

**APP007104**



**ENVIRONMENTAL SCOPING REPORT: Operations of an Existing Rearing and Laying Facility on a Portion of the Remainder of Portion 812 of Farm Stampried 132, Stampriet, Hardap Region**

**OPERATIONS OF AN EXISTING REARING AND LAYING  
FACILITY ON A PORTION OF THE REMAINDER OF  
PORTION 812 OF FARM STAMPRIED 132, STAMPRIET,  
HARDAP REGION**

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## LIST OF ACRONYMS

AIDS	Acquired immune deficiency syndrome
CRR	Comments and response report
dB	Decibels
DESR	Draft Environmental Scoping Report
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
EAR	Environmental Assessment Report
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
FESR	Final Environmental Scoping Report
ESR	Environmental Scoping Report
HIV	Human immunodeficiency virus
I&AP	Interested and Affected Party
IUCN	International Union for Conservation of Nature
MEFT	Ministry of Environment, Forestry and Tourism
MEFT: DEA	Ministry of Environment, Forestry and Tourism: Department of Environmental Affairs
MURD	Ministry of Urban and Rural Development
PPP	Public Participation Process

## **1. INTRODUCTION**

### **1.1 Project Background**

Maranatha Hatchery Enterprises (Pty) Ltd has established and operates a rearing and laying facility on a Portion of the remainder of Portion 812 of Farm Stampried 132, located in Stampriet within the Hardap Region of Namibia. The operation is built upon a foundation of clearly defined, physically separated rearing and production phases, a model designed to uphold stringent biosecurity and maintain genetic integrity.

The current breeding stock of approximately 9,940 birds is distributed across dedicated rearing and production houses, which adheres to recognised commercial standards for flock management, nutrition, and health.

Central to the facility's operational control is the integration of the EEGsactly management system, a data-driven platform that enables real-time performance monitoring, production forecasting, and informed decision-making. Furthermore, Maranatha Hatchery Enterprises has implemented a comprehensive risk management framework. This includes robust biosecurity protocols to protect flock health and a strategic dual-supplier contingency plan, involving primary supplier Ross Africa and secondary supplier Sovereign Foods, to safeguard against potential disruptions in the parent stock supply chain. Collectively, these elements establish Maranatha Hatchery Enterprises as a professionally managed, resilient operation capable of supporting consistent production and future growth.

In terms of section 27 of the Environmental Management Act (EMA), 2007 (Act 7 of 2007) listed activities may not be undertaken without an Environmental Clearance Certificate (ECC). The existing operations of the rearing and laying facility require an Environmental Clearance Certificate from the Ministry of Environment, Forestry and Tourism, in particular the Office of the Environmental Commissioner.

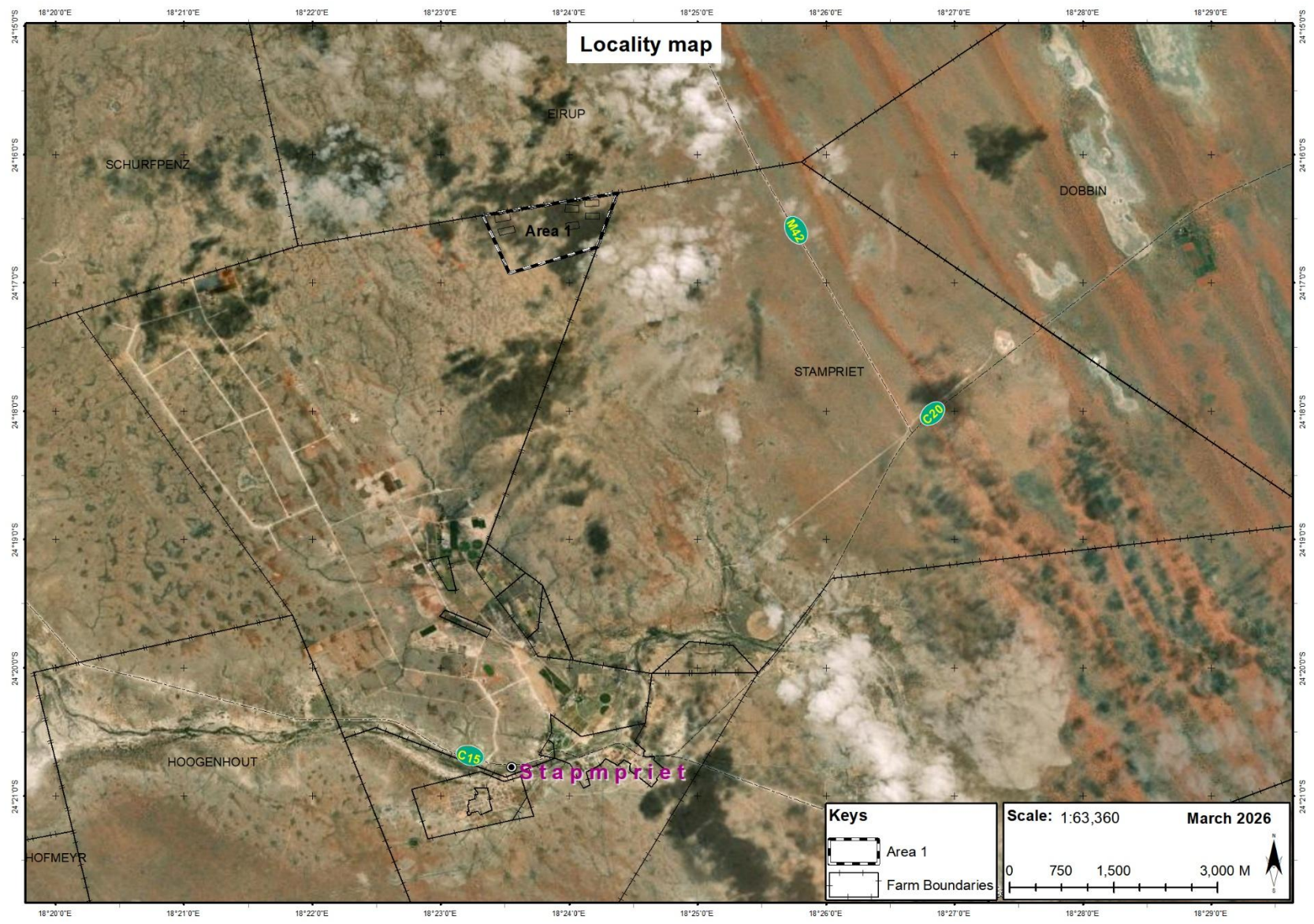
In ensuring compliance to the provisions of the EMA, the Proponent has appointed Environam Consultants Trading (ECT) to undertake the process of applying for the ECC on their behalf.

### **1.2 Project Location**

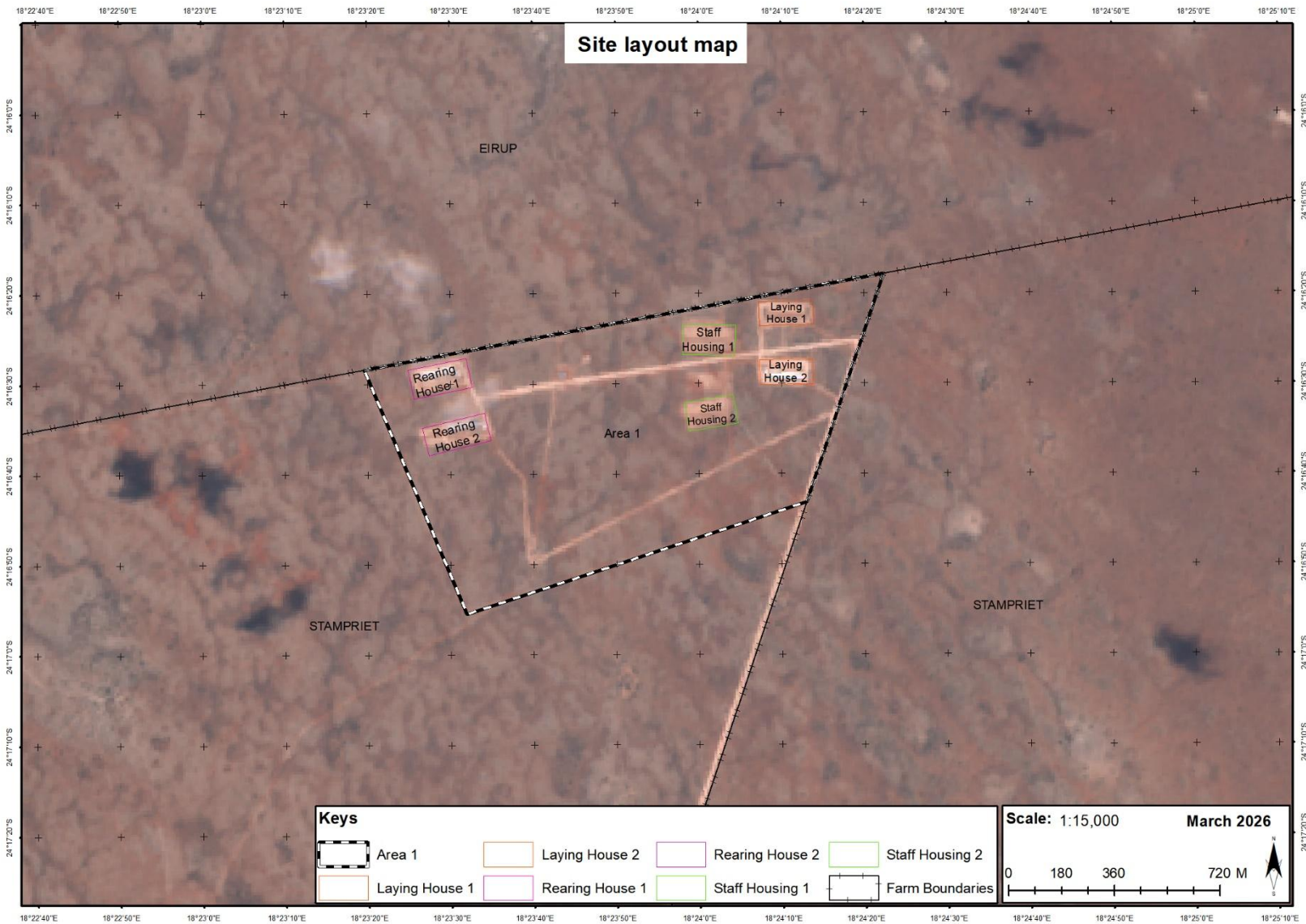
The Maranatha Rearing and Laying Facility (24.2894°S: 18.3794°E) is situated on a Portion of the remainder of Portion 812 of Farm Stampried 132, located in Stampriet within the Hardap Region of Namibia. The facility is surrounded by undeveloped agricultural farmland. See Figures 1 and 2 below for the locality maps of Stampriet village and the development site.



