INTERDESIGN
LANDSCAPE ARCHITECTS

PRETORIA
410 Pauline Spruijt Street, Garsfontein x 8, 0081
P.O. Box 74648, Lynnwood Ridge, 0040
Tel: +27 12 348 1922, Fax: +27 12 348 7154
Email: info@ilaweb.co.za, Website: www.ilaweb.co.za

PIET RETIEF
P.O. Box 992, Piet Retief, 2380

DRAFT BASIC ASSESSMENT REPORT:

PROPOSED UPGRADE OF A POULTRY FACILITY ON PORTION 75 OF THE FARM DOORNKLOOF 393-JQ IN HEKPOORT, MOGALE CITY LOCAL MUNICIPALITY, GAUTENG PROVINCE

GDARD REF NO: 002/15-16/E0181

15 March 2016

Applicant: Wild River Transport CC

Environmental Assessment Practitioner: Interdesign Landscape Architects

Contact Person : Mr Mazolo Dube / Mrs Shalini Chetty

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.

2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**

4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**

5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.

6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

8. An incomplete report may lead to an application for environmental authorisation being refused.

9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**

10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.

11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.

12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:	
File Reference Number:	
Application Number:	
Date Received:	

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

N/A

Is a closure plan applicable for this application and has it been included in this report?

if not, state reasons for not including the closure plan.

N/A

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? YES

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? Refer to ***Annexure E10*** for the distribution list YES

If no, state reasons for not attaching the list.

N/A

Have State Departments including the competent authority commented? NO

If no, why?

Not yet, as this is a draft version currently under review by interested and affected parties including state departments. Any comments received from state departments after the 30 days review period will be incorporated into the final report.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

Proposed Upgrade of a Poultry Facility on Portion 75 of the Farm Doornkloof 393-JQ in Hekpoort, Mogale City Local Municipality, Gauteng Province

Select the appropriate box

The application is for an upgrade of an existing development	X	The application is for a new development		Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	

If yes, describe the legislation and the Competent Authority administering such legislation

Water Use Authorisation in terms of Section 21 (a), (c), & (i) of the National Water Act, 1998 (Act No. 36 of 1998), as amended

		NO
If yes, have you applied for the authorisation(s)?		
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	NO

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)	National & Provincial	01 July 2009
National Water Act (Act 36 of 1998)	National & Provincial	20 August 1998
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	National & Provincial	01 September 2004
National Environmental Management Air Quality Act, 2004 (Act No.39 of 2004)	National & Provincial	11 September 2005
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	National & Provincial	01 January 1994
Conservation of Agricultural Resources Act (Act 43 of 1983)	National & Provincial	21 April 1983
National Veld and Forest Fire Act (Act 101 of 1998)	National & Provincial	27 November 1998
Animal Health Act (Act No.7 of 2002)	National & Provincial	24 July 2002
Animal Protection Act (Act No. 71 of 1962), as amended	National & Provincial	16 June 1962
Animal Diseases Act (Act No. 35 of 1984)	National & Provincial	20 March 1984
National Organic Waste Composting Strategy: Draft Guideline Document for Composting	National & Provincial	February 2013
Gauteng Provincial Integrated Waste Management Policy	Provincial	September 2006
Gauteng Provincial Environmental Management Framework	Provincial	22 May 2015
Gauteng Agriculture Development Strategy	Provincial	February 2006
Gauteng Rural Development Strategy	Provincial	02 June 2010
West Rand District Municipality – Environmental Management Framework Revision 2	District Municipality	June 2013

WRDM Bioregional Plan	District Municipality	November 2011, revised March 2014
West Rand District Municipality: Air Quality Management By-laws	District Municipality	31 May 2012
West Rand District Municipality: Spatial Development Framework	District Municipality	11 May 2014
Mogale City Spatial Development Framework	Local Municipality	December 2009
Mogale City Rural Development Strategy	Local Municipality	June 2012
Mogale City Integrated Development Plan 2015/ 2016	Local Municipality	June 2015
Magaliesberg Precinct Plan	Local Municipality	2011

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	The proposed upgrade of the poultry facility is a listed activity in terms of Government Notice R 983 & 985, for which a Basic Assessment process is required as part of the application for environmental authorisation.
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)	The proposed upgrade of the poultry facility will result in additional organic waste being generated during the operational phase, mainly chicken litter and mortalities, which needs to be safely managed or disposed in terms of the NEM:WA. However, no waste will be stored, treated, or disposed on site.
National Water Act (Act 36 of 1998)	The proposed upgrade and operation of the poultry facility will require additional water supply, to be made available through the drilling of additional boreholes. Furthermore, the proposed formalisation of the existing access gravel road involves widening of the existing box culvert bridge, which requires authorisation in terms of Section 21(c) & (i) of the NWA.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Certain plant species identified on site are classified as invasive in the NEM:BA - Alien and Invasive species Regulations, 2014.
National Environmental Management Air Quality Act, 2004 (Act No.39 of 2004)	Odour emissions from chicken manure are likely to increase as a result of the upgraded facility should preventative measures not be taken.
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	The health and safety of workers and employees during the construction and operation of the facility is regulated in terms of the applicable statutes of the OHSA.
Conservation of Agricultural Resources Act (Act 43 of 1983)	Certain alien and invader plant species identified on site, requiring control or eradication, are regulated in terms of CARA.
National Veld and Forest Fire Act (Act 101 of 1998)	Due to the propensity of vegetation to easily catch fire and spread to surrounding properties on farms, the land owner is required to maintain firebreaks as regulated in the NVFF.
Animal Health Act (Act No.7 of 2002)	Regulates animal health and control of diseases in poultry and other animals. Section 17 of the Act imposes a duty of care on the animal owners to take all reasonable

	steps in preventing the infection or spread of animal diseases.
Animal Protection Act (Act No. 71 of 1962), as amended	The Act provides rules or laws aimed at the protection of animals against negligent practices that may endanger the welfare and safety of animals.
Animal Diseases Act (Act No. 35 of 1984)	The Act requires owners or managers of animals to provide adequate measures for the control of animal disease and parasites, to promote animal health, and for matters connected therewith.
Gauteng Provincial Integrated Waste Management Policy	The GPG-IWMP advocates for a hierarchical approach to waste management through waste avoidance, reuse, reduction, recycling, and treatment, prior to disposal.
Gauteng Provincial Environmental Management Framework	The proposed development site is in *Zone 4: Normal Control Zone* suitable for agricultural related development.
Gauteng Agriculture Development Strategy	One of the main purpose of the GADS is to maximize the contribution of the agricultural economy to job creation, poverty alleviation and economic growth in Gauteng. Agro – processing and bio-technology are identified as the one of the six provincial priority growth sectors.
Gauteng Rural Development Strategy	The GRDS has identified a number of strategic interventions to improve food production in Gauteng, and one of these includes increasing livestock productivity and quality for domestic and export markets.
West Rand District Municipality – Environmental Management Framework Revision 2	The development site is situated outside the urban edge in a rural area, and the soils are classified as of low agricultural potential. In terms of ecological sensitivity, the development site is traversed by a seasonal stream and therefore the entire length and its floodplains are classified as an Ecological Support Area.
WRDM Bioregional Plan	The development site is not within any critically endangered or threatened ecosystem in terms of the WRDM-BP. According to the CBA Map for WRDM the seasonal stream and its buffer zone is classified as an Ecological Support Area 1 – which means it is largely natural or near-natural, and required to remain in at least a functional state for the maintenance of ecological processes. Therefore no activities are allowed anywhere within its 100m buffer zone.
West Rand District Municipality: Air Quality Management By-laws	According to the By-laws the entire district is declared an air pollution control zone. Section 10 of the By-law requires any person installing or replacing an incinerator to apply for authorisation from the Council. Further, Section 11 requires any person conducting activities which usually produce emissions of dust, offensive fumes/odours

