Fit machinery with silencers; c. All stationary noisy equipment such as compressors and pumps must be contained behind acoustic covers, screens or sheds where possible; d. The regular inspection and maintenance of equipment must be undertaken to ensure that all components function optimally; 	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<ul style="list-style-type: none"> e. Vehicles must avoid the use of their reverse gear as far as possible so as to avoid the sounding of sirens. This must not be considered for temporary access routes as disturbance of adjacent vegetation is to be avoided; f. Where recurrent use of machinery is frequent, machines must be shut down during intermediate periods; g. Unless otherwise specified by the ESA, normal working hours will apply (i.e. from 07H00–18H00, Mondays to Fridays); h. No loud music is permitted on site or in the Camp; i. Ensure that Employees and staff conduct themselves in an acceptable manner while on site, both during working hours and after hours; and, j. Vehicles are to abide by speed restrictions on access roads and limit trip generation so as to minimise disturbance to surrounding land users. 			
<p>Aspects: Fire Prevention. Impact: Uncontrollable fire. Objective: Prevent the outbreak of fires emanating from construction activity. Target: No incidences of fires are recorded for the site.</p>				
7.10	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. The potential risk of veld fires is heightened by windy conditions in the area, specifically during the dry, windy winter months; b. Assume acceptable precautions to guarantee that fires are not started as a result of works on site as specified below: the Contractor will be held responsible for any damage to structures or property on or neighbouring the Site as a result of any fire caused by personnel; c. The Contractor must ensure that construction related activities that pose a potential fire risk, such as welding etc., are properly managed and confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care must be taken during the high risk dry, windy winter months; d. The Contractor must provide fire-fighting training to selected construction staff and take cognisance of the Veld and Forest Fire Act, Act No. 101, 1998; 	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist.</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>e. As per the conditions of the Code of Conduct, in the event of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor must compensate the fire-fighting costs borne by farmers and local authorities;</p> <p>f. Equip vehicles and site structures with fire extinguishers. Rubber beaters must be stored on site;</p> <p>g. No open fires are allowed anywhere on site;</p> <p>h. Storage of fuel or chemicals under trees is not permitted;</p> <p>i. Gas and liquid fuel is not to be stored in the same place;</p> <p>j. Smoking may only occur within a 3m radius from designated areas;</p> <p>k. Personnel must be adequately trained in the handling of firefighting equipment; and,</p> <p>l. Fuel, diesel, oil, or any other flammable substance must be stored 6m away from the smoking area.</p>			
7.11	<p>Aspects: Local communities. Impact: Impact of construction workers on local communities, construction personnel and the local community. Objective: Construction workers must not alter existing social dynamics of local communities. Target: No incidences of conflict between personnel and local community.</p> <p>Mitigation/Management Measures:</p> <p>a. Where possible, the Employer must make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi- and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks;</p> <p>b. The Employer must consider the establishment of a Monitoring Forum (MF) for the construction phase. The MF must be established before the construction phase commences and must include key stakeholders, including representatives from the local community, local councillors, farmers, and the contractor. The role of the MF would be to monitor the construction phase and the implementation of the recommended</p>	Construction contractor	<p>Monitoring Action: ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>mitigation measures. The MF must also be briefed on the potential risks to the local community associated with construction workers;</p> <p>c. The Employer and the contractors must, in consultation with representatives from the MF, develop a Code of Conduct for the construction phase. The code must identify what types of behaviour and activities by construction workers are not permitted. Construction workers that breach the code of good conduct must be dismissed. All dismissals must comply with the South African labour legislation;</p> <p>d. The Employer and the contractor must implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase;</p> <p>e. The movement of construction workers on and off the site must be closely managed and monitored by the contractors. In this regard the contractors must be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis;</p> <p>f. The contractor must make necessary arrangements to enable workers from outside the area to return home over weekends and or on a regular basis during the 12-18 month construction phase. This would reduce the risk posed by non-local construction workers to local family structures and social networks;</p> <p>g. The contractor must make the necessary arrangements for ensuring that all non-local construction workers are transported back to their place of residence once the construction phase is completed. This would reduce the risk posed by non-local construction workers to local family structures and social networks; and,</p> <p>h. No construction workers, will be permitted to stay overnight on the site. Security personnel will be housed in the vicinity of the site.</p>			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
7.12	<p>Aspects: Soil and water contamination due to construction activities such as the use of hazardous materials on site.</p> <p>Impact: Pollution of soil and water contamination by hazardous waste.</p> <p>Objective: Provide facilities for appropriate collection and disposal of hazardous waste.</p> <p>Target: No record of pollution or site contamination by hazardous waste.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Concrete can be mixed on mixing trays only and not on exposed soil. Concrete must be mixed only in areas which have been specially demarcated for this purpose (preferable where no natural vegetation occur); Concrete mixing to be carried out away from sensitive areas and on impermeable surfaces; Material Safety Data Sheets (MSDSs) should be available on site for all chemicals and hazardous substances to be used on-site, including information on their ecological impacts and how to minimise the impacts in case of leakage; All spillage must be cleaned up immediately after they have occurred; Spillage of petrochemical products must be avoided. In the case of accidental spillage, contaminated soil must be removed for bioremediation or disposed of at a facility for the substance concerned. Disturbed land must be rehabilitated and seeded with vegetation seed naturally occurring on site; Do not locate any ablution facilities, sanitary convenience, septic tank or French drain within the 1:100 year flood line, or within a horizontal distance of 100m (whichever is greater) of a watercourse or drainage line; Vehicles and machinery must be regularly serviced to avoid leakages; No uncontrolled discharges from the site or working area to depressions may be permitted. All discharge points will require approval from the ESA; No water courses may be used to clean equipment, or for bathing. All cleaning operations should take place off site at a location where waste water can be disposed of correctly; 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<ul style="list-style-type: none"> j. The discharge of any pollutants such as cement, concrete, lime, chemicals, etc. into the natural environment and the storm water system must strictly be prohibited; k. Fuel and chemical storage should be done within a designated area only, which is properly bund and able to contain 110% of the capacity of fuel or chemicals stored within; l. Construction vehicles must be inspected every morning before work commence to ensure that no leakages do occur; m. All personnel must receive induction on how to report spillages, contain them and treat them accordingly; n. Spill kits must be available at each working station; o. Drip trays must be placed beneath all construction equipment that is stationary on site or within the site camp; and, p. Hazardous waste must be stored in bins with a lid in a demarcated waste area, and must be disposed of at a hazardous treatment facility with records on file; q. Provision of adequate on-site sewerage management; r. Appoint geohydrologist to monitor groundwater quality annually or quarterly as deemed necessary by appointed specialist; s. Sewerage and sanitation facilities should be regularly maintained and checked; t. Sufficient waste receptacles should be placed around the development in order to encourage people to use them; u. The principle of reduce, re-use and recycle should be followed; v. Site should be kept clean and tidy during all phases of activity; w. Any waste should be disposed in a registered landfall and not be allowed to be dumped in the surrounding landscape; x. All surfaces used for waste and manure storage and loading areas should have an impermeable surface; y. Regular inspections will be undertaken of any access roads and stormwater management drains for signs of erosion and sedimentation; and, 			