**Figure 1:** Locality map of Stampriet



**Figure 2:** Locality map of the proposed development



**Figure 3:** Locality map of the proposed development (detailed)

### 1.3 Terms of Reference and Scope of Project

Maranatha Hatchery Enterprises (Pty) Ltd has commissioned an application process for an Environmental Clearance Certificate for the Operations of an Existing Rearing and Laying Facility on a Portion of the Remainder of Portion 812 of Farm Stampried 132, Stampriet, Hardap Region. Environam Consultants Trading was appointed to undertake the application process for the proposed project.

In accordance with the confirmation outlined in the screening notice issued upon registration of this application, a scoping report is required. Consequently, this has necessitated the undertaking of a scoping exercise for the project.

The scoping phase will enable decision makers to make an informed decision regarding the development and make sure it does not have significant impacts and that they are mitigated. The scope is limited to conducting an environmental assessment and applying for an Environmental Clearance Certificate for the Operations of an Existing Rearing and Laying Facility on a Portion of the Remainder of Portion 812 of Farm Stampried 132, Stampriet, Hardap Region. This includes consultations with client; site investigations and analysis; stakeholder consultations; impact analysis; mitigation formulation; report writing; and draft Environmental Management Plan.

The scope of the EIA aims at identifying and evaluating potential environmental impacts emanating from the operations and possible decommissioning of the proposed facilities. Relevant data have been compiled by making use of secondary sources and from project site visits. Potential environmental impacts and associated social impacts will be identified and addressed in this report.

The environmental impact assessment report aims to address the following:

- Identification of potential positive and negative environmental impacts.
- Provide sufficient information to determine if the proposed project will result in significant adverse impacts.
- Identification of “hotspots” which should be avoided where possible due to the significance of impacts.
- Evaluation of the nature and extent of potential environmental impacts
- Identify a range of management actions which could mitigate the potential adverse impacts to required levels.
- Provide sufficient information to the Ministry of Environment to make an informed decision regarding the proposed project.
- Conduct a stakeholder participation exercise.
- Present and incorporate comments made by stakeholders.

### 1.4 Assumptions and Limitations

In undertaking this investigation and compiling the Environmental Assessment, the following assumptions and limitations apply:

- Assumes the information provided by the proponent is accurate and discloses all information available.

### 1.5 Content of Environmental Scoping Report

Section 8 of the gazetted EA Regulations makes provision for the contents of a Scoping Report. Table 1 below delineate for ease reference, where this content is found in the Environmental Scoping Report.

**Table 1:** Contents of the Scoping / Environmental Assessment Report

Section	Description	Section of ESR/ Annexure
8 (a)	The curriculum vitae of the EAPs who prepared the report;	Refer to <b>Annexure F</b>
8 (b)	A description of the proposed activity;	Refer to Chapter 4
8 (c)	A description of the site on which the activity is to be undertaken and the location of the activity on the site;	Refer to Chapter 3
8 (d)	A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Refer to Chapter 3
8 (e)	An identification of laws and guidelines that have been considered in the preparation of the scoping report;	Refer to Chapter 2
8 (f)	Details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including	Refer to Chapter 5
	(i) the steps that were taken to notify potentially interested and affected parties of the proposed application	Refer to Chapter 5
	(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	Refer to <b>Annexure C</b>
	(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application;	Refer to <b>Annexure C</b>
	(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Refer to <b>Annexure C</b>
8 (g)	A description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and	Refer to Chapter 4

<b>Section</b>	<b>Description</b>	<b>Section of ESR/ Annexure</b>
	disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	
8 (h)	A description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Refer to Chapter 7
8 (i)	terms of reference for the detailed assessment;	Refer to Chapter 1
8 (j)	An environmental management plan	Refer to <b>Annexure A</b>

## **2. LEGAL, POLICY AND INSTITUTIONAL FRAMEWORK**

The principle environmental regulatory agency in Namibia is the Office of the Environmental Commissioner within the Directorate of Environmental Affairs of the Ministry of Environment, Forestry and Tourism. Most of the policies and legislative instruments have their basis in two clauses of the Namibian Constitution, i.e. Article 91 (c) and Article 95 (I); however, good environmental management finds recourse in multiple legal instruments. Table 2 below provides a summary of the legal framework considered to be relevant to this development and the environmental assessment process.

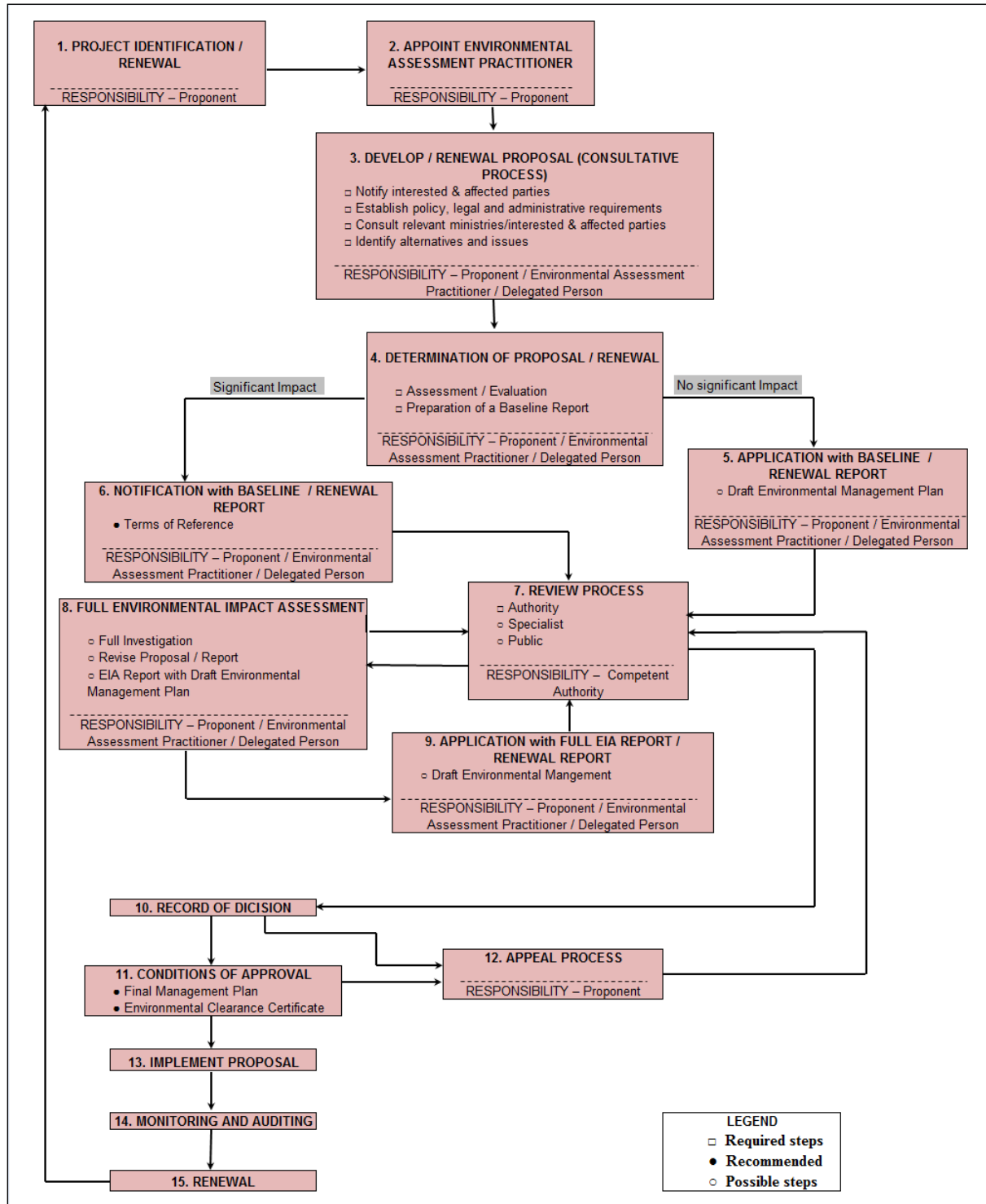
**Table 2:** Legislation applicable to the proposed development

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
The Constitution of the Republic of Namibia as Amended	<p>Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”</p> <p>Article 95(1) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.</p>	Sustainable development should be at the forefront of this development.
Environmental Management Act No. 7 of 2007 (EMA)	<p>Section 2 outlines the objective of the Act and the means to achieve that.</p> <p>Section 3 details the principle of Environmental Management</p>	The development should be informed by the EMA.
EA Regulations GN 28, 29, and 30 of EMA (2012)	<p>GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.</p> <p>GN 30 provides the regulations governing the environmental assessment (EA) process.</p>	<p><b>Activity 8.1</b> The abstraction of ground or surface water for industrial or commercial purposes.</p> <p><b>Activity 8.2</b> The abstraction of groundwater at a volume exceeding the threshold authorised in terms of a law relating to water resources.</p> <p><b>Activity 8.6</b> Construction of industrial and domestic wastewater treatment plants and related pipeline systems.</p> <p><b>Activity 9.2</b> Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.</p>
Convention on Biological Diversity (1992)	Article 1 lists the conservation of biological diversity amongst the objectives of the convention.	The project should consider the impact it will have on the biodiversity of the area.
Draft Procedures and Guidelines for conducting EAs and compiling EMPs (2008)	Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process.	The EA process should incorporate the aspects outlined in the guidelines.