	that may be harmful to public health, well-being and/or cause nuisance to take control measures to prevent or minimise such emissions into the atmosphere. Emissions that cause a nuisance are also prohibited in terms of Section 20 of the By-laws.
West Rand District Municipality: Spatial Development Framework	The development site falls within a rural node in the northern parts of the district between Hekpoort (R560/R563) and Magaliesberg (R24). In terms of the Management Zones, the area is zoned agriculture, surrounded with pockets of land zoned conservation.
Mogale City Spatial Development Framework	The Land uses and Cover Map indicates the development sites is on cultivated: temporary-commercial dry land. In terms of spatial planning, the development site is located in a rural area between the rural canters of Hekpoort and Magaliesberg. Agriculture is the dominant land use and the development of cooperatives, commonages and agri-villages are the main initiatives proposed in the SDF. Central to this is the development of the rural centres to provide much needed services to surrounding rural communities.
Mogale City Rural Development Strategy	MCM's role in terms of the RDS is to create a business environmental for rural development through support of locally developed initiatives, programs, plans and projects. The proposed development site falls within the approved Magaliesberg Precinct Plan. Agriculture is recognised as the main activity in the area.
Mogale City Integrated Development Plan 2015/ 2016	The IDP recognises the importance of rural development through agrarian support and reform. The goals and strategies envisaged in the Rural Development Strategy are therefore still an important part of the Mogale City's IDP.
Magaliesberg Precinct Plan	The proposed upgrade of the poultry facility is in line with the development priorities of the MPP as it conforms with the rural character of the area. The development site occurs in an area designated for Environmental Oriented Development. These areas are in close proximity to environmental sensitive features such river ways, and only residential, agriculture and tourism related activities designed in an environmentally friendly way are supported. Primary agricultural activity, as well as related secondary activities such as agri-processing are considered as one of the key agricultural drivers in the area.

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of

whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

The existing poultry facility houses approximately 112 000 broilers/cycle in four poultry houses, each measuring 120m(L) by 12m(W), and with a holding capacity of 28 000 broilers at any given time in the breeding cycle. The poultry farm owner and applicant, Wild River CC, plans to upgrade the facility by constructing four additional poultry houses on a vacant piece of land west of the existing poultry facility within the farm boundary. Each of the four additional poultry houses will measure approximately 132m(L) by 16m(W), with a combined development footprint of 8500 square metres and with enough capacity to house 142 000 broilers/cycle. This will increase the total production of broilers/chickens on the farm to 254 000/cycle. Refer to ***Appendix A2*** for the preliminary Site Development Plan of the proposed upgrade.

According to the applicant, the existing poultry facility has been in operation since 1969.

The first step in trying to come up with feasible alternatives was to identify in consultation with the farm manager, the main resource constraints in broiler production, and these include:

- Availability of land;
- Adequate electricity supply or energy;
- Adequate water supply; and
- Enough capacity for effective and sustainable waste management (chicken manure and mortalities).

The farm has available vacant land on the western side of the existing poultry facility, enough to accommodate the new proposed poultry houses. However, there is no any other available land that can be possibly considered as an alternative site for the new proposed poultry houses.

Due to the current electricity and water supply shortages, the business as usual approach is no longer sustainable and chicken farmers are slowly adopting resource efficient technologies that minimise demand on electricity and water supply. With energy costs on a continual upward curve, it makes sense for poultry farmers to make their operations more energy efficient – any energy savings investments and measures employed today to offset rising electricity costs will be recouped in the future.

Modern fast growing broilers are more dependent on suitable environmental conditions and therefore suitable broiler poultry housing is very important for commercial and profitable production. A number of alternative poultry houses that create suitable environmental conditions while optimising resource efficiency and reducing demand are available in the South African market, and these include:

1. Open Broiler Houses (OBH) (naturally ventilated) – houses have open sides with winched curtains. Placement 15 birds / square meter.

2. Closed Environmentally Controlled Broiler Houses (CBH) – houses are closed totally and the environment is controlled automatically. Placement 22.5 birds / square meter.

3. Semi-closed Broiler Houses (SBH) – houses have open sides with winched curtains and the environment is controlled automatically. Placement 22.5 birds / square meter.

The main purpose of poultry housing is to provide chickens with a healthy, comfortable environment to ensure optimal production at an affordable price. Cost and efficiency of production therefore plays an important role when deciding on a particular type of housing.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	Proposal	**Open Broiler Houses (naturally ventilated)** – have open sides with winched curtains. Placement 15 birds / square meter. The proposed four poultry houses, each measuring 15m (Width) x 132m (Length), will be constructed from brick, clay, timber, and corrugated zinc sheets. The 1980m^2 poultry house will be able to accommodate 35 600 broiler chickens at 18 birds/m^2. This will tally to an additional 142 000 birds / cycle, increasing the total production per cycle to 254 000 birds. The area between the walls and the roof will be covered with a wire netting and curtains to ensure sufficient air flow to keep the birds cool in hot weather and keep the litter dry and fresh. The curtains, which are made of strong plastic (Polyethylene), can be unrolled during cold windy days to cover the wire netting to prevent the chicks getting cold (see photo in ***Figure 1***). The wire netting also helps to keep vermin, wild birds, dogs and thieves out.  **Figure 1:** One of the existing poultry houses with rolled up polyethylene curtains **Ventilation** The open houses are ventilated through the open sides, and the long open side is normally exposed to the prevailing wind direction. Curtains can be used to protect the birds from cold air, and direct sun radiation by covering the exposed area only. Corrugated sheets can easily heat up during summer thereby raising the temperature inside the poultry houses. The problem is solved by an opening in the ridge of the roof to let out the hot air, or by a cooling effect. Controlling natural ventilation is more difficult than artificial method. **Temperature**

The ideal temperature to be maintained in broiler houses is between 18˚C and 25 ˚C day and night and the humidity of less than 65%.The correct temperature and ventilation helps the broilers to grow at the maximum rate.

The poultry houses will be insulated with suitable material to maintain the required optimal temperatures particularly during the cold winter months. However, temperatures can drop to as much as below 2˚C during winter which makes it impossible to keep the poultry houses naturally warm. The heating system currently used in the existing poultry houses comprises of coal fired heaters with electric fans. The same heating system will be extended to the new poultry houses.