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	z. Spill kits must be stored on site: In case of accidental spills of oil, petroleum products etc., good oil absorbent materials must be on hand to allow for the quick remediation of the spill. The kits should also be well marked and all personnel should be educated to deal with the spill.			
7.13	<p>Aspects: Water Conservation. Impact: Wasting water as a result of negligence. Objective: Promote and implement water use efficiency mechanisms. Target: No Water Wastage.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Re-use water were possible; b. Implement rain catchment strategies; c. Prevent leakages at taps and hoses by means of maintenance; d. Use buckets of water to clean tools instead of running water; e. Make sure that sediment, concrete, sand and rubbish does not end up going down the stormwater drain. Cover or filter stormwater inlets and drains; and, f. Require workers to use a broom rather than a hose to clean paths and gutters. If water use is necessary, use high pressure hoses which are both water efficient and more effective cleaners. 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	
7.14	<p>Aspects: Health and Safety. Impact: Dangerous working conditions for workers. Objective: To prevent any casualties on site. Target: No Personnel casualties on site.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Ensure that PPE is available to Personnel; b. Adhere to the Occupational Health and Safety Act; c. Keep the first aid kit stocked; d. Issue all workers with necessary health and safety items; e. Potentially hazardous areas must be demarcated with danger tape; f. Appropriate signage must be placed to caution Employees and contractors not to enter certain structures without authorisation; 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>g. Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and,</p> <p>h. All construction personnel to wear hard hats and reflector jackets at all times.</p>			
7.15	<p>Aspects: Heritage Resources. Impact: Damage and destruction of vertebrate fossils during excavation activities. Objective: To prevent any destruction of valuable artefacts. Target: No destruction of any vertebrate fossils and artefacts.</p> <p>Mitigation/Management Measures:</p> <p>a. Should any heritage resources (including but not limited to fossil bones, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts or bone remains, structures and other built features, rock art and rock engravings) be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped. A trained palaeontologist or heritage specialist must be notified to assess the finds, and this must then be reported to the applicable heritage authority;</p> <p>b. Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from the heritage authority. A registered heritage specialist must be called to the site for inspection and removal once authority to do so, has been given;</p> <p>c. Excavations must be limited to the footprint area and be maintained in a narrow corridor;</p> <p>d. All operations of excavation equipment must be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures must be followed:</p> <ul style="list-style-type: none"> • All construction in the immediate 50 m vicinity radius of the site must cease; • The heritage practitioner must be informed as soon as possible; • In the event of obvious human remains SAPS must be notified; 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Monthly</p>	