<b>LEGISLATION/POLICIES</b>	<b>RELEVANT PROVISIONS</b>	<b>RELEVANCE TO PROJECT</b>
Namibia Vision 2030	Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets.	Care should be taken that the development does not lead to the degradation of the natural beauty of the area.
Water Resources Management Act 11 of 2013.	A permit application in terms of Sections 72(1) of the Water Act is required for the disposal of industrial or domestic waste water and effluent.	The pollution of water resources should be avoided during the operation of the development.
The Ministry of Environment, Forestry and Tourism (MEFT) Policy on HIV & AIDS	MEFT has developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments.	The proponent and its contractor(s) have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when construction workers interact with local communities.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council. Sections 34-47 make provision for the aspects of water and sewerage.	The development has to comply with the provisions of the Local Authorities Act.
Regional Councils Act No. 22 of 1992	The Regional Councils Act legislates the establishment of Regional Councils that are responsible for the planning and coordination of regional policies and development. The main objective of this Act is to initiate, supervise, manage and evaluate development at regional level.	The area is in the jurisdiction of Hardap Regional Council. All relevant laws must be abided to.
Labour Act no 11 of 2007	Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment.	Given the employment opportunities presented by the development, compliance with the labour law is essential.
Public and Environmental Health Act of 2015	The Act serves to protect the public from nuisance and states that person may not cause a health nuisance or may not permit to exist on a land or premises owned or occupied by him or her, or of which he or she is in charge, a health nuisance or other condition liable to be injurious or dangerous to health.	The proponent should ensure that the site is off limits from public during any construction or operational activities to avoid incidences.
Nature Conservation Ordinance no 4 of 1975	Chapter 6 provides for legislation regarding the protection of indigenous plants	Indigenous and protected plants have to be managed within the legal confines.
Atmospheric Pollution Prevention Ordinance (No. 11 of 1976).	The Ordinance objective is to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto.	All activities on the site will have to take due consideration of the provisions of this legislation.

LEGISLATION/POLICIES	RELEVANT PROVISIONS	RELEVANCE TO PROJECT
Roads Ordinance 17 of 1972	This Ordinance consolidates the laws relating to roads.	The provisions of this legislation have to be taken into consideration in as far as access to the development site is concerned.

This EA process will be undertaken in accordance with the EA Regulations. A Flow Diagram (refer to **Figure 4** below) provides an outline of the EA process to be followed.



**Figure 4:** EA Flowchart for Namibia (Environmental Assessment Policy of 1995)

### 3. RECEIVING ENVIRONMENT

#### 3.1. Bio-Physical Environment

##### 3.1.1. Climate

Classification of climate:	Semi-arid climate
Average rainfall:	Rainfall in the area is averaged to be between 150 to 250mm per year.
Variation in rainfall:	Variation in rainfall is averaged to be between 50 to 60% per year.
Average evaporation:	Evaporation in the area is averaged to be between 3200 to 3400mm per year.
Water Deficit:	Water deficit in the area is averaged to be between 2100 and 2300mm per year.
Temperatures:	Highest temperatures are measured in January with an average daily maximum of 25.1°C; the coldest temperatures are measured in July with an average daily maximum of 12.4°C.
Precipitation:	Sporadic and unpredictable, high intensity, highly localised storm events between October and April does occur. Evaporation exceeds precipitation by approximately 90%.
Wind Pattern:	Based on the regional wind patterns, the dominant wind direction is from the north and north-northeast of the project site.

The Stampriet area and its surroundings can be classified as a water deficit area with annual evaporations exceeding the mean annual rainfall by far. Summer rainfall dominates precipitation in the form of thundershowers and seasonal run off events might occur in the form of flash floods.

The aridity of the region causes the water resource to be a scarce commodity and has to be conserved and protected from pollution at all cost. Groundwater in the area is an important source of potable water for the town.

### 3.1.2. Topography and Drainage

The site is relatively flat with a gentle slope to the south. The landscape is classified as being in the Kalahari Sandveld, which is characterized by palaeo dunes and pans. The site is located within the catchment of the Auob River, an ephemeral river draining in an eastern direction. This river is situated approximately 3.5km southeast of the site.

The relief of the Auob River remains intact, and allows good drainage from the site and its surroundings. Drainage from the site is well developed and runoff takes place to the south and southeast.

### 3.1.3. Hydrogeology of the area

Surface geology at the site consists of red dune sand of the Kalahari, less than 1m thick. Shale and mudstone of the Ecca Group (Karoo Sequence) underlies the dune sand cover. All of the underlying formations are classified as hard rock formations. Groundwater flow would be mostly along fractures, faults (secondary porosity) and other geological structures present within the formations.

The project site falls within the Stampriet Artesian Basin (SAB), a groundwater protection zone managed by the Department of Water Affairs (DWA) in the Ministry of Agriculture, Water and Forestry. The Stampriet Artesian Basin (SAB) is a transboundary groundwater resources which Namibia shares by Botswana and South Africa. Groundwater recharge in the Stampriet Artesian Basin very limited. The Stampriet Artesian Basin is recharge by several ephemeral river channels such as the Nossob, Seeis, Auob and Olifants Ephemeral Rivers (RBS, 2018).

The groundwater occurrence within the Stampriet Artesian Basin (SAB) is associated with the upper Kalahari Group and in the underlying Karoo Sequences. The three main aquifers in the SAB in Namibia are in the Kalahari Beds, the Auob Sandstone and the Nossob Sandstone. The average thickness of the Kalahari Aquifer is 100 m, that of the Auob 80 m, and that of the Nossob 25 m (JICA 2002).

In the southeastern part of the Namibian SAB, the Kalahari sediments are considerably thicker, reaching about 250 m in the 'Pre-Kalahari Valley'. The Auob Sandstone Aquifer and the Nossob Sandstone Aquifer lie in the Ecca Group of the lower Karoo Sequence and are separated by shale layers of the Mukorob Member, which is overlaid by Rietmond Shale and Sandstone. The Auob and Nossob Aquifers are confined and free flowing in the Auob Valley from Stampriet and further downstream, as well as in the Nossob Valley around Leonardville. Water levels elsewhere in boreholes in the artesian aquifers are subartesian. Several springs are located in the eastern outcrop of the Kalkrand Basalt in the northwest. Groundwater also occurs in the Kalahari layers across the basin and in the Prince Albert Formation of the Karoo Sequence.

According to the Department of Water Affairs and Forestry, (2001) and the International Hydrological Programme of the United Nations Educational Scientific and Cultural Organisation (UNESCO, 2016), water in the area is used for human consumption, stock watering and increasingly for irrigation and tourism / hospitality establishment purposes. Although agriculture and tourism / hospitality both have economic advantages of creating more rural job opportunities, these economic activities if managed poorly can be great source of groundwater pollution from poor management of wastewater and disposal of solid waste.

Groundwater flow from the site can be expected into a southerly direction; however local drainage patterns may vary due to groundwater abstraction in the area. According to the Department of Water Affairs (DWA) database, water is utilized in the area with 7 boreholes known of within a 1km radius. Depth to water table is expected to be less than 60m below ground level (mbgl).

The town of Stampriet relies on water supply via pipelines from the Stampriet Water Supply Scheme. The scheme consists of a number of boreholes in and around the town.

The area does fall within the Stampriet Subterranean groundwater control area, as defined by law in the Artesian Water Control Ordinance of 1955. This means that government controls the exploration and usage of it.

## 4. PROJECT DESCRIPTION

The Rearing and Laying facility in poultry farming refers to the two primary types of housing used in egg production. The one house is used for rearing young birds (pullets) until they are ready to lay eggs, and the other is used to house the mature laying hens during their egg-producing cycle. Although modern systems are evolving, with some innovative designs now combining both phases in a single facility, Maranatha Rearing and laying facility operates the conventional two-house system method, where birds are raised in one facility and then moved to another for egg production.

### 4.1. Rearing Site

The rearing site consists of two environmentally controlled houses (House 1 and House 2) dedicated to the development of breeding stock prior to production placement. The current stock levels at the rearing house are as follows:

- Female breeding stock: approximately 8,640 birds
- Male breeding stock: approximately 1,300 birds

These rearing houses contain chicks from day-old to about 16 to 21 weeks of age. During the rearing phase, birds are managed according to established breeder management standards, with specific emphasis on body weight uniformity, skeletal development, vaccination protocols, and controlled feeding programmes. These measures are designed to ensure optimal sexual maturity and long-term production performance once transferred to the laying site (production site). The goal is to raise healthy pullets that are well-prepared for their future life as layers.

The rearing process flow is as follows:

#### **a) Arrival and Brooding (Days 1-7):**

The process begins with day-old chicks from a specialized hatchery. Upon arrival, they are placed in a warm, controlled environment. To help them find food and adjust, a biodegradable mat is often placed in the cage for the first week. Essential vaccinations are administered, and chicks are typically fed a high-protein (around 20%) starter diet.

#### **b) Growing (Weeks 1-16):**

A critical management task during this time is beak trimming, performed to prevent feather pecking and cannibalism in the adult flock. Throughout this phase, feed formulations and lighting schedules are meticulously controlled to ensure the pullets gain the proper body weight by week 16.

### 4.2. Laying Site

At around 16 weeks, the pullets are transferred to the laying site or production site, where they will remain for their egg-laying period, typically until 72 weeks of age or older. The laying site comprises two breeder houses (House 1, 2, 3 and 4) per rearing house, allocated for fertile egg production. Each production house accommodates approximately 4,000 female breeding birds, stocked at densities aligned with commercial breeder guidelines. Stocking levels in production are intentionally lower than in rearing, reflecting standard

industry practices that prioritise fertility, hatchability, and sustained egg production and quality, and hen health over the laying cycle.