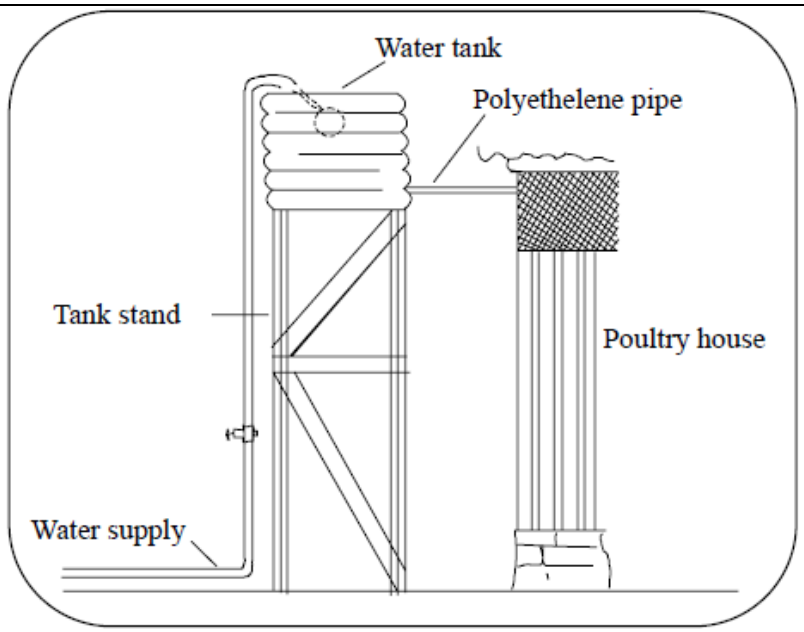
Water Supply

Water requirements for the existing poultry facility are from two existing boreholes, and each bird needs approximately 20mm to 25mm linear watering space, or 15 litres drinking water per 50 broilers.

Water is pumped into a series of jojo storage tanks with a combined storage capacity of 5000 litres where it is then gravity fed into a network of pipes connected to the poultry houses (***Figure 2***). An automatic drinker system is used that minimises spillages.

Figure 2: Existing water storage tanks and electrical pump, which supply water to the existing poultry houses

The existing borehole yield and capacity is insufficient to meet the additional water supply demand of the new poultry houses, therefore, the drilling of two new additional boreholes is being proposed as part of the upgrade subject to confirmation on the groundwater hydrology. The necessary hydrological investigations to determine the groundwater volume and yield capacity will be conducted as part of the water use licence application process.



Electricity supply

Electricity supply to the poultry facility is currently from the Eskom grid through an existing sub-station. The capacity of the sub-station to meet the additional demand for electricity supply to the new proposed poultry houses is still subject to confirmation by an electrical engineer, but the applicant had already submitted an application to Eskom in this regard (refer to ***Appendix I1***). A 120 Kw diesel powered generator is on standby in the event of a power cut.

Electricity in poultry production is primarily used for lighting, ventilation, and heating. Ventilation and heating are the major consumers of electricity.

Lights are essential in broiler poultry houses especially at night as this keeps the birds more active and warm during cold nights. Incandescent light bulbs are currently used in the existing houses, but energy efficient light bulbs are proposed for the new poultry houses. Infrared lights are also used to keep the birds warm at night.

Light intensity for the new chicks is normally high in the first 3 days to encourage them to start eating normally. Thereafter light intensity is normalised to provide adequate illumination for normal daily feed and water intake.

Waste Management

Chicken litter

The existing poultry houses have a deep litter floor system, and the chicken litter comprises of bedding material, manure, droppings, and feathers. Approximately 100 tons of chicken litter in bags is removed at the end of every growing cycle from the existing poultry houses and immediately taken off-site for composting by a registered waste service provider. No chicken litter is stored on site at any point in time during the production cycle. Refer to ***Appendix I2*** for confirmation on the service provider and the method used in removing the litter.

Wastewater

After the chicken litter has been removed, the floors are thoroughly cleaned and disinfected with clean water and the wastewater from the cleaning

process is collected in buckets and poured onto the kikuyu grass (*Pennisetum clandestinum)* growing on berms and in-between the poultry houses. This aids in the spread of the kikuyu grass especially on vulnerable slopes. The wastewater is also used to water the existing farm workers garden.

However, wastewater from the new poultry houses will be detained in concrete basins to be constructed for each poultry house, and reused where necessary.

Mortalities
The current production cycle mortality rate is estimated to be between 3% and 8%. Mortalities are removed from the houses and placed in a sealed and scavenger proof receptacle situated outside the bio-security area. The mortalities are collected on a daily basis by the contracted waste services provider and transported to a registered rendering facility. However, a mortality pit exists on site as a backup measure or in the event of an emergency. The mortality pit is located down gradient outside the biosecurity area, and comprises of an enclosed and non-corrosive steel underground tank for anaerobic conditions to prevail. The underground tank also acts as a barrier for any potential leachate seepage.

There no plans to install an additional mortality pit as the existing one has sufficient capacity, but should this be required another mortality tank will be installed next to the existing one.

Figure 3: Existing underground mortality tank on site (partially buried)

Odour emissions
Ammonia gas and other sources of odour in poultry houses are generated primarily during denitrification of manure and can be released directly into the atmosphere at any stage of the manure handling process, including through ventilation of buildings and manure storage areas. Ammonia gas levels also may be affected by the ambient temperature, ventilation rate, humidity, stocking rate, litter quality, and feed composition (crude protein). Ammonia gas (NH3) has a sharp and pungent odour and can act as an irritant when present in elevated concentrations.

In order to reduce odour nuisance, the existing poultry houses are cleaned and properly disinfected after every growing cycle and the chicken litter is immediately removed off site. The poultry houses are also well ventilated to reduce the build up of ammonia gases.

		The development site for the new proposed poultry houses has been selected taking into consideration distances to neighbours and prevailing wind direction. The nearest neighbours are located approximately 460m northeast, and are likely to be affected by the odour emissions as their property lies along the prevailing wind direction. Indigenous trees will be planted as windbreaks on the north to north-eastern boundary of the new poultry facility. In addition, measures currently used in the existing poultry operation to minimise odour emissions will also be extended to the new poultry houses. In a worst case scenario, urease inhibitors that reduce the conversion of nitrogen to ammonia will be utilised where practical. **Biosecurity** Biosecurity is of utmost importance to ensure healthy flocks perform according to the required standards. People movement is recognised as one of the main means of transmitting disease between flocks or farms. There are different aspects of biosecurity relating to people movement in poultry operations including physical biosecurity and procedural biosecurity. The existing poultry operation currently has both physical and procedural biosecuirity measures in place, which include, but not limited to: ▪ A secure security fence and gate with access control; ▪ Restrictions in visitors; ▪ Disinfection of vehicles entering the biosecurity area; ▪ Footwear disinfection; ▪ Transit facilities at the office for changing clothes; and ▪ Shower facilities. Similar biosecurity measures will be implemented for the new poultry houses. The proposed Open Broiler Houses have following advantages and disadvantages compared to the CBH and SCBH. **<u>Advantages</u>** ▪ Low capital expenditure and high return on investment if properly managed; ▪ Low operational and maintenance costs; ▪ Labour intensive thereby contributing to job creation; ▪ Less reliance on electricity which in turn reduces demand on the local grid; and ▪ Easy to operate and maintain- no complex automated equipment **<u>Disadvantages</u>** ▪ Highly dependent on variable climatic or weather conditions which makes the entire operation unpredictable and unreliable; ▪ High mortality rates due to difficult in maintaining optimal conditions in the poultry houses; ▪ Potential for odour emissions due to poor ventilation; ▪ Low feed conversion ratio; ▪ High monitoring frequency; ▪ Energy intensive heating required especially during winter; ▪ High water usage and feed loss due to non automated drinking and feeding systems; and ▪ Inefficient record system – non computerised.
2	Alternative 1	Closed Environmentally Controlled Broiler Houses (CBH) are totally closed and the environment is controlled automatically. Placement 22.5 birds / square meter. The Closed Broiler Houses have a series of automated controls that regulate temperature, humidity etc. through the use of fans and misters and vents. The settings used on the controller can be changed to suit the optimal