CONSTRUCTION PHASE: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<ul style="list-style-type: none"> • Mitigation measures (such as refilling, etc.) must not be attempted; • The area in a 50 m radius of the find must be cordoned off with hazard tape; <p>e. Public access must be limited and the area must be placed under guard;</p> <p>f. The Furnace area must be protected and declared a no-go area until the developer appoints a suitably qualified archaeologist to conduct a Phase 2 archaeological assessment of the terrain and to draw up a heritage management plan for the site; and,</p> <p>g. The appointed archaeologist must apply for a valid permit from SAHRA to excavate the furnace for display and educational purposes.</p>			

8.1.2. Operational phase

The intention, of providing an EMPr for the operational phase, is merely to provide Management with guidelines to be used in the management of chicken lay housing development against negative environmental impacts.

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1. ACTIVITY: OPERATIONAL PHASE IMPACTS				
1.1	<p>Aspects: Noise Generation. Impact: Noise nuisance from site operations. Objective: To avoid excessive noise generation from site operations. Target: Minimise the incidence of noise generation.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Machinery must be in sound mechanical condition and equipped with the necessary silencers; b. Workers on site must adhere to the prescribed working hours (7am – 6pm); c. Ensure that staff conduct themselves in an acceptable manner while on site, both during working hours and after hours; and, d. No loud music will be permitted on site. 	Applicant / Developer	<p>Monitoring Action: Applicant to adhere to business hours.</p> <p>Responsible Person/Party: Applicant</p> <p>Monitoring Frequency: Daily</p>	
1.2	<p>Aspects: Handling of general – and hazardous waste materials on the site. Impact: The presence of personnel and operations will increase the likelihood of littering and dumping of solid waste. Objective: Management and disposal of general – and hazardous waste in an appropriate manner. Target: No record of pollution or site contamination by solid waste.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. An adequate number of scavenger proof litter bins are to be placed throughout the site; b. Waste sorting and separation bins should be placed at all public facilities, to encourage visitors to dispose waste paper, glass and general waste separately; c. Keep all work sites including storage areas, offices and workshops neat and tidy; 	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: ESA</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>d. All general waste is to be removed from site and disposed of at a registered solid waste landfill site;</p> <p>e. Care should be taken to ensure that no waste fall of disposal vehicles on-route to the landfill. If needed, a tarpaulin can be utilised;</p> <p>f. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste;</p> <p>g. Minimise waste by sorting wastes into recyclable and non-recyclable waste;</p> <p>h. Carcasses should be disposed of in the appropriate manner and should not be left in the open or disposed of in the veld or an open pit where they may infect wild birds;</p> <p>i. Care should be taken to prevent any waste water affluent or organic material, waste or litter to enter the soil and any surface- or groundwater;</p> <p>j. All waste, including general waste and organic waste, should be contained and transported carefully to the correct registered disposal facilities;</p> <p>k. Manure should be removed regularly from chicken houses, preferably once or twice a week or as frequent as practically possible;</p> <p>l. No manure should be left exposed outside for prolonged periods of time;</p> <p>m. Appropriate ventilation should be maintained inside the lay houses.</p>		<p>Monitoring Frequency: Weekly</p>	
1.3	<p>Aspects: Pollution of groundwater by contaminated water from the chicken lay houses.</p> <p>Impact: Pollution of soil and water contamination.</p> <p>Objective: Provide facilities for appropriate collection and disposal</p> <p>Target: No record of pollution or site contamination</p> <p>Mitigation/Management Measures:</p> <p>a. Manure must be removed with the bedding before the houses are cleaned;</p> <p>b. Ensure that a trap at the door is built to catch any harmful subsidence that may have an impact on the environment;</p> <p>c. Storm water management plans should be in place for the control of storm water runoff when the chicken houses are cleaned;</p> <p>d. Water drainage should be properly planned and addressed to drain water from the site and prevent any accumulation on site;</p> <p>e. Stormwater management should maintain the natural flow regime as far as possible;</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: ESA</p> <p>Monitoring Frequency: Weekly</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>f. Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble or possible pollution to enter the surrounding environment in general;</p> <p>g. Appoint geohydrologist to monitor groundwater quality annually or quarterly as deemed necessary by the appointed specialist;</p> <p>h. Sewerage and sanitation facilities should be regularly maintained and checked;</p> <p>i. Sufficient waste receptacles should be placed around the development in order to encourage people to use them;</p> <p>j. The principle of reduce, re-use and recycle should be followed;</p> <p>k. Site should be kept clean and tidy during all phases of activity;</p> <p>l. Regular inspections will be undertaken of any access roads and stormwater management drains for signs of erosion and sedimentation;</p> <p>m. If any spills occur, they should be immediately cleaned up;</p> <p>n. Spill kits must be stored on site: In case of accidental spills of oil, petroleum products etc., good oil absorbent materials must be on hand to allow for the quick remediation of the spill. The kits should also be well marked and all personnel should be educated to deal with the spill. Vehicles must be kept in good working order and leaks must be fixed immediately on an oil absorbent mat. The use of a product such as Sunorb is advised;</p> <p>o. Any waste should be disposed in a registered landfill and not be allowed to be dumped in the surrounding landscape;</p> <p>p. All manure and waste handling or storage surfaces in the facility should have an impermeable surface;</p> <p>q. Storm water and run-off should be managed and diverted to not be in contact with waste or manure;</p> <p>r. The supervisor must ensure that drinkers are checked for correct operation, desired flow rates achieved and malfunctions reported; and,</p> <p>s. The supervisor must ensure that contaminated food and other operational waste are appropriately and effectively contained and disposed of at the approved landfill site.</p>			