The laying process flow is as follows:

**a) Stimulating Production (Week 18-22):**

Around 18 weeks of age, two key changes trigger the onset of laying. The daily light exposure is increased, which stimulates the hen's reproductive system. Simultaneously, the diet is switched from a growth formula to a layer feed with adjusted levels of protein (12-15%) and, crucially, a much higher concentration of calcium to support strong eggshell formation. The first eggs appear, and production quickly ramps up.

**b) Peak and Post-Peak Production:**

The flock typically reaches peak production, with more than 90% of hens laying daily, at around 30-32 weeks of age. This high rate gradually declines over time.

**c) Molting for a Second Cycle:**

When production falls to about 50% (around 60-70 weeks), the proponent may choose to molt the flock. Molting is a controlled resting period where feed and light are reduced, causing hens to stop laying and shed feathers. This rejuvenates their systems, and after about 10 weeks, they return to a second, though slightly lower, peak of production (around 80%). A flock may be molted once or twice before being removed from the layer house at 100 to 130 weeks of age.

**4.3. Post-Laying (Processing & Depopulation)**

This phase describes the journey of the egg from the laying site to the consumer and the preparation of the house for the next flock.

**a) Egg Processing:**

After collection, eggs are transported to a processing facility where they undergo several steps.

- *Washing:* Eggs are washed with water that is warmer than the egg itself to create positive pressure inside the shell, preventing any bacteria from being drawn in through the pores. They are then dried and often lightly oiled to preserve freshness.
- *Candling and Grading:* Eggs pass over bright lights in a process called "candling," which allows inspectors to check internal quality (air cell size, yolk position, and white clarity) without breaking the shell. They are also automatically weighed and sorted into standard size categories like small, medium, large, and extra large.
- *Packaging:* The graded eggs are carefully placed into cartons designed to cushion them and protect against odors. They are typically packed with the blunt end up to keep the air cell centered.

**b)Distribution and Cold Chain:**

From the processing facility, eggs are moved into the "cold chain"—a continuous system of refrigerated storage and transport. They are shipped in specialized refrigerated trucks to distribution centers and then to retailers, all while maintaining a consistent temperature of 45°F (7°C) or below to ensure quality and safety.

**c) End of Lay and Depopulation:**

When the flock reaches the end of its productive life (around 70+ weeks), the hens are depopulated from the house. This triggers the start of a new cycle, as the now-empty facility undergoes thorough cleaning and disinfection once again, preparing for the arrival of the next generation of day-old chicks.

#### **4.4. Decision Factors**

The following factors served as informants and were considered when preparing the layout designs for the proposed development:

- Stampriet development plans.
- Character of the general area.
- Comparative advantage and strategic value of Stampriet as an investment location.
- Location of the development relative to the residential properties.

#### **4.5. Description of Alternatives**

##### **4.5.1. No-Go Alternative**

Under the No-Go Alternative for the proposed rearing and laying site, the development would not have taken place. This means the project would not be constructed, and no rearing or egg-laying operations would begin on the site. Consequently, the existing land use and environmental conditions would remain unchanged. Any potential impacts from the proposed development, positive (e.g., local egg production, job creation, economic activity) and negative (e.g., odors, waste management, water use, noise, biosecurity risks), would not occur. However, this alternative also foregoes any mitigation measures or benefits associated with the project. The No-Go Alternative serves as the baseline against which the proposed development's environmental, economic, and social effects are compared.

##### **4.5.2. Site Alternative**

While the No-Go Alternative would avoid all direct impacts associated with the construction and operation of the chicken rearing and laying facility, it is equally important to recognize that the project site is generally suitable for this type of operation. The underlying biophysical and logistical characteristics of the location, such as topography, access to utilities, distance from incompatible land uses, and waste management potential, support the viability of a well-managed facility.

The potential impacts at the project location, both environmental (e.g., odor emissions, waste runoff, groundwater contamination, pest attraction) and socio-economic (e.g., traffic from feed deliveries and egg transport, noise, effects on rural character or neighboring property values), are of such a nature that they can be effectively mitigated through the consistent application of good agricultural practice and strict compliance with the Environmental Management Plan (EMP). The EMP, which is binding on the proponent, will outline specific mitigation and control measures.

The No-Go Alternative thus remains the baseline reference but is not necessarily the preferred option where manageable impacts can be offset by appropriate design and enforceable operational controls.

## **5. PUBLIC PARTICIPATION PROCESS**

### **5.1. Public Consultation Process Phase 1**

Although this scoping exercise addresses an existing activity rather than a proposed new development, meaningful efforts have been made to proactively engage interested and affected parties (IAPs). Recognizing that even ongoing operations can have evolving environmental and social footprints, the consultation process sought to inform stakeholders, verify that existing mitigation measures remain adequate, and capture any unresolved concerns.

Formal notification was submitted to the competent authority, specifically the Ministry of Agriculture, Water and Land Reform. This step ensures that the regulatory body overseeing land and water resources is aware of the scoping exercise and had the opportunity to provide input on any emerging issues, compliance requirements, or historical grievances linked to the activity.

Notification was extended to the Stampriet Village Council, given its mandate to represent local community interests and manage land-use planning within the settlement. Engaging the Village Council allows for the dissemination of information to residents and facilitate feedback on any localized impacts that may not have been previously addressed.

Recognizing that adjacent land users (including communal farmers, commercial landowners, and other resource users) are often the most directly affected by ongoing activities, specific notifications were sent to this group. These notifications detailed the purpose of the scoping exercise, invited written comments, and offered opportunities for follow-up discussions. Particular attention was given to potential cumulative impacts, such as competition for groundwater, changes in access routes, or effects on livestock and wildlife movement.

## 6. ASSESSMENT METHODOLOGY

Impact assessments depend on the nature and magnitude of the proposed activity, as well as the type of environmental control envisaged for the particular project. Given the nature of the proposed activity, i.e. a construction project, the identification and assessment of the potential impacts will be based on the type and scale of the various activities associated with the project.

Assessment of the predicted significance of impacts for a proposed development is by its nature, inherently uncertain. To deal with such uncertainty in a uniform manner, standardised and internationally recognised methodologies have been developed. One such accepted methodology is applied in this study to assess the significance of the potential environmental impacts of the proposed development, outlined as follows in Table 3.

**Table 3:** Impact Assessment Criteria

CRITERIA	CATEGORY
<b>Impact</b>	Description of the expected impact
<b>Nature</b> Describe type of effect	<b>Positive:</b> The activity will have a social / economical / environmental benefit. <b>Neutral:</b> The activity will have no effect <b>Negative:</b> The activity will have a social / economical / environmental harmful effect
<b>Extent</b> Describe the scale of the impact	<b>Site Specific:</b> Expanding only as far as the activity itself (onsite) <b>Small:</b> restricted to the site's immediate environment within 1 km of the site (limited) <b>Medium:</b> Within 5 km of the site (local) <b>Large:</b> Beyond 5 km of the site (regional)
<b>Duration</b> Predicts the lifetime of the impact.	<b>Temporary:</b> < 1 year (not including construction) <b>Short-term:</b> 1 – 5 years <b>Medium term:</b> 5 – 15 years <b>Long-term:</b> >15 years (Impact will stop after the operational or running life of the activity, either due to natural course or by human interference) <b>Permanent:</b> Impact will be where mitigation or moderation by natural course or by human interference will not occur in a particular means or in a particular time period that the impact can be considered temporary
<b>Intensity</b> Describe the magnitude (scale/size) of the Impact	<b>Zero:</b> Social and/or natural functions and/ or processes remain unaltered <b>Very low:</b> Affects the environment in such a way that natural and/or social functions/processes are not affected <b>Low:</b> Natural and/or social functions/processes are slightly altered <b>Medium:</b> Natural and/or social functions/processes are notably altered in a modified way <b>High:</b> Natural and/or social functions/processes are severely altered and may temporarily or permanently cease
<b>Probability of occurrence</b> Describe the probability of the Impact <u>actually</u> occurring	<b>Improbable:</b> Not at all likely <b>Probable:</b> Distinctive possibility <b>Highly probable:</b> Most likely to happen <b>Definite:</b> Impact will occur regardless of any prevention measures

CRITERIA	CATEGORY
<p><b>Degree of Confidence in predictions</b> State the degree of confidence in predictions based on availability of information and specialist knowledge</p>	<p><b>Unsure/Low:</b> Little confidence regarding information available (&lt;40%)  <b>Probable/Med:</b> Moderate confidence regarding information available (40-80%)  <b>Definite/High:</b> Great confidence regarding information available (&gt;80%)</p>
<p><b>Significance Rating</b> The impact on each component is determined by a combination of the above criteria.</p>	<p><b>Neutral:</b> A potential concern which was found to have no impact when evaluated  <b>Very low:</b> Impacts will be site specific and temporary with no mitigation necessary.  <b>Low:</b> The impacts will have a minor influence on the proposed development and/or environment. These impacts require some thought to adjustment of the project design where achievable, or alternative mitigation measures  <b>Medium:</b> Impacts will be experienced in the local and surrounding areas for the life span of the development and may result in long term changes. The impact can be lessened or improved by an amendment in the project design or implementation of effective mitigation measures.  <b>High:</b> Impacts have a high magnitude and will be experienced regionally for at least the life span of the development, or will be irreversible. The impacts could have the no-go proposition on portions of the development in spite of any mitigation measures that could be implemented.</p>

\*NOTE: Where applicable, the magnitude of the impact has to be related to the relevant standard (threshold value specified and source referenced). The magnitude of impact is based on specialist knowledge of that particular field.

For each impact, the EXTENT (spatial scale), MAGNITUDE (size or degree scale) and DURATION (time scale) are described. These criteria are used to ascertain the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The decision as to which combination of alternatives and mitigation measures to apply lies with the proponent, and their acceptance and approval ultimately with the relevant environmental authority.

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. Such significance is also informed by the context of the impact, i.e. the character and identity of the receptor of the impact.

## 7. MITIGATION HIERACHY

The mitigation hierarchy (Figure 10) is a widely used tool that guides users towards limiting as far as possible the negative impacts on biodiversity from development projects. It emphasises best-practice of avoiding and minimising any negative impacts, and then restoring sites no longer used by a project, before finally considering offsetting residual impacts.