		environment and circumstances. ▪ Thermostatically temperature control: Low temperature is controlled with the help of heaters and high temperature with evaporative cooling system. ▪ Watering through automatic nipple drinking system ▪ Feeding through automatic feeding system. ▪ Computerized record will be maintained for feed intake, body weight, FCR and mortality. Environmental controlled broiler houses with solid side walls are more energy efficient than houses that are open- sided with curtains. Regardless of the type of house, thermal insulation can be improved by ensuring that there is adequate ceiling insulation. However, damaged insulation in the roof or walls should be repaired or replaced. The closed Environment Broiler Houses have the following advantages and disadvantages compared to open houses. **Advantages** ▪ Lower capital expenditure therefore increased return on investment; ▪ Increased food conversion. (As low as 1:1.5 reported by some); ▪ Decrease in mortalities (Averages of well under 5% are common); ▪ Pre-manufactured - Easy to assemble; ▪ Maintains uniform temperature around the clock providing conducive environment to the broilers avoiding fluctuation in the day and night temperature; ▪ Electricity cost savings; ▪ Reduced demand for water needs; ▪ Less management and labour requirements; ▪ Healthier livestock, less decease; and ▪ Increased profits, increased return on investment. **Disadvantages** ▪ The environmental houses require a good, steady source of electricity to maintain the systems. Standby generators are in most cases required for possible power failures; ▪ Needs to be properly insulated at all times which adds to the total maintenance costs; ▪ Automated and computerised systems require highly skilled labour; ▪ Less labour intensive thereby contributing less to job creation; and ▪ High operational and maintenance costs. ▪ Highly complex and specialised processes and equipment to maintain.
3	Alternative 2	Semi-closed Broiler Houses (SBH) – have open sides with winched curtains and the environment is controlled automatically. Placement 22.5 birds / square meter The SBH is often used where electricity is problematic – the curtains can be opened manually in case of a power outage or similar. On a closed system this is not possible, and if there is no backup power supply the birds will quickly die. **Advantages** ▪ Reliable in areas where security in electricity supply is a challenge; ▪ Suitable in hot climatic conditions such as South Africa; ▪ Temperature can be thermostatically controlled - Low temperature is controlled with the help of heaters and high temperature with

		evaporative cooling system; ▪ Flexibility to control conditions whenever unfavourable weather conditions prevail; ▪ Low capital expenditure and high return on investment; ▪ Low operational and maintenance costs; ▪ Predictable and reliable production targets can be achieved with optimal use of resources; ▪ Energy and electricity cost savings can be easily achieved; ▪ Energy and water efficient technology can be easily retrofitted; ▪ Decrease in mortalities; ▪ Skills development and training; and ▪ Facilitates better planning through reliable and predictable data; ▪ Reduced odour emissions. **Disadvantages** ▪ Highly skilled personnel is required to operate and monitor automated equipment; ▪ Potential increase in operational and maintenance costs if equipment is not properly maintained or serviced; ▪ Frequent and comprehensive monitoring is required to ensure optimal conditions.
	Etc.	

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	1 ha (0.85ha)
Alternatives:	
Alternative 1 (if any)	1 ha (0.85ha)
Alternative 2 (if any)	1 ha (0.85ha)
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	21 Ha
Alternatives:	
Alternative 1 (if any)	21 Ha
Alternative 2 (if any)	21 Ha
	Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	**YES**
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

Access to the farm is from the R465 which joins the R677 and R24 heading south towards Magaliesberg. The existing poultry facility occupies the entire eastern portion of the farm with an internal access gravel road which crosses in between the poultry houses heading south west to the feed mill and continues right around the vacant western portion (development site). This internal access gravel road needs to be formalised as part of the development as this is the only available access route for delivery and service trucks during the operational phase.

The internal access gravel road will be widened enough to accommodate large trucks and compacted with gravel stones to prevent the formation of potholes. Furthermore, the existing crossing over the spruit will be removed and replaced with a box culvert structure of acceptable standards.

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	**YES** ☐
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

Same as above

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?	**YES** ☐
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

Same as above

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated ☐ Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);

- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

Refer to ***Appendix A2*** for the Site Development Plan.

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

Refer to ***Appendix A1*** for the Locality Map.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

Refer to ***Appendix B*** for the Site Photos.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

Refer to ***Appendix B*** for photos of the existing poultry houses.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | **"insert No. of duplicates"** | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | **"insert No. of duplicates"** | times | (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | | (complete only when appropriate for above)

Section B – Location/route Alternative No. | | (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	Portion 75 of the Farm Doornkloof 393-JQ in Hekpoort, Mogale City Local Municipality, Gauteng Province

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	25° 53‘ 43.25“	27° 28‘ 07.19“

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	°	°
• Middle point of the activity	°	°
• End point of the activity	°	°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	**T**	**0**	**J**	**Q**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**9**	**3**	**0**	**0**	**0**	**7**	**5**

The development site remains the same for both Alternatives 1 and 2.

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	**1:50 – 1:20**	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	**Undulating plain/low hills**	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	**NO**
Dolomite, sinkhole or doline areas	**NO**
Seasonally wet soils (often close to water bodies)	**YES**
Unstable rocky slopes or steep slopes with loose soil	**NO**
Dispersive soils (soils that dissolve in water)	**NO**
Soils with high clay content (clay fraction more than 40%)	**NO**
Any other unstable soil or geological feature	**NO**
An area sensitive to erosion	**NO**

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? **NO**

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	Natural veld with scattered aliens % = 5	Natural veld with heavy alien infestation % =90	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % = 5

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

NO

If YES, specify and explain:

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

NO

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site?

YES

If YES, specify and explain:

A small seasonal watercourse, the Modderspruit, drains from north to south through the property. A dam was built in the northern part of the watercourse, just where it enters onto the site. A side vlei also feeds into the dam from the east. A further small dam was built in the side vlei. On the site, below the dam, the spruit looses confinement and spreads out over a wider area of about 30-40 m wide, with diffused flow. The vegetation is dominated by grasses. Water flows only during the rainy season, often intermittently, down the central part of the watercourse. There is no clear channel and the wetland is considered to be an unchannelled valley bottom. Seasonal diffuse flow is often restricted to the central, bottom part of the vlei, but the vegetation is not much different from the wider temporary zone. Patches dominated by *Imperata cylindrica* are interspersed with patches dominated by *Hyparrhenia* species (*Hyperrhenia dregeana* and/or *Hyparrhenia hirta*). The vegetation therefore forms a patchy mosaic of different grass species. The adjacent terrestrial vegetation are two types of grassland, namely grassland on red soils derived from shale and grassland on black soil derived from dolerite. The entire watercourse is considered to be ecologically sensitive, but no species of conservation concern were identified.