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1.4	<p>Aspects: Fire Prevention.</p> <p>Impact: Uncontrollable fire.</p> <p>Objective: Prevent the outbreak of fires emanating from activity.</p> <p>Target: No incidences of fires are recorded for the site.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> The potential risk of veld fires is heightened by windy conditions in the area, specifically during the dry, windy winter months; Assume acceptable precautions to guarantee that fires are not started as a result of works on site as specified below: the Applicant / Developer will be held responsible for any damage to structures or property on or neighbouring the Site as a result of any fire caused by personnel; The Applicant / Developer must ensure that operational related activities that pose a potential fire risk, such as welding etc., are properly managed and confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care must be taken during the high risk dry, windy winter months; The Applicant / Developer must provide fire-fighting training to selected staff and take cognisance of the Veld and Forest Fire Act, Act No. 101, 1998; As per the conditions of the Code of Conduct, in the event of a fire being caused by operational workers and or operational activities, the appointed Applicant / Developer must compensate farmers for any damage caused to their farms. The Applicant / Developer must compensate the fire-fighting costs borne by farmers and local authorities; Equip vehicles and site structures with fire extinguishers. Rubber beaters must be stored on site; No open fires are allowed anywhere on site; Storage of fuel or chemicals under trees is not permitted; Gas and liquid fuel is not to be stored in the same place; Smoking may only occur within a 3m radius from designated areas; 	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: ESA</p> <p>Monitoring Frequency: Weekly</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>k. Personnel must be adequately trained in the handling of firefighting equipment; and,</p> <p>l. Fuel, diesel, oil, or any other flammable substance must be stored 6m away from the smoking area.</p>			
1.5	<p>Aspects: Biological Aspects. Impact: Infestation of the area with Alien and Invasive Species. Objective: Monitor the occurrence of Alien and Invasive Species within the development area and implement Alien Invasive Species Management Plan Target: No Alien and Invasive Species within the development footprint.</p>			
	<p>a. Alien control programs are long-term management projects and should include a clearing plan which includes follow up actions for rehabilitation of the cleared area;</p> <p>b. The lighter infested areas should be cleared first to prevent seed build-up;</p> <p>c. Pre-existing dense areas should be left for last, as they probably will not increase in density or pose a greater threat than they are currently;</p> <p>d. All clearing actions should be monitored and documented to keep track of which are due for follow-up clearing.</p> <p>e. Different species require different control methods such as manual, chemical or biological methods or a combination of the three;</p> <p>f. Care should be taken to ensure that the clearing methods used do not encourage further invasion. As such, regardless of the methods used, soil disturbance should be kept to a minimum. The vegetative stage of the plants should also be considered before clearing;</p> <p>g. The best-practice clearing method for each species identified should be used. The preferred clearing methods for most alien species can be obtained from the Department of Water and Agricultural Affairs (DWAF) Working for Water website: http://www.dwaf.gov.za/wfw/Control/;</p> <p>h. Alien vegetation eradication program should be developed and implemented for the site to remove alien vegetation during all operational phases;</p> <p>i. Follow-up clearing and monitoring should be done to detect any new invasive species establishment and spread during operation;</p> <p>j. Alien plant material removed during eradication efforts should be contained and disposed of properly to limit accidental spread;</p> <p>k. Construction vehicles will use existing authorized service roads (where possible);</p> <p>l. Care must be taken to spot alien plants before they start producing seed; and,</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: ESA</p> <p>Monitoring Frequency: Bi-annually</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	m. Protect bare and disturbed soil.			
1.6	<p>Aspects: Socio-Economic Aspects within the area. Impact: The creation of job opportunities during the operational phase. Objective: The operational phase will create a job opportunities for individuals residing in the area. Target: Job creation for individuals in the local area.</p>			