Following the hierarchy is crucial for all development projects aiming to achieve no overall negative impact on biodiversity or on balance, a net gain, also referred to as no net loss and the net positive approach, respectively. It is based on a series of essential, sequential, but iterative, steps taken throughout the project's life cycle in order to limit any negative impacts on biodiversity.

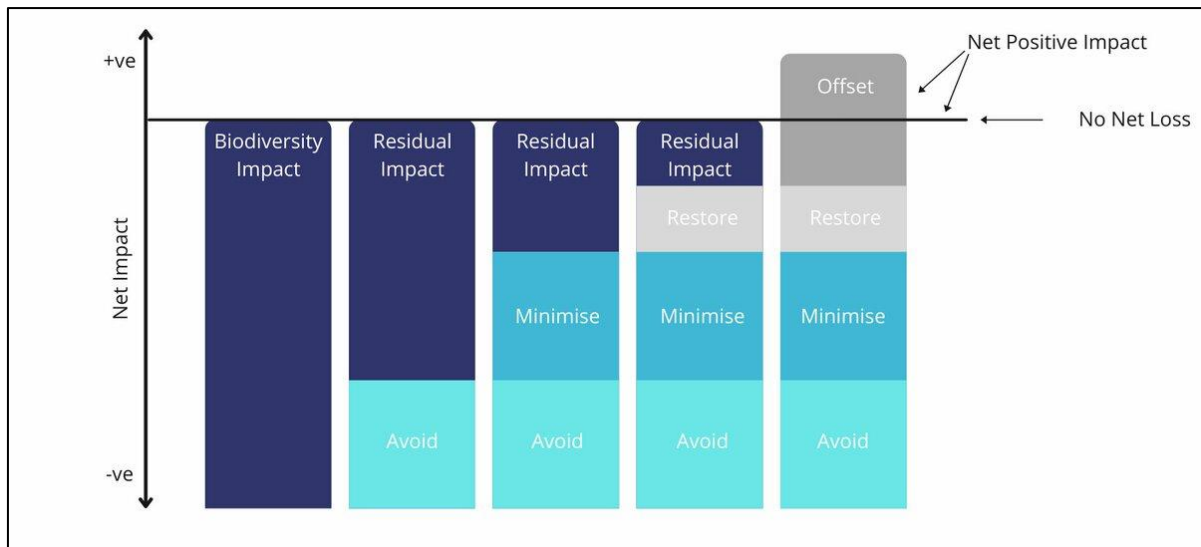


Figure 5: Mitigation Hierarchy

### Sequential steps of the mitigation hierarchy

- 1. Avoidance:** the first step of the mitigation hierarchy comprises measures taken to avoid creating impacts from the outset, such as careful spatial placement of infrastructure, or timing construction sensitively to avoid or disturbance. Examples include the placement of roads outside of rare habitats or key species' breeding grounds, or timing of seismic operations when aggregations of whales are not present. Avoidance is often the easiest, cheapest and most effective way of reducing potential negative impacts, but it requires biodiversity to be considered in the early stages of a project.
- 2. Minimisation:** these are measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided. Effective minimisation can eliminate some negative impacts, such as measures to reduce noise and pollution, designing powerlines to reduce the likelihood of bird electrocutions, or building wildlife crossings on roads.
- 3. Rehabilitation/restoration:** The aim of this step is to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised. Restoration tries

to return an area to the original ecosystem that was present before impacts, whereas rehabilitation only aims to restore basic ecological functions and/or ecosystem services – such as through planting trees to stabilise bare soil. Rehabilitation and restoration are frequently needed towards the end of a project's life cycle but may be possible in some areas during operation.

Collectively, avoidance, minimisation and rehabilitation/restoration serve to reduce, as far as possible, the residual impacts that a project has on biodiversity. Typically, however, even after their effective application, additional steps will be required to achieve no overall negative impact or a net gain for biodiversity.

- 4. Offset:** offsetting aims to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy. Biodiversity offsets are of two main types: 'restoration offsets' which aim to rehabilitate or restore degraded habitat, and 'averted loss offsets' which aim to reduce or stop biodiversity loss in areas where this is predicted. Offsets are often complex and expensive, so attention to earlier steps in the mitigation hierarchy is usually preferable.

Supporting Conservation Actions: measures taken which have positive – but difficult to quantify – effects on biodiversity. These qualitative outcomes do not fit easily into the mitigation hierarchy, but may provide crucial support to mitigation actions. For example, awareness activities may encourage changes in government policy that are necessary for implementation of novel mitigation, research on threatened species may be essential to designing effective minimisation measures, or capacity building might be necessary for local stakeholders to engage with biodiversity offset implementation.

## **8. POTENTIAL IMPACTS**

This Chapter describes the potential impacts on the biophysical and socio-economic environments, which may occur due to the proposed activities. These include potential impacts, which may arise during the planning and design phase, potential construction related impacts (i.e. short to medium term) as well as the operational impacts of the proposed development (i.e. long-term impacts).

The assessment of potential impacts will help to inform and confirm the selection of the preferred project plan and design to be submitted to MEFT: DEA for consideration. In turn, MEFT: DEA's decision on the environmental acceptability of the proposed project and the setting of conditions of authorisation (should the project be authorised) will be informed by this chapter, amongst other information contained in this Report.

The baseline and potential impacts that could result from the proposed development are described and assessed with mitigation measures recommended. The potential impacts are ordinarily grouped in the following phases; Planning and Design Phase; Construction Phase; Operation and Maintenance Phase. The facility is however in operation already, therefore this chapter will be confined to the Operation and Maintenance Phase.

### **8.1 Operational Phase Impacts**

#### **8.1.1 Environmental Monitoring and Evaluation**

Without systematic monitoring of air emissions, water quality, waste storage integrity, and bird health, problems go unnoticed until they become crises. An ammonia leak might persist for weeks, causing bird distress and neighbour complaints, but without gas detectors or regular audits, management remains unaware. Similarly, a crack in a manure pond liner could contaminate groundwater for months before anyone tests a downstream well. Monitoring is the facility's early warning system; its absence means reacting to disasters rather than preventing them.

The Environmental Commissioner requires regular environmental monitoring and evaluation on environmental performance to be conducted on approved developments, as well as the setting and monitoring of targets for improvement. As part of this exercise bi-annual reports have to be submitted to the Office of the Environmental Commissioner for the duration of the environmental clearance certificate.

#### **8.1.2 Lack of Environmental Knowledge Among Employees**

If employees lack basic environmental awareness, they may mishandle poultry litter, dead birds, or cleaning chemicals without understanding the consequences. For example, a worker might empty a disinfectant bucket into a storm drain or leave a mortality bin uncovered, assuming it poses no harm. This knowledge gap leads to avoidable spills, disease vectors, and regulatory fines. Over time, poor practices become routine, magnifying every other environmental risk on site.

#### **8.1.3 Air Quality**

A chicken facility continuously releases ammonia from decomposing litter, dust from feed and feathers, and endotoxins from bacteria. In poorly ventilated houses, workers experience eye irritation, coughing, and

reduced lung function. Downwind neighbours may complain of a sour, choking smell, especially during litter clean-out days. Over time, sensitive individuals may develop asthma. If the facility is near a town, particulate matter can contribute to regional air pollution, affecting even those who never visit the farm.

#### **8.1.4 Infrastructure Services**

The facility places sudden demand on local infrastructure: water supply may drop during peak drinking times; aging electrical transformers hum under the load of ventilation fans in summer; narrow access roads crack under feed delivery trucks. On-site infrastructure, such as leaky water lines, undersized mortality freezers, or unlined fuel tanks, becomes the weakest link. When a pipe bursts under a manure stockpile, contaminated slurry seeps unnoticed into the subsoil. The facility's reliability depends entirely on the robustness of these buried and visible systems.

#### **8.1.5 Generation of Noise**

From dawn until dusk, and often at night during summer heat, exhaust fans produce a low-frequency hum that travels far across open land. During bird catching and transport, workers shout, birds vocalize loudly, and truck engines idle. Neighbours can experience the effect as a constant, maddening drone that disturbs sleep, reduces outdoor enjoyment, and lowers property values.

#### **8.1.6 Surface and Ground Water**

Rain falling on manure piles or spilled feed dissolves nitrogen, phosphorus, and pathogens into a toxic brew. If this leaches downward, it contaminates groundwater used for drinking wells, causing blue-baby syndrome from nitrates or gastrointestinal illness from bacteria. If it runs off to a nearby stream, algae bloom, fish die from oxygen depletion, and the water turns green and foul. Even a small, undetected leak from a waste pond can render a stream biologically dead for kilometers downstream.

#### **8.1.7 Waste Management**

Poultry litter, a mixture of manure, bedding, feathers, and spilled feed, accumulates rapidly. A 30,000-bird house produces several tons per week. Stored outdoors in windrows, it generates intense odor, attracts flies, and releases methane. Dead birds must be composted, incinerated, or rendered; any delay leads to bloated carcasses and scavengers. Without a comprehensive waste plan, the site becomes a public nuisance and an environmental liability, with every rain event washing pollutants off the property.

#### **8.1.8 Biosecurity**

Biosecurity failures begin with small lapses: a visitor walks from a backyard flock into the facility without changing boots; a delivery truck rolls through a puddle of contaminated water; a worker uses the same shovel to remove dead birds and distribute fresh litter. These gaps allow highly pathogenic avian influenza or Newcastle disease to explode through the flock. The result is mandatory culling of all birds, economic devastation, and potential spread to neighbouring poultry farms.

#### **8.1.9 Runoff of Contaminated Water**

When heavy rain hits a facility with uncovered manure stockpiles or unlined waste areas, water sheets across contaminated surfaces, picking up ammonia, pathogens, and organic solids. This black or brown

runoff flows downhill, into roadside ditches, onto neighbors' fields, or directly into streams. Even a single uncontrolled runoff event can cause a fish kill and trigger regulatory investigation. Unlike a pipe discharge, diffuse runoff is harder to trace but equally damaging.