The wetland on the site can be regarded to have a Present Ecological Score (PES) of B, which means that the wetland is largely natural but there are some human related disturbances (area below the dam, grazing).

The Ecological Importance and Sensitivity of this Wetland System is regarded as being Moderate (Class C). This wetland is ecologically important and sensitive at the local scale only. The biodiversity of this wetland is however still dependent on occasional flows of water. They play a small role in moderating the quantity and quality of water in major rivers.

Refer to ***Appendix G2*** for the Wetland Assessment & Delineation Report.

A Wetland Delineation Map indicating a 100m buffer zone from the edge of the wetland intermittent zone is attached hereto as ***Appendix A3***.

Was a specialist consulted to assist with completing this section

YES

If yes complete specialist details

Name of the specialist:	Professor G.J Bredenkamp (Eco-Agent CC)		
Qualification(s) of the specialist:	D.Sc. (Ph.D.) Plant Ecology		
Postal address:	P.O Box 25533, Monument Park		
Postal code:	0105		
Telephone:	012 460 2525	Cell:	082 576 7046

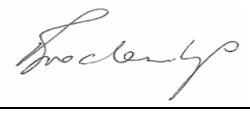
E-mail:	george@ecoagent.co.za	Fax:	012 460 2525

Are any further specialist studies recommended by the specialist? **NO**

If YES, specify:

If YES, is such a report(s) attached? YES | NO

If YES list the specialist reports attached below

Signature of specialist: 

Date: July 2015

Name of the specialist:	J Louis van Rooy
Qualification(s) of the specialist:	Pr.Sci.Nat. PhD(Pret) FSAIEG MGSSA
Postal address:	P.O Box 36786, Menlo Park
Postal code:	0102
Telephone:	
Cell:	083 291 0938
E-mail:	louisvanrooy@mweb.co.za
Fax:	012 349 8500

Are any further specialist studies recommended by the specialist? **NO**

If YES, specify:

If YES, is such a report(s) attached? YES | NO

If YES list the specialist reports attached below

Signature of specialist: 

Date: September 2015

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	35. Poultry houses
Other land uses (describe):	36.Cultivated Land /37.Orchard/ 38.Farm House			

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

36,1	**36,1**	**1, 7**	**1, 7**	**38, 7**
37,1	**1,7**	**1, 7**	**1,3, 6**	**35,7**
36,37	**1,7**		**1,3**	**35, 7**
1, 36,37	**1, 7**	**1, 7**	**1,3**	**36**
38, 7	**1,7**	**1, 7**	**1, 7**	**1**

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached **NO**

If yes indicate the type of reports below

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The poultry farm is located in an agricultural or rural area and most of the surrounding farms are into commercial mixed farming. Eco-tourism through game farms is also a dominant agricultural activity in the area. The soils in the area are of low agricultural potential and most of the cultivated land is for the growing of crops for animal feed. The farms in the area are accessible through a well maintained and integrated gravel road network which connects with the R24 and the R560 to the major centres. Magaliesberg and Hekpoort are the nearest major rural centres in the area.

The proposed development site falls under the jurisdiction of Mogale City Local Municipality within the West Rand District Municipality. It is situated in Ward 31, with a population of approximately 11000 people according to the SA Population Statistics, 2011. The population density is mainly concentrated in Magaliesberg and the area around the proposed development site has a low population density.

According to the Rural Development Strategy, the key contributors towards Mogale City's total Gross Value Additions are manufacturing (20.0%), General Government (18.7%), Trade (13.7%), Business Services (11.2%), Finance and insurance & Real Estate (10.5%). Mining (2.3%) and agriculture (0.6%) have been the worst contributors and seem to be continuing to decline in contribution. The revitalisation of the agricultural sector, through various strategies, is therefore one of the main interventions being implemented by the Mogale City to drive economic growth in rural areas.

The town of Magaliesberg is popularly known as a tourism center and forms an integral and significant part of the untapped tourism, economic development and employment potential of the rural areas of Mogale City Local Municipality (MCLM). In order to unlock this potential, a precinct plan specifically designed for Magaliesberg was developed by the MCLM. The precinct plan aims to set up a revitalisation programme based on mutually agreed development vision for Magaliesburg and its surrounding area, through the provision of a combination of long-term development guidance in terms of spatial structure, infrastructure

provision, socio-economic development and environmental protection and management.

The proposed development site falls within the Precinct Plan in which primary agriculture , as well as related secondary activities such as agri-processing, are considered as the key drivers in the area.

Roads
Community survey results for 2011 on the status of roads in rural wards, indicate Ward 31 had the highest percentage of inaccessible roads, and only 8.3% of its roads were tarred.

Water Supply
In terms of Water Supply, although 96% of the households in Mogale City had access to tap water in 2007, the majority of rural communities still have difficulties in accessing tap water. Their main source of drinking water is from boreholes and water bowsers/tankers. A community survey conducted by NRM Consulting in 2011 shows that 60% of the community in Ward 31 had an unreliable source of water supply, and 5% had no available water supply. Agricultural activities were identified as one of the main polluters of water resources in the rural areas through the use of fertilizers, pesticides and herbicides next to rivers. Poultry facilities situated next to streams also contribute to high nutrient loads in water bodies.

The household income levels indicate a high number of people with no income at all which suggests a lowly skilled labour force. According to the IDP, 13.2% of the economically active population in Mogale City is unemployed. Employment sector statistics indicate agriculture as one of the lowest contributors to employment in Mogale City. The results further indicate the community services and trade sectors are the largest employment contributors.

Electricity supply
In terms of electricity supply, the survey results for 2011 show 82% of the population in Mogale City utilize electricity though 15% are still using paraffin. However, the situation in rural areas is different as some of the rural settlements do not have access to electricity. According to the RDS the major challenge is private owned land, which makes it difficult for the municipality to provided services. The community survey results indicate 70.2% of the population in Ward 31 had no access to electricity, and only 27.7% had reliable access. The MLM is therefore looking at renewable energy through solar projects as a solution to addressing the energy needs of rural communities.

Sewerage Services
The community survey results by NRM indicate 75% of the rural household in Ward 31 use pit latrines and only 19.8% have access to water borne ablution facilities. Most of the farms use septic tank sewerage systems which are in most cases poorly constructed or maintained resulting in groundwater contamination.

Waste Management
There no municipal waste removal services in rural areas and most households dispose their waste in backyard refuse dumps, which are then buried when full. This poses a threat to the environment through leachate seepage and subsequent contamination of groundwater resources if the refuse dumps are not properly sealed with an impermeable layer.

Literacy levels
According to the NRM community survey results for 2011 only 1% of the population surveyed in Ward 31 had tertiary qualifications, which suggests those with highest qualifications might be migrating to major cities in search of better paying jobs.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site? If YES, explain:	**NO**

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of Stone Age and Iron Age occupation, as well as a much later colonial (farmer) component, which also gave rise to an urban environment.

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the development.

No sites, features or objects dating to the Stone Age, Iron Age, or Historic period were identified in the study area.