	<p>a. Where reasonable and practical the applicant must appoint local contractors and implement a “local first” policy, especially for semi and low-skilled job categories.</p> <p>b. The recruitment selection process must seek to promote gender equality and the employment of women wherever possible.</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Weekly</p>	
1.7	<p>Aspects: Animal Waste Impact: Inadequate management of chicken waste (e.g. accumulation of chicken manure) can attract pests and may lead to the contamination the surrounding environment. Accumulation of manure and urine, dirty drinkers and feeders or lack of appropriate management may generate foul odours. Target: Establish an effective monitoring and cleaning procedure.</p>			
	<p>a. The supervisor must ensure that drinkers are checked for correct operation, desired flow rates achieved and malfunctions reported; and,</p> <p>b. The supervisor must ensure that contaminated food and other operational waste are appropriately and effectively contained and disposed of at the approved landfill site.</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party:</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
			Supervisor Monitoring Frequency: Weekly	
1.8	<p>Aspects: Ground and surface water Pollution. Impact: Seepage of water from dirty pens. Inappropriate disposal of carcasses may pollute the surrounding environment. Target: Establish an effective monitoring and prevention systems.</p>			
	<p>Mitigation:</p> <ol style="list-style-type: none"> The DEDECT approved Flood attenuation and storm water management plans must be implemented. An Erosion Action Programme must be implemented to minimize erosion on the site. The supervisor must monitor and control sewage system. The drinking pens must be regularly maintained and in good working order to prevent overflows. The supervisor must ensure that carcasses are appropriately and effectively contained and disposed of at the approved landfill site. The supervisor must ensure that feeders are checked for cleanliness and freshness and contaminated chicken food and chicken excrement removed. Water drainage should be properly planned and addressed to drain water from the site and prevent any accumulation on site. Stormwater management should maintain the natural flow regime as far as possible. Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble or possible pollution to enter the surrounding environment in general. Provision of adequate on-site sewerage management. Appoint geohydrologist to monitor groundwater quality annually or quarterly as deemed necessary by the appointed specialist. Sewerage and sanitation facilities should be regularly maintained and checked. Facility should be kept clean and tidy. 	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: Supervisor/ECO</p> <p>Monitoring Frequency: Weekly</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>n. Any waste should be disposed in a registered landfall and not be allowed to be dumped in the surrounding landscape.</p> <p>o. All manure and waste handling or storage surfaces in the facility should have an impermeable surface.</p> <p>p. Storm water and run-off should be managed and diverted to not be in contact with waste or manure.</p>			
1.9	<p>Aspects: Pest Control. Impact: Inadequate implementation of pest control programmes. Target: Establish an effective Integrated Pest Management Strategy.</p> <p>Mitigation:</p> <p>a. The supervisor must Implement Integrated Pest Management (IPM) strategies.</p> <p>b. The supervisor must ensure that pre-operation checks and services of pest control equipment are completed according to industry standards and relevant legislation.</p> <p>c. The most environmentally friendly and best-practice pest- and predator deterrent methods should be used.</p> <p>d. If pesticides are used or pest control is applied, they should be used in the appropriate and recommended amounts.</p> <p>e. Any water run-off should be diverted from areas where pesticides are applied.</p> <p>f. Keep the facility neat, tidy and clean in order not to attract scavenging animals such as rats, mice and flies.</p> <p>g. Remove manure regularly.</p> <p>h. Chicken feed should be stored in a sealed environment that is kept clean and tidy.</p> <p>i. Any spilled feed should be cleaned as soon as possible.</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: Supervisor/ECO</p> <p>Monitoring Frequency: Weekly</p>	
1.10	<p>Aspects: Unpleasant Odours Impact: Unpleasant Odours Target: Minimum unpleasant Odours</p> <p>Mitigation</p> <p>a. No manure must be stored on site for an extended period of time; b. All mortalities must be stored in the cooling room until disposal; and,</p>	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: Supervisor/ECO</p>	