#### **8.1.10 Stormwater Management**

Clean stormwater should never mix with waste. However, if gutters are missing, downspouts discharge onto manure pads, or the site grading directs rainfall through working areas, then every storm becomes a pollution event. Poorly designed drainage channels clog with litter, causing ponding and overflow. Erosion from bare slopes carries sediment and adsorbed pollutants into watercourses. Effective stormwater management separates clean water (roofs, yards) from dirty areas (waste storage, loading ramps) and treats the latter before release.

#### **8.1.11 Hazardous Substances**

Beyond manure, chicken facilities store fly baits (organophosphates), rodenticides (anticoagulants), disinfectants (quaternary ammonium compounds), and veterinary medicines (antibiotics, coccidiostats). A spilled liter of concentrated disinfectant can kill all aquatic life in a receiving stream. Rodent bait left in an open shed may poison wildlife. Inadequately labeled or stored chemicals tempt untrained staff to misuse them, increasing the risk of human poisoning or environmental contamination.

#### **8.1.12 Hydrocarbon Pollution of Soil, Surface and Groundwater**

Heating boilers for brooding chicks, generators for power outages, hydraulic systems on feed augers, and fuel tanks for trucks all contain diesel, oil, or hydraulic fluid. A slow drip from a tank fitting goes unnoticed for months, saturating soil with hydrocarbons. A spill during refueling can migrate to groundwater, producing a sheen on a neighbor's well water. Unlike organic wastes, hydrocarbons persist for decades, requiring expensive excavation or bioremediation.

#### **8.1.13 Unsanitary Conditions on Site**

When cleaning schedules slip, houses accumulate wet litter, manure smears on walls, and standing puddles. Outside, overflowing bins of dead birds attract maggots and rats. Feed spills ferment in corners, drawing flies. Workers walk through mud and feces, tracking contamination everywhere. This unsanitary state is not just unpleasant, it actively breeds disease. The smell becomes offensive at the property line, and nearby homeowners may close windows even in summer heat.

#### **8.1.14 Outbreak of Poultry Diseases**

In high-density rearing, a single infected bird can spread a virus to the entire house within 24 hours. Respiratory droplets, contaminated dust, or shared water lines transmit infection rapidly. A disease outbreak triggers emergency response: all birds on the premises are depopulated, often by methods (ventilation shutdown plus heat, or carbon dioxide) that cause suffering and public outcry. Carcasses must be disposed of by incineration, deep burial, or composting, each with its own environmental risks. The facility may be quarantined for months, and trade restrictions affect the whole region.

### **8.1.15 Inefficient and Redundant Use of Electricity**

Fans run at full speed regardless of temperature. Lights stay on 24 hours in some production systems, even when natural daylight suffices. Motors may be oversized and run continuously rather than on demand. This waste increases operating costs and carbon footprint. During summer heat waves, the facility's peak demand may cause local brownouts. A simple switch to variable-speed fans, timers, and LED lighting could cut electricity use by 30–40%, but without oversight, inefficiency becomes the norm.

### **8.1.16 Inefficient and Redundant Use of Water**

Leaking nipple drinkers drip constantly, wetting litter and increasing ammonia release. Cooling pads overflow, sending hundreds of liters of clean water into waste lagoons. Wash-down hoses are left running while workers move between tasks. The facility may consume twice the water it needs, depleting local aquifers and generating unnecessary wastewater. In water-scarce regions, this can conflict with domestic or agricultural users.

### **8.1.17 Wastewater & Effluent**

House wash water, after a flock is removed, contains manure, feathers, blood, and cleaning chemicals. Its biochemical oxygen demand (BOD) can be hundreds of times higher than domestic sewage. If discharged untreated to a drain, it rapidly depletes oxygen, killing fish and insects. Even treated effluent, if high in nitrogen or phosphorus, can cause eutrophication. The facility must therefore operate treatment ponds, or a connection to municipal sewage, each requiring careful management to function correctly.

### **8.1.18 Visual and Sense of Place**

Long, windowless metal barns with roaring exhaust fans dominate the landscape where there were once fields or woodlands. Manure stockpiles covered in black plastic sheeting look like industrial waste. For residents who moved to the area for rural beauty or quiet, the facility is an affront. Property values in view of the operation often decline, and the character of the neighbourhood shifts from pastoral to industrial.

### **8.1.19 Health, Safety and Security**

Workers face daily hazards: ammonia concentrations in winter can exceed safe limits, causing chronic bronchitis; dust triggers asthma attacks; slippery floors from wet litter lead to falls; augers and conveyor belts pose entanglement risks. Beyond occupational health, the facility must maintain security to prevent vandalism, theft of equipment, or deliberate biosecurity breaches (e.g., releasing a pathogen). A single serious injury or security lapse can shut down operations and attract regulatory scrutiny.

### **8.1.20 Social**

The facility may divide communities. Neighbors suffering from odors and flies can be affected, while others will welcome the jobs and tax revenue. Long-time farmers may resent the industrialization of their landscape, while new residents demand stricter controls. The facility's success depends not just on bird health, but on maintaining a social license to operate.

### 8.1.21 Traffic

Every production cycle requires multiple heavy truck trips: deliver chicks (flatbed with chick boxes), bring feed (bulk tankers), remove live birds to slaughter (multi-deck poultry trucks), haul away used litter (tipper trucks for composting or land application), and collect dead birds (rendering trucks). On rural roads, these large vehicles create dust, mud, and congestion. At dusk, headlights shine into living rooms. Intersections become hazardous, especially for bicycles or farm machinery. Neighbours complain of cracked house foundations from vibration, and road maintenance costs shift to local taxpayers.

### 8.1.22 Town planning

Future residential subdivisions may creep toward the farm, leading to "first came the chickens, then came the complaints" scenarios. Conversely, the facility may block higher-value land uses such as rural tourism or recreational farms. Proper townplanning would designate agricultural buffer zones, limit facility size near sensitive areas, and require environmental management plans from the outset.

## 9 SUMMARY OF POTENTIAL IMPACTS

A summary of the significance of the potential impacts from the proposed project assessed above is included in **Table 4**. The **Table 5** provide a summary of the mitigation measures proposed for the impacts.

**Table 4:** Summary of significance of potential impacts

Impacts	Negative		Positive		No Impact
	Short Term	Long Term	Short Term	Long Term	
<b>Operational Phase</b>					
1. Environmental Monitoring and Evaluation		X			
2. Lack of environmental knowledge among employees	X				
3. Air Quality		X			
4. Infrastructure services		X			
5. Generation of noise.		X			
6. Surface and Ground Water		X			
7. Waste management.		X			
8. Biosecurity	X				
9. Run off of contaminated water		X			
10. Stormwater management	X				
11. Hazardous substances	X				
12. Hydrocarbon pollution of soil, surface – and groundwater.	X				
13. Unsanitary conditions on site.	X				
14. Outbreak of poultry diseases.	X				

15. Inefficient and redundant use of electricity.	X				
16. Inefficient and redundant use of water.	X				
17. Wastewater & Effluent		X			
18. Visual and Sense of Place		X			
19. Health, Safety and Security	X				
20. Social				X	
21. Traffic	X				
22. Townplanning		X			

**Table 5:** Proposed mitigation measures for the operation and maintenance phase

<b>OPERATIONAL PHASE IMPACTS</b>	
<b>Impact</b>	<b>Mitigation Measures</b>
<b>Environmental Monitoring and Evaluation</b>	<ul style="list-style-type: none"> <li>• An Environmental Control Officer should monitor the implementation of the EMP.</li> <li>• The Environmental Control Officer should inspect the site on a regular basis (at least once every third month).</li> <li>• Biannual reports are to be submitted to the Ministry of Environment, Forestry and Tourism.</li> <li>• The above functions may be outsourced to an Independent Environmental Practitioner.</li> </ul>
<b>Lack of environmental knowledge among employees</b>	<ul style="list-style-type: none"> <li>• All employees and contractors are required to attend onsite Environmental Awareness/Training prior to commencing work on site.</li> <li>• Follow-up Environmental Awareness/Training may be required from time to time as new employees commence work or for specific activities that may potentially impact the environment.</li> <li>• The rearing and laying facility manager is to maintain accurate records of any training undertaken.</li> <li>• The ECO shall monitor the rearing and laying facility manager's compliance with the requirement to provide sufficient environmental awareness training to all site staff.</li> <li>• Training is to cover all aspects of the EMP and procedures to be followed</li> </ul>