As no heritage sites occur in the study area, there would be no impact resulting from the proposed development.

Therefore, it is recommended from a heritage point of view that the proposed development can continue provided all the mitigation measures are implemented. It is further recommended should archaeological artefacts, sites or graves be exposed during construction, all construction activities must immediately stop and a heritage consultant called upon on site to investigate and evaluate the finds. Refer to ***Appendix G3*** for the Heritage Assessment Report.

Will any building or structure older than 60 years be affected in any way? Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? If yes, please attached the comments from SAHRA in the appropriate Appendix	**NO**

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment? **YES**

If yes, has any comments been received from the local authority? **NO**

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

This report is currently in the draft phase, and has been submitted to registered key state departments and local authorities for review within the 30 days regulated timeframe.

Any comments received following the review period of this draft BAR will be incorporated into the final BAR, including responses thereto.

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders? **NO**

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

If "NO" briefly explain why no comments have been received

The information provided during the pre-application public participation process might have been insufficient for key stakeholders to comment. This draft Report, which contains detailed information on the proposed development, has been made available to all registered key stakeholders for review within 30 days from the date of the notice.

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives **"insert No. of duplicates"** times (complete only when appropriate)

Section D Alternative No. "insert alternative number" (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Although the alternative poultry house technologies considered in this Basic Assessment Report will have an impact on resource usage and efficiency during the operational phase, it should be noted the amount of waste, effluent, and emissions produced does not vary significantly in comparative terms.

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**
If yes, what estimated quantity will be produced per month?	15 -20 m^3

How will the construction solid waste be disposed of (describe)?

Construction rubble is to be reused as backfill material on the construction site, or as refill for existing potholes along the internal access gravel road. Excess rubble that cannot be reused on site or existing internal gravel roads will be considered as refill material for potholes along external access gravel roads.

Where will the construction solid waste be disposed of (describe)?

Solid waste or construction rubble that cannot be reused as backfill or refill material will be transported off site for disposal at the nearest registered/licensed landfill facility in Magaliesberg or Krugersdorp.

Will the activity produce solid waste during its operational phase?	**YES**
If yes, what estimated quantity will be produced per month?	25 m^3

How will the solid waste be disposed of (describe)?

Each proposed alternative poultry house is expected to produce the same amount of chicken litter per production cycle.

Chicken litter

Chicken litter (combination of excrement and wood shavings and/or sunflower husks) is cleaned out from the existing poultry houses once after every production cycle and immediately removed off site by a contracted waste services provider. No chicken litter is used or temporarily stored on site. The services of the contracted waste service provider will be extended to the new poultry facility. Refer to ***Appendix I2*** for confirmation in this regard.

Mortalities

The current mortality rate is estimated to be between 3% and 8%. The same mortality rate is expected for the open naturally ventilated poultry houses, and expected to decline by 1 – 2% for the closed and semi-closed poultry houses due to improved breeding conditions, which result in less mortalities.

All the mortalities are removed daily from the poultry houses and disposed in a completely sealed, 5m^3 capacity Jojo tank buried underground on site. The mortality tank has a lid on

top that is kept closed at all times and only opened when dropping in the mortalities. A bio-enzyme is applied in the mortality tank to speed up the anaerobic digestion of the mortalities. The biodegraded residue is a non-infectious liquid slurry that can be reused as organic compost. A cut off trench has been excavated down-gradient, half a meter away from the mortality tank as an early detection measure for potential leachate leakage and subsequent seepage.

An additional 5m^3 mortality tank is proposed as part of the new upgraded facility should the existing one get full.

Fly-ash and Slag
Approximately 20 to 27 tons of coal residue is produced per production cycle (6 weeks) from the existing coal burners. This residue mainly in the form of fly-ash and slag is reused in repairing potholes on external and internal access roads or sold to local brick makers.

The same amount of coal residue is expected to be produced from the proposed new poultry facility, resulting in a combined total of 40 to 54 tons per production cycle. This amount will continue to be reused on existing external and internal access roads or sold to brick makers.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	**NO**

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Refer to the above section for each of the solid waste management method currently used and proposed for the new poultry facility.

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	**NO**

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?	**NO**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

As described above, all solid waste currently produced in the operations of the existing poultry facility is either reused or recycled. However, options are available to increase the reuse or recycling rate for additional waste produced during the operations of the new proposed poultry facility. The implementation of an integrated waste management plan provides the opportunity to optimise and maximise the efficiency of waste management whilst minimising any negative impacts to the environment. It emphasizes on waste avoidance, minimisation, and reduction through cleaner production, reuse, recycling, treatment, and disposal as the last resort. Refer to the EMPr attached as ***Appendix H*** for the recommended waste management measures.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	**NO**
If yes, what estimated quantity will be produced per month?	m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES / NO

Will the activity produce any effluent that will be treated and/or disposed of on site?	**YES**
If yes, what estimated quantity will be produced per month?	15 m^3

If yes describe the nature of the effluent and how it will be disposed.

After every production cycle, the chicken litter is scraped from the poultry house floor and collected in bags. The floor is then swept with brooms after which it is scrubbed with water, soap and disinfectant (Ultracide). Approximately 5000l of water is used per each poultry house, and the wastewater or effluent is allowed to flow freely onto the surrounding kikuyu

grass or collected in 10 litre buckets and irrigated on the farm garden. Due to the composition of the effluent released and the fact that the disinfectant eliminates pathogens, no groundwater contamination or offensive odour emissions are expected as a result thereof.

The effluent is nutrient rich as it contains organic manure and biodegradable bedding material.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility? **NO**

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

However for the new proposed facility, a concrete basin will be built on the eastern end of each poultry house to collect or detain all the wastewater flowing during the cleaning process for possible reuse. The organic solids that settle at the bottom will be scraped and allowed to dry before being mixed with the chicken litter for removal by a contracted waste service provider.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system? **NO**

If yes, what estimated quantity will be produced per month? m^3

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	NO

Will the activity produce any effluent that will be treated and/or disposed of on site? **YES**

If yes describe how it will be treated and disposed off.

Sewerage and grey wastewater from the ablution facilities is disposed on site into a septic tank. The capacity of the existing septic tank is unknown, but believed to still have sufficient capacity. Grey wastewater and sewer from the new poultry facility ablutions will be gravity fed into the existing septic tank. Should additional capacity be required the existing tank will be serviced and upgraded accordingly to sufficient capacity.

Emissions into the atmosphere

Will the activity release emissions into the atmosphere? **YES**

If yes, is it controlled by any legislation of any sphere of government? **NO**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

Air emissions from coal burners

The existing coal burners are only utilised during cold conditions especially in winter, and therefore have little or minimal impact on the ambient air quality. The heat requirements of the poultry houses are very minimal due to the naturally warm conditions which limit the use of external heating.

Sulphur Dioxide (SO_2) and Oxides of Nitrogen (NO_x) as well as Particulate Matter (PM_{25}) are the main air emissions from the coal burners. The ambient air quality is expected to be generally good in a predominantly agricultural area, therefore, the air emissions from the coal burners have no cumulative impact on the surrounding air quality. Furthermore, the air conditions in agricultural areas are normally dispersive thereby reducing the concentration of air pollutants such as Particulate Matter.