OPERATIONAL PHASE: PROPOSED SIX CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	c. The chicken lay houses and breeding housed should be thoroughly cleaned before the introduction of new chicks.		Monitoring Frequency: Weekly	
1.11	<p>Aspects: Uncontrollable disease outbreak Impact: Uncontrollable disease outbreak Target: No disease outbreak</p> <p>Mitigation</p> <ul style="list-style-type: none"> a. Limit number of people around the laying houses; b. Ensure that no wild birds to have contact with the chickens; c. Ensure that personnel working around the houses are disinfected as they move from one house to the other; d. Houses should be kept clean at all times; e. Houses should be cleaned and disinfected at the end of each production before introducing new chickens; f. Manure must be removed from site by the appointed service provider to be used as fertilizer immediately after removal from lay houses; g. Regularly inspections by the State Veterinary should be done; and, h. Proper disposal of chicken carcasses should be in place to prevent distribution of diseases. 	Applicant / Developer	<p>Monitoring Action: Maintenance Contractor Checklist</p> <p>Responsible Person/Party: Supervisor/ECO</p> <p>Monitoring Frequency: Weekly</p>	

9. REHABILITATION MEASURES

The rehabilitation phase follows completion of construction works and entails site clean-up and site rehabilitation following the removal of the Contractor from site. The underlying aim of rehabilitation is the process of returning land within the site boundary to some degree of its former natural state.

Key aspects within this process include the:

- a) Removal of structures and infrastructure;
- b) Handling of inert waste and rubble;
- c) Handling of hazardous waste and pollution control;
- d) Final shaping of the terrain;
- e) Topsoil replacement and soil amelioration;
- f) Ripping and scarifying of surfaces;
- g) Planting of indigenous occurring vegetation (if deemed necessary); and
- h) Maintenance.