<p><b>Air Quality</b></p>	<p><b>General emissions:</b></p> <ul style="list-style-type: none"> <li>• Dust suppression equipment need to be onsite to water down dusty road.</li> <li>• Speed bumps or traffic speed signs need to be erected to reduce speeding onsite that could result in the generation of dust.</li> <li>• Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for “cleaner” exhaust emissions.</li> <li>• If the soil is compacted, open areas should be ripped, fertilised and re-vegetated as soon as possible using suitable grass species.</li> </ul> <p><b>Emissions from the rearing and laying facility:</b></p> <ul style="list-style-type: none"> <li>• Promptly and properly handle and dispose of solid waste, such as manure, carcasses, and wastewater to prevent the release of odoriferous compounds and pollutants.</li> <li>• Address emitted odors by managing the source, such as by treating organic by-products or implementing biofilters on exhausts.</li> <li>• Where necessary, use technologies like biofilters and air scrubbers to treat air exiting the facility, reducing pollutants like ammonia and hydrogen sulfide.</li> <li>• Manage wastewater efficiently through regular maintenance of wastewater systems.</li> </ul> <p><b>Indoor air quality:</b></p> <ul style="list-style-type: none"> <li>• Ensure adequate ventilation to dilute and remove airborne contaminants. Use high-quality air filters to capture particulates, which can carry airborne viruses and microbes.</li> <li>• Maintain appropriate temperature and humidity levels, which are crucial for controlling airborne pathogens and maintaining worker and product safety.</li> <li>• Regularly sample and test the air for microorganisms and pollutants to identify areas needing improvement and ensure the effectiveness of control measures.</li> <li>• Use air cleaners or other methods to create clean air zones within production areas to protect workers.</li> </ul>
<p><b>Infrastructure services</b></p>	<ul style="list-style-type: none"> <li>• Maintain a strict one-way flow of materials (from "clean" to "dirty" areas) to prevent cross-contamination. This applies to personnel, equipment, and ventilation airflow.</li> <li>• It is recommended that alternative and renewable sources of energy be explored and introduced into the proposed development to reduce dependency on the grid.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
	<ul style="list-style-type: none"> <li>• Solar geysers and panels, and biogas should be introduced to provide for general lighting and heating of water and buildings.</li> <li>• Other ‘green’ technologies to reduce the proposed development’s dependency on fossil fuel should be explored where possible.</li> <li>• Designs and building materials should be as such to reduce dependency on artificial heating and cooling in order to limit the overall energy necessities.</li> <li>• Water saving mechanisms should be incorporated within the proposed development’s design and plans in order to further reduce water demands.</li> <li>• Re-use of treated waste water should be considered wherever possible to reduce the consumption of potable water.</li> <li>• Introduce energy management systems, in the development, as well as energy saving awareness to encourage energy wastage.</li> <li>• Implement a written Cleaning and Disinfection (C&amp;D) policy using approved detergents and disinfectants.</li> <li>• Regularly test the effectiveness of your C&amp;D protocols.</li> <li>• Perform Minimum Inhibitory Concentration (MIC) tests on new disinfectant batches to ensure they are effective against the specific microorganisms (e.g., Aspergillus, E. coli) present in the rearing and laying facility.</li> <li>• Keep drains clean.</li> <li>• Adhere to water quality guidelines in terms of The Water Resources Management Act 11 of 2013.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Generation of noise.</b>	<p>Although the rearing and laying facility is situated in an agricultural farmland away from residential "sensitive receptors", the following noise management controls must be ensured:</p> <ul style="list-style-type: none"> <li>• The site workers and contractors will adhere to the requirements of the Labour Act Nr 11 of 2007 regarding hearing protection and noise control measures.</li> <li>• Regular maintenance of vehicles, back-up generators, ventilation fans, feeding machines, and other mechanical equipment.</li> <li>• All equipment and machinery should be fitted with adequate silencers.</li> <li>• Enforce a policy that engines must be switched off when vehicles are not in use.</li> <li>• No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site.</li> <li>• Enclose noisy operations or place them within dedicated rooms to isolate the noise source.</li> <li>• Implement careful handling methods to minimize stress and noise caused by frightened animals.</li> <li>• Organize catching and transport logistics to minimize unnecessary vehicle manoeuvring and impact noise from cages or pallets.</li> <li>• If work is to be undertaken outside of normal work hours, permission must be obtained from the ECO and the rearing and laying facility manager.</li> <li>• Conduct noisy activities, like litter removal or generator testing, during normal daytime working hours. No noisy work is to be conducted over the weekends or on public holidays.</li> </ul>

<p><b>Surface and Ground Water</b></p>	<ul style="list-style-type: none"> <li>• A no-go buffer area of at least 50 m should be allocated to nearby streams or drainage lines in the area.</li> <li>• Implementing water-saving technologies, such as high-pressure hoses for cleaning, to reduce the overall volume of wastewater generated.</li> <li>• Removing large organic solids (i.e., feathers, large organic matter) through screens and sieves to reduce the initial organic load.</li> <li>• Separating fats, oils, and grease and suspended solids through methods like flotation and settling.</li> <li>• No dumping of waste products of any kind in or in close proximity to streams or drainage lines.</li> <li>• Contaminated runoff from the various operational activities such as liquid effluent, greases, fuels, oils etc. should be prevented from entering any surface or ground water bodies, and where these occur, that they are appropriately and immediately dealt with.</li> <li>• Ensure that surface water accumulating on-site are channelled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment.</li> <li>• No wastewater should be discharged directly into the environment.</li> <li>• All toilets must be flush-type and be linked to their own French Drain/Septic Tank.</li> <li>• Users to be educated not to flush foreign objects down the toilet.</li> <li>• The service infrastructure should be designed and constructed by suitably qualified engineering professionals.</li> <li>• Develop and implement a preventative maintenance plan for the service infrastructure.</li> <li>• Drip trays must be placed underneath heavy vehicles and machinery when not in use to contain all oil that might be leaking from this equipment.</li> <li>• Should it be necessary to wash equipment this should be done at an area properly suited and prepared to receive and contain polluted water.</li> <li>• Disposal of waste from the various activities should be disposed of properly at the designated landfill.</li> <li>• Prevent fuel spills: look at work practices, staff training, equipment and storage.</li> <li>• Consider the use of environmentally friendly degreasers for washing and cleaning.</li> <li>• In the instance of an accidental fuel spill, the spill should be contained as far as possible.</li> <li>• Implementing a robust monitoring program for both treated effluent quality and nearby groundwater boreholes to ensure early detection of any contamination.</li> </ul>
<p><b>Waste management.</b></p>	<ul style="list-style-type: none"> <li>• Develop a waste management plan.</li> <li>• Take note that hazardous waste includes litter, mortalities, ash, empty hazardous chemical substance containers, soil and material (e.g., cloths) contaminated by hazardous chemical substances, etc.</li> </ul>

- The waste management plan should consider the type of waste, description, source, storage, disposal method, disposal facility and responsible person.

**The implementation of the waste management plan should ensure:**

- Waste segregation (separating solid and liquid waste) at the source
- Do not wash manure directly into storm drains or rivers.
- Implement an approved sustainable waste management technology. Examples are incineration; biogas energy production; integrated farming fertiliser).
- Use on-site or approved off-site incinerators to thermally destroy waste, this reduces volumes and eliminates pathogens.
- Dispose of waste at an approved disposal facility or site.
- Installation of sufficient waste bins, skips or bulk containers, where necessary.
- All containers (bins, skips or bulk containers) shall be kept in a clean and hygienic manner.
- Containers (bins, skips or bulk containers) utilised for the disposal of general and hazardous waste must be demarcated accordingly.
- Waste material may only be temporarily stored at areas demarcated for such storage.
- Waste from the facility shall be stored in designated leak-proof containers. It should also be refrigerated where necessary to prevent decomposition and odour issues.
- Wastewater from the facility must be thoroughly treated before discharge.
- General and hazardous waste should always be stored and disposed of separately.
- General and hazardous waste should be disposed of in appropriately demarcated bins. Bins are then emptied into appropriately demarcated skips or bulk containers once a day or more often, if required.
- Skips or bulk containers for general waste should be removed to a nearby landfill site on a weekly basis or more often, if required.
- If waste from the facility must be landfilled, it should only be done in adequately lined landfills with leachate and gas collection systems. Safe disposal certificates should be requested from landfill sites with every waste disposal.
- These safe disposal certificates should be kept on file to illustrate compliance with the cradle to grave principle.
- Permits are to be obtained from relevant authorities to allow landfilling.
- The ECO shall monitor the compliance with the cradle to grave principle.

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Biosecurity</b>	<ul style="list-style-type: none"> <li>• Ensure controlled access to rearing and production sites.</li> <li>• Ensure strict segregation of staff, equipment, and vehicle movement between sites.</li> <li>• Implement scheduled sanitation and disinfection protocols.</li> <li>• Maintain comprehensive vaccination programmes and ongoing flock health monitoring</li> </ul> <p>Note: The management of chicken mortalities should be included in the waste management plan.</p> <p><b>Temporary storage of mortalities:</b></p> <ul style="list-style-type: none"> <li>• The temporary storage area for mortalities must be a covered area that has access control, preventing the unlawful removal of mortalities. In the event of temporary storage, mortalities must be stored in sealed bins prior to disposal.</li> </ul> <p><b>Disposal of mortalities:</b></p> <ul style="list-style-type: none"> <li>• Mortalities must be disposed of as soon as possible.</li> </ul> <p><b>Disposal of mass mortalities in the event of a disease outbreak:</b></p> <ul style="list-style-type: none"> <li>• Notify the state vet.</li> <li>• The state vet must visit the site.</li> <li>• The state vet will place the property, or the specific chicken site or house that is infected, under quarantine.</li> <li>• Depending on the disease and severity, the chickens can be slaughtered on site or transported to a hatchery with a permit.</li> <li>• Alternatively, mortalities can be covered with lime and buried.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Run off of contaminated water</b>	<ul style="list-style-type: none"> <li>• The rearing and laying facility is cleaned after each cycle.</li> <li>• High-pressure hoses should be used in the washing of the facility and equipment, to minimise the amount of water used.</li> <li>• Wash and sanitise the facility and equipment with biodegradable soaps and disinfectants.</li> <li>• Use biodegradable soaps and disinfectants in the footbath and showers.</li> <li>• Use biodegradable soaps and disinfectants for washing of vehicles.</li> <li>• Do not dispose the wash water from cleaning the rearing and laying facility into the environment.</li> </ul>
<b>Stormwater management</b>	<ul style="list-style-type: none"> <li>• Clean storm water runoff from the surrounding environment must be channelled away from “dirty” areas. These “dirty” areas include chemicals storage areas and all waste storage areas.</li> <li>• Clean storm water should be diverted and kept in the environment surrounding the site.</li> <li>• Storm water measures should be inspected on a regular basis in order to ensure that the structures are functional and not causing soil erosion.</li> <li>• Where necessary place culverts underneath road foundations.</li> </ul>