Highly efficient coal burners with electric fans will be installed in the new poultry houses and only operated during cold conditions. The high heat conversion efficiency and mixing fans will ensure warm air is properly circulated to maintain uniform temperature conditions in the poultry houses thereby reducing the amount of coal used and its associated emissions.

The use of coal burners for heating purposes is not a listed activity in terms of Section 21(1) of the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004.) Furthermore, the coal burners are not listed as controlled emitters by the Minister or MEC in terms of Section 23 of the NEM:AQA.

The West Rand District Municipality has declared the whole area under its jurisdiction as an air pollution control zone in terms of the West Rand District Municipality Air Quality Management By-Laws published in Provincial Gazette No. 147 of 31 May 2012. The WRDM therefore has the authority to *inter alia*: prohibit or restrict the emission of one or more air pollutants from all premises or certain premises; prohibit or restrict the combustion of certain types of fuels.

Odour emissions

Chicken litter is the main source of odour emissions from poultry houses. Ammonia gas and other sources of dour are mainly produced during denitrification of the manure and normally during the cleaning of the poultry houses. The release of ammonia is affected by the ambient temperature, ventilation rate, humidity, stocking rate, litter quality, and feed consumption (crude protein). The odour emission from the existing poultry houses are minimal due to the natural ventilation and thorough cleaning process after every production cycle. Furthermore, although emissions released during the cleaning process are significant enough to spread to surrounding neighbours, the impact duration is short and limited.

The proposed development site for the new poultry houses is located approximately 500m south west of the existing neighbour on the western side of the property. There are high chances that the neighbour will be affected by the odour emissions due to the prevailing north easterly wind direction, and has already sent a comment in this regard. It is therefore recommended that the removal of chicken litter or manure after every production cycle should be avoided where possible during windy conditions.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

municipal	Directly from water board	**groundwater**	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: 5000 liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs? **YES**

If yes, list the permits required

Water Use Licence or Registration in terms of Section 21(a), (c), and (i) of the National Water

Act

If yes, have you applied for the water use permit(s)?	
If yes, have you received approval(s)? (attached in appropriate appendix)	

	NO
YES	NO

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

Eskom is the main source of electricity supply for the existing poultry facility, and diesel powered generators are on standby in the event of power cuts.

Electricity supply for the new proposed poultry houses will be from the existing Eskom grid, with an application for a new connection from an existing substation located at the western boundary, already submitted to Eskom. Refer to ***Appendix I1*** for written confirmation by the Applicant.

If power supply is not available, where will power be sourced from?

According to the Applicant, there is sufficient power from the existing grid or substation to meet the additional electrical demand from the new proposed poultry houses. However, the Applicant is still waiting for Eskom's written confirmation in this regard.

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The new proposed poultry houses will be designed to minimize the demand for energy or electricity as follows:

- The proposed corrugated roof will be designed high enough to prevent heat transfer during summer and insulated to prevent heat loss during winter;
- The proposed poultry houses will consist of solid brick walls to improve insulation;
- Curtain openings along the solid walls will be manually opened or closed based on temperature variations;
- Energy efficient fans will be installed and devices such as variable speed drives, turning vanes, airflow straighteners or splitters considered for possible installation for conventional fans where practical; and
- Ventilation and temperature control apparatus or devices such as timers, sensors and thermostats will also be considered for possible installation.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources are being considered in the short term for the new proposed poultry facility due to the high installation costs. However, a diesel powered generator with an installed capacity of 120kw will be on standby in case of emergency or power cuts

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

1. Neighbour on Portion 74 of the farm Doornkloof 393 JQ is concerned about the following:
   - Decrease in their property value due to the proposed upgrade;
   - Noise and dust emissions during construction;
   - Increase in odour emissions once the facility is operational;
   - Increased demand on groundwater resources; and
   - Vector attraction and potential health risks.
2. Another adjacent neighbour on Portion 39 of the farm Doornkloof 393 JQ is concerned about how the development will impact his business.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

1. The farm is situated in a predominantly agricultural area characterised by mixed commercial farming and ecotourism. Although some of the existing farms have been subdivided into plots with single residential dwelling units, the area is still primarily agricultural and therefore not expected to influence property value.

2. Dust and noise suppression measures will be implemented where necessary during the construction phase. Refer to ***Appendix H*** for the recommended suppression measures.

3. The following measures will be implemented to minimise odour emissions from the new poultry houses:
   - Adequate ventilation to reduce the build- up of ammonia inside the poultry houses
   - Thorough cleaning of the poultry houses after every production cycle
   - All chicken litter and manure removed from the poultry houses in bags will be immediately loaded into trucks and transported off site to the service provider's waste processing facility.
   - The removal of chicken litter and manure will be undertaken only during relatively calm, less windy days.
   - The underground mortality tank shall remain closed all the time and except when loading mortalities (daily) and off-loading the digestate or effluent (annually)..

4. The amount of groundwater abstracted will be limited to the borehole's yield capacity as determined by a hydrologist or the Department of Water and Sanitation. Measures will also be taken to ensure water efficiency through sustainable utilisation of water resources.

5. The upgraded poultry facility will be operated and maintained in accordance to acceptable biosecurity, animal health and safety standards and as required by the relevant authorities. In addition, best practice measures will be implemented where possible to uphold high hygienic and safety standards at all times.

6. The proposed upgrade and operation of the upgraded poultry facility is not expected to affect surrounding businesses or operations and should this be the case, the applicant is willing to engage with the affected business owners..

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

The Significance Assessment Methodology used is in accordance to the DEAT (2006)

Guideline Document 5 (Assessment of Impacts). The mentioned document states that the significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature, duration, intensity, extent and probability of identified impacts. Furthermore the significance of an impact is the product of a probability rating and a severity rating. A detailed description of the mentioned methodology follows:

SIGNIFICANCE

Significance is the product of ***probability*** and ***severity***.

PROBABILITY (P)

Probability describes the likelihood of the impact actually occurring, and is rated as follows:

- ***Improbable*** - Low possibility of impact to occur due to design or history. ***Rating: 2***
- ***Probable*** - Distinct possibility that impact will occur. ***Rating: 3***
- ***Highly probable*** - Most likely that impact will occur. ***Rating: 4***
- ***Definite*** - Impact will occur regardless of any prevention measures. ***Rating: 5***

SEVERITY RATING (SR)

The ***severity rating*** is calculated from the *factors* allocated to ***intensity*** and ***duration***. Intensity and duration factors are awarded to each impact, as described below.

INTENSITY FACTOR (I)

The ***intensity factor*** is awarded to each impact according to the following method:

- ***Low intensity*** - nature and/or man made functions not affected (minor process damage or human/ wildlife injury could occur. ***Factor 1***
- ***Medium intensity*** - environment affected but natural and/or manmade functions and processes continue (Some process damage or human/ wildlife injury may have occurred).***Factor 2***
- ***High intensity***- environment affected to the extent that natural and/or human-made functions are altered to the extent that it will temporarily or permanently cease (Major process damage or human/wildlife injury could occur).***Factor 4***

DURATION (D)

Duration is assessed and a ***factor*** awarded in accordance with the following:

- ***Short term*** - ≤1 to 5 years. ***Factor 2***
- ***Medium term*** - 5 to 15 years. ***Factor 3***
- ***Long term***- impact will only cease after the operational life of the activity has ended, either because of natural process or by human intervention. ***Factor 4***
- ***Permanent***- mitigation, either by natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient. ***Factor 4***

SEVERITY FACTOR (SF)

The ***severity rating*** is obtained from calculating a ***severity factor***, and comparing the severity factor to the rating in the table below. For example:

The Severity factor	=	***Intensity factor X Duration factor***
	=	***2 x 3***
	=	***6***

A severity factor of six (6) equals a Severity Rating of Medium severity (Rating 3) as per *Table 1*.