9.1. Rehabilitation Measures

Removal of structures and infrastructure
<ul style="list-style-type: none"> • On completion of a section of works, the area must be rehabilitated by suitable landscaping, levelling, topsoil dressing, land preparation, alien plant eradication and where ascribed for by the ECO, vegetation establishment; • Clear and completely remove from site all construction structures and temporary infrastructure; • All permanent infrastructure must be returned to a useable state.
Inert waste and rubble
<ul style="list-style-type: none"> • Remove all inert waste and rubble, such as excess rock, any structural foundations and remaining aggregates. Only once this material has been removed, the site shall be re-instated and rehabilitated. • Load and haul remaining spoil and inert rubble landfill sites indicated/approved by the ECO; • Subject to approval by the DMR, certain borrow pits and/or quarries may be utilised for the disposal of waste rock and inert building rubble; • Domestic waste must be completely removed from the site and disposed of at a landfill site.
Hazardous waste and pollution control

- Storage facilities for fuel, hazardous substance, hazardous waste and pollution control sumps must be removed from site and the disposal of hazardous waste be done in an approved manner;
- All pollution containment structures should be removed from site and materials not for reuse, are to be disposed of as hazardous waste;
- All temporary sanitary infrastructure and waste water disposal systems are to be removed, with the avoidance of leaks, overflows and spills ensured.

Final Shaping

- All artificial and disturbed slopes must mimic natural slopes and topography;
- When the backfilling of excavations is undertaken, subsoil must be deposited first, followed by the topsoil. Hereafter layers are to be compacted;
- Should there be a deficiency of backfill material, this may not be addressed by excavating haphazardly within the work site. This is to be remedied through the import of material from a licenced borrow pit as indicated by the ECO;
- Areas which have been backfilled should be monitored for sinking (as the backfill settles) and depressions filled using available material;
- No excavated material or stockpiles may remain on site and all superficial material left after backfill must be smoothed over to blend in with the surrounding landscape.

Topsoil replacement and soil amelioration

- The reinstatement of disturbed areas must follow immediately after the removal of structures and temporary infrastructure;
- Topsoil backfilling must be undertaken when the soil is dry, and not following any recent rainfall events;
- The replacement of topsoil should be sought in situ with construction where possible, or as soon as construction in an area has be completed;
- All stockpiled topsoil together with herbaceous vegetation should be replaced and redistributed over a disturbed area such as temporary access roads;
- Topsoil must be returned to the same site from where it was stripped;
- When insufficient topsoil remains, soil of a similar quality can be obtained from a nearby area within the construction area which was disturbed;
- Once topsoil has been returned to the ground, stripped vegetation should be randomly spread by hand over the area.

Ripping and scarifying

- On all areas that have received topsoil, these must be ripped and/or scarified to enable the mixing of the upper most layers;
- Rip and/or scarify all areas which would have been compacted through the movement of vehicles or placement of structures and materials;
- Rip and/or scarify in parallel to the contour to avoid the creation of down-slope channels;
- Rip and/or scarify all areas at 300mm intervals to ensure that the lines intercept;
- This action should only be done in dry conditions, is wet soil will not break up.

Planting

- Reseeding of construction footprint areas using grass sods in local occurrence is seen as being the most plausible form of re-vegetation;
- The grass species should have a tolerance for variability in water supply, as these will not be watered following planting thereof;
- To undertake seeding, suitably experienced personnel, making use of appropriate equipment should be sought;
- When planting, the soil should be equally wet to a depth of at least 150 mm;
- Sods are to be kept moist from the time of harvesting until final placement;
- Rake or spike the area to provide a loose substrate to a depth of 100 mm;
- Sods are to be lain in a straight line, beginning at the bottom of a slope, where possible;
- The next row of sods are to be placed in the same way, tightly against the initial row with the joints staggered, until the full area is covered with sods;
- Tightly butt sods together, taking care not to stretch or overlap sods;
- Spaces between rows should be filled with sods or topsoil;
- Monitor the success in growth of grasses and repeat the exercise should growth be unsuccessful.