<p><b>Hazardous substances</b></p>	<ul style="list-style-type: none"> <li>• Identify all chemical substances used onsite including fuel, greases, vaccines, detergents etc.</li> <li>• Obtain the material safety data sheet of each of these chemical substances.</li> <li>• Ensure that the material safety data sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment.</li> <li>• Material Safety Data Sheets for all hazardous chemical substances must be readily available on site.</li> <li>• Develop and implement a dangerous goods management plan based on the material safety data sheets of all identified chemical substances and the Hazardous Substances Ordinance (No. 14 of 1974).</li> <li>• Keep a stock inventory register of all chemicals in the store.</li> <li>• Powders must be stored above liquids.</li> <li>• Proper storage of chemicals in a lockable, well-ventilated building.</li> <li>• Ensure adequate access control for the storage area.</li> <li>• Storage areas for hazardous chemicals are to comply with standard fire safety regulations.</li> <li>• Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals.</li> <li>• Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.</li> <li>• Chemicals are to be properly labelled and handled in a safety conscious manner.</li> <li>• All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).</li> <li>• Ensure that diesel or fuel tanks are in a bunded area with capacity of holding 110% of the total storage volume.</li> <li>• The removal of only the daily-required amount of chemicals to be used from the shed.</li> <li>• If refuelling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.</li> <li>• Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis.</li> <li>• Ensure that any spilled chemical cannot exit the designated storage area by constructing a berm or bump at the exit, or store chemicals in a spill tray.</li> <li>• Immediately clean all spillage of fuels, lubricants and other petroleum-based products.</li> </ul>
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## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
	<ul style="list-style-type: none"> <li>• The contaminated material must be disposed of in accordance with the waste management procedure.</li> <li>• No hazardous chemical must be discarded in the sewage or storm water system.</li> <li>• Train staff on the use of chemicals in accordance with the risks as described in the material safety data sheets.</li> <li>• Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site.</li> </ul>
<b>Hydrocarbon pollution of soil, surface – and groundwater.</b>	<ul style="list-style-type: none"> <li>• Inspection and maintenance of equipment, generators and vehicles owned by the proponent shall take place on a regular basis.</li> <li>• Designated personnel shall inspect vehicles (such as those that belong to the proponent) on entering the facility to ensure vehicles are in sound condition. This will reduce the risk of oil or diesel spillages.</li> <li>• Equipment, generators and vehicles are to be repaired immediately upon developing leaks.</li> <li>• Generators must be stored on a concrete floor in a bunded area.</li> <li>• Drip trays shall be supplied for all repair work undertaken on machinery on site.</li> <li>• Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to contain incidental spills and pollutants.</li> <li>• Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.</li> <li>• Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.</li> <li>• Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site.</li> <li>• If refuelling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.</li> <li>• All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Unsanitary conditions on site.</b>	<ul style="list-style-type: none"> <li>• Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers. The location of toilets is to be approved by the ECO prior to site establishment, but shall be located within 100m of any work point.</li> <li>• Ablution facilities shall be inspected and maintained to prevent or minimise blockage and leakages.</li> <li>• Ablution facilities are to be serviced weekly or more frequently if required.</li> <li>• Toilets should have properly closing doors and should have toilet paper at all times.</li> <li>• Awareness of the importance of proper hygiene should be created among employees.</li> <li>• Excreting anywhere other than in the toilets shall not be allowed.</li> <li>• A septic tank system should be considered instead of French drains.</li> </ul>
<b>Outbreak of poultry diseases.</b>	<ul style="list-style-type: none"> <li>• Quarantine affected zone, notify vet, conduct rapid testing.</li> <li>• Enhance protocols by disinfecting footbaths, enforcing PPE, limiting access and prioritizing egg handling hygiene to prevent pathogen spread via eggs.</li> <li>• Isolate sick birds; consider partial culling of only affected unit if biosecure and risk-assessed</li> <li>• Apply zoning to create separate epidemiological units.</li> <li>• Remove all organic matter; use advanced methods like compressed air foam systems and verify with microbiological sampling.</li> <li>• Focus on decontaminating egg belts, collection areas, and processing equipment at the laying site.</li> <li>• Chicks from another farm should not be mixed with chicks from the rearing and laying facility.</li> <li>• Access control to and from the premises and access to the premises should only be by prior arrangement.</li> <li>• Review biosecurity plan, conduct regular audits, implement vaccination programs.</li> <li>• Never permit contaminated equipment from other poultry farms in the buildings.</li> <li>• Clean and sanitise the facility and equipment after each cycle with biodegradable soaps and disinfectants.</li> <li>• Monitoring and auditing of processes by a contracted veterinarian or State Vet.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Inefficient and redundant use of electricity.</b>	<ul style="list-style-type: none"><li>• Ensure that all employees have been informed on the importance of natural resources (proper environmental training and awareness).</li><li>• Inspect operations regularly to determine areas of improvement with regards to resource consumption.</li><li>• Monitoring of resource consumption.</li><li>• Identify areas where resource consumption can be minimised.</li><li>• Set targets to try and minimise resource consumption.</li><li>• Identify technologies and practices that may reduce resource consumption.</li><li>• Implementation of technologies and practices that can reduce resource consumption.</li><li>• Save electricity by turning off lights and computers when leaving the office.</li><li>• Halogen light bulbs convert approximately 80% of the energy used into heat rather than light. Replace spent light bulbs with energy saving CFLs (compact fluorescent lights) or newer and more efficient LEDs (light-emitting diodes).</li></ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<p><b>Inefficient and redundant use of water.</b></p>	<ul style="list-style-type: none"> <li>• Ensure that all employees have been informed on the importance of natural resources (proper environmental training and awareness).</li> <li>• Regular Monitoring of resource consumption by supervisors.</li> <li>• Inspect operations regularly to determine areas of improvement with regards to resource consumption.</li> <li>• Regular maintenance and inspection of equipment such as hose pipes, to prevent leaks.</li> <li>• Identify areas where resource consumption can be minimised.</li> <li>• Set targets to try and minimise resource consumption.</li> <li>• Identify technologies and practices that may reduce resource consumption.</li> <li>• Implementation of technologies and practices that can reduce resource consumption.</li> <li>• Use high pressure hoses to clean the facility and equipment.</li> <li>• Regular inspection and maintenance of all boreholes, water tanks, toilets, water pipes and taps.</li> <li>• Leaking water tanks, taps, toilets and pipes must be repaired immediately.</li> <li>• Running water taps and pipes may not be left unattended.</li> <li>• Each time you flush the toilets approximately 20 litres of water is used, therefore use the toilets wisely.</li> <li>• All pipe, hose and tap connections are to be fitted with correct and appropriate plumbing fittings.</li> <li>• Ensure that Water Abstraction permits are in place and kept current.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Wastewater &amp; Effluent</b>	<ul style="list-style-type: none"> <li>• Discharge of wastewater into the environment is prohibited.</li> <li>• The septic tank system shall be kept in a good state of repair at all times.</li> <li>• Seepage of the septic tank into the underground should be avoided at all costs.</li> <li>• Obtain relevant permits for the installation of septic tank system.</li> <li>• Ensure effluent and wastewater are treated before they are disposed of.</li> <li>• Ensure any wastewater and effluent meets the Water Quality Guidelines in terms of the Water Resources Management Act, 2013.</li> <li>• In the instance that they become full, effluent should be disposed of at a proper sewage works e.g., Stampriet Village Council Wastewater Works.</li> <li>• Official arrangements to that effect should be in place (in writing).</li> </ul>
<b>Visual and Sense of Place</b>	<ul style="list-style-type: none"> <li>• The structures on the site have to be aesthetically pleasing and designed to blend in with the natural surrounds.</li> <li>• It is recommended that more ‘green’ technologies be implemented within the architectural designs and building materials of the structures where possible in order to minimise the visual prominence of such a development within the more natural surrounding landscape.</li> <li>• Natural colours and building materials such as wood and stone should be incorporated as well as the use of indigenous vegetation in order to beautify the development.</li> </ul>

## OPERATIONAL PHASE IMPACTS

Impact	Mitigation Measures
<b>Health, Safety and Security</b>	<ul style="list-style-type: none"> <li>• Ensure that all personnel are properly trained depending on the nature of their work.</li> <li>• Provide for first aid kit, and properly trained personnel to apply first aid when necessary.</li> <li>• A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases.</li> <li>• Provide free condoms in the workplace.</li> <li>• Facilitate access to Antiretroviral medication.</li> <li>• Restrict unauthorised access to the site and implement access control measures</li> <li>• Clearly demarcate dangerous areas and no-go areas on site.</li> <li>• Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures.</li> <li>• The proponent must comply with all applicable occupational health and safety requirements.</li> </ul>
<b>Social</b>	<ul style="list-style-type: none"> <li>• Ensure locals enjoy priority in terms of job opportunities for skills that are available locally, to the extent possible.</li> <li>• Ensure local procurement where commodities are available locally.</li> </ul>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>• Limit and control the number of access points to the site.</li> <li>• Ensure that road junctions have good sightlines.</li> <li>• Adhere to the speed limit.</li> <li>• Implement traffic control measures where necessary.</li> <li>• Minimise the movement of heavy vehicles during peak time.</li> </ul>
<b>Townplanning</b>	<ul style="list-style-type: none"> <li>• Ensure compliance to the Stampriedt Village Town Planning Scheme.</li> <li>• Project footprint to be limited to the approved Erf/Portion boundaries.</li> </ul>

## **10 DECOMMISSIONING PHASE**

The viability of the establishment of the rearing and laying facility is based on the increased demand for chicken in Namibia. This is driven by an ever-increasing population and a high reliance of food imports from outside of the country. It is therefore highly unlikely that the facility will be decommissioned and closed in the foreseeable future. However, if closure is considered, an extensive closure and rehabilitation plan will be drafted and sent to the Environmental Commissioner prior to commencement.

## **11 CONCLUSION AND RECOMMENDATIONS**

In general, the proposed development would pose limited environmental and social risks. The site is generally suitable for the proposed rearing and laying facility. All environmental risks can be minimised and managed through implementing preventative measures and sound management systems. It is recommended that this information be made available to the community on a regular basis.

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed development. Monitoring of surface and groundwater pollution should be conducted on a regular basis. Environmental audits should be carried out on a regular basis to ensure compliance of the EMP and environmental regulations of Namibia. Parties responsible for non-conformances of the EMP will be held responsible for any rehabilitation that may need to be undertaken.

## 12 REFERENCES

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