Maintenance

- All re-growth of invasive vegetative material will be monitored by the Developer for one year;
- All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cordoned off, to prevent vehicular, pedestrian and livestock access;
- Any re-vegetation must be done using plant species in occurrence on site;
- Control invasive plant species and weeds using approved methods of manual or chemical intervention;
- The reestablishment of vegetation should be allowed several rainy seasons.

10. EMERGENCY RESPONSE PLAN

The objective of this section is to provide a brief summary of options available to the project manager. The details of the design will reside with the designers, but cognizance should be taken of the design philosophy and key aspects given in the guidelines to problem solving given below.

10.1. Typical remedial work options

The following table is provided to assist the inspector and project manager with problem solving:

Observation or Event	Action by Inspector or Observer	Action by Project Manager
Spillage of diesel or hydrocarbons on soil	<p>Report to Project Manager and continue observations.</p> <p>Also check:</p> <ul style="list-style-type: none"> ➤ That the source causing the spillage is decommissioned, and that the affected area is isolated to prevent spreading of the hazardous substance. 	<p>Action will be required ASAP by following the next steps:</p> <ul style="list-style-type: none"> ➤ Dig down into the soil to see how far down the pollution penetrated; ➤ If less than 300mm penetration: <ol style="list-style-type: none"> a. Turn the soil over to expose it to the air, b. Apply Mono Ammonium Phosphate (MAP) at a rate of 58gr/m² to the dug up soil, c. Water enough to keep the soil moist. ➤ If penetration is greater than 300mm: <ol style="list-style-type: none"> a. Remove the affected soil and spread in a layer not more than 300mm thick, b. Apply MAP at a rate of 50gr/m² c. Water enough to keep the soil moist.

Observation or Event	Action by Inspector or Observer	Action by Project Manager
		<ul style="list-style-type: none"> ➤ Repeat the above steps every 6 weeks or until the soil is clean.
Erosion of access road	<p>Report to Project Manager and continue observations.</p> <p>Also check:</p> <p>That all vehicular movement is restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas.</p>	<p>Action will be required ASAP:</p> <ul style="list-style-type: none"> ➤ Implement erosion protection works at identified problem areas, ➤ Implement remedial works to be done at affected areas in order to restore the area to its previous or better status.

11.Incident register

INCIDENT REGISTER: CHICKEN LAY HOUSES, HEKPOORT, GAUTENG PROVINCE						
NAME OF PERSON REPORTING THE INCIDENT	INCIDENT NUMBER (e.g. 001)	INCIDENT	DATE OF INCIDENT IDENTIFIED	HOW WAS INCIDENT ADDRESSED?	DATE OF RECTIFICATION	SIGNATURE

12. GUIDELINES WITH REGARD TO VEGETATION

12.1. Removal of vegetation

The insensitive removal of vegetation can be catastrophic for a number of reasons:

- Unnecessary clearing of areas leave the soil barren and prone to erosion,
- Indigenous vegetation removal will lead to diminishing of natural habitat for fauna,
- Indigenous vegetation removal will have a negative impact on the ecological integrity, biodiversity of the site & destroying of one of the main natural attributes of the area.

Recommendations are made to assist in mitigating the environmental impact of the proposed project. These should be included as conditions of approval.

12.2. Minimizing of habitat destruction:

- If fires are lit on private property, provision must be made that no accidental fires are started,
- No firewood may be collected,
- Fire extinguishers must be available on site,
- Vehicles should be driven at a moderate speed on the roads,
- Construction camp and site offices must be removed and rehabilitated on completion of the contract. The site should be rehabilitated as close as possible to its original condition.

12.3. Soil management

- In the event of topsoil being stripped it shall be stockpiled on the site for later reuse. (Topsoil is considered to be a minimum of thickness of ± 300 mm of the natural soil, including all vegetation and organic matter),
- Weeds appearing on stockpiled topsoil shall be removed by hand before seeding, and
- Soil contaminated by hazardous substances shall be disposed of at a Department of Water and Environmental Affairs licensed landfill site.