TABLE 1: SEVERITY RATINGS

RATING	FACTOR
Low Severity (Rating 2)	Calculated values 2 to 4
Medium Severity (Rating 3)	Calculated values 5 to 8
High Severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16
Severity factors below 3 indicate no significant impact	

SIGNIFICANCE RATING

A Significance Rating is calculated by multiplying the Severity Rating with the Probability Rating. The significance rating should influence the development project as described below:

- ***Low significance (calculated Significance Rating 4 to 6)***
- ***Positive*** and ***negative impacts*** of low significance should have no significant influence on the proposed development project.

- ***Medium significance (calculated Significance Rating ≥ 7 to 12)***
- ***Positive impact:***
  Should weigh towards a decision to continue
- ***Negative impact:***
  Should be mitigated before project can be approved.

- ***High significance (calculated Significance Rating ≥ 13 to 18)***
- ***Positive impact:***
  Should weigh towards a decision to continue, should be enhanced in final design.
- ***Negative impact:***
  Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least a low significance rating.

- ***Very High significance (calculated Significance Rating ≥ 19 to 25)***
- ***Positive impact:***
  Continue
- ***Negative impact:***
  If mitigation cannot be implemented effectively, proposal should be terminated.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal, including all the alternative poultry houses will have similar impacts to the existing biophysical and socioeconomic environment during construction

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
CONSTRUCTION PHASE				
Potential soil erosion and subsequent sedimentation of the wetland down gradient during and after site clearance	**Negative**	Identify and demarcate the extent of the site and associated Works Areas as indicated on the approved Site Development Plan using danger tape with steel droppers. Site clearance and construction activities must be limited to within the demarcated area. The wetland buffer, traversing east of the development site, must be demarcated and	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3

		pegged by a wetland specialist prior to any site establishment. - Contracts with contractors to include penalties related to environmental damage outside the demarcated works area caused by such contractors. - If possible, construction should be scheduled during the dry season to reduce any chances of possible run-off and erosion of exposed soil during construction. - Co-ordinate Works to limit unnecessarily prolonged exposure of stripped areas and stockpiles. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction/ earthworks in that area. - Strip and stockpile herbaceous vegetation, overlying grass and other fine organic matter along with the topsoil. - Existing trees must be retained wherever possible and incorporated as part of the new development site landscape. - Felling or removal of trees should be done mechanically wherever possible. - During felling and the clearing of woody vegetation, appropriate measures should be taken to avoid the removal of and / or damage to the lower strata of vegetation, the basal grass cover and topsoil layer wherever possible. The top 20 cm of soil must be stripped as fertile top soil and stockpiled aside at specifically designated areas to be used in the rehabilitation of the site in the final phase of construction. - Where embankments higher than 1,200mm are created, these should be contoured to		

		approximate the natural form of the landscape. - Access roads for earthmoving equipment and delivery of construction material must be clearly designated. - The use of machinery in ecologically sensitive areas such as wetlands must be limited as far as possible.		
Potential wetland disturbance and functional loss	**Negative**	- All wetlands identified within the property boundary are classified as ecologically sensitive and no construction activities or development should occur within 100 meters of the temporary wetland zone. - The wetland buffer must be clearly demarcated prior construction, and all construction vehicles and machinery must access the construction site via the existing access gravel road. - The driver of any construction vehicle or machinery that accesses the site through non-designated routes should be penalised.	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3
Soil compaction and increased risk of sediment transport and erosion	**Negative**	- Install temporary erosion control measures before construction commences. - Install temporary drains and minimize concentrated water flows. Control storm water velocity where necessary with temporary energy dissipater structures. Divert run-off around trench excavations or disturbed areas. - Re-vegetate or stabilise all disturbed areas as soon as possible. Indigenous trees can be planted in the buffer zone of the proposed development to enhance the aesthetic value of the site and stabilize soil conditions. - Locate stockpiles away from concentrated flows and divert run-off around them. - The following sediment	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2

		control devices are suggested: ▪ Sediment filters: use materials such as fine mesh or geofabric to filter run-off prior to discharge. ▪ Sediment traps: temporary sedimentation basins. - Drop inlet filters: e.g. hay bales and silt fences, which prevent sediment entry into the drainage system.		
Potential increase or spread in alien and invasive plants	**Negative**	- All classified Invader Species in terms of the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) to be identified, and controlled or eradicate as specified in the Alien and Invasive Control Plan (AICP) attached in the EMPr. - The AICP may commence during the construction phase, and must take place during the post-construction/ rehabilitation phase of the project and continue after construction has been completed for a minimum period of two years. - Eradication of exotic invader plant species by means of an appropriate method, as specified by the ECO. - Dead weeds/exotic invader species must be discarded and disposed of at a landfill site.	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3
Potential traffic disruption and damage to existing external roads	**Negative**	- Ensure that only authorised roads and access routes are used. - Vehicles may not leave the designated roads and tracks and turnaround points will be limited to specific sites. - Maintain all access routes and roads adequately in order to minimise erosion and undue surface damage. Repair rutting and potholing and maintain storm water control mechanisms. - Enforce speed limits at	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2

		all times on all external access roads. Unless otherwise specified, the speed limit on construction roads is 50km/h. - Allow for safe pedestrian and cycling access and crossing where necessary. - Ensure adequate and appropriate warning signage for construction vehicles turning at the main entrance. - Traffic controllers must be positioned at strategic points along the access road to ensure minimum disruption of traffic by construction vehicles.		
Noise and dust pollution generated during construction activities, which could be of nuisance to surrounding people in the area	**Negative**	- Ensure compliance to Provincial Noise Control requirements as outlined in the Provincial Notice, 5479 of 1999: Gauteng Noise Control Regulation during construction. - Ensure dust emissions generated during construction activities are within acceptable dust fall rates limit published in the National Dust Control Regulations, 2013. - No construction work to be conducted at night unless if such an arrangement has been made in consultation with the ECO. - Unless otherwise specified, construction work to be conducted Monday to Friday between 7:00 – 17:00 and on Saturdays between 08:00 – 15:00 - No construction work to be undertaken on Sundays and Public Holidays in order to minimise the disturbance caused by noise emanating from the construction site. - Dust suppression measures such as spraying of the construction site should be implemented where necessary to minimise dust emissions.	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2

		↓ Traffic controllers must be positioned at strategic points along the access road to ensure the safe flow of construction vehicles and other road users. ↓ Construction vehicles operating in mud conditions should be cleaned on exit to prevent mud deposition along tarred access roads leading to the construction area. ↓ Dispersive material in trucks should be dampened or covered; ↓ Access by heavy machinery where there no access roads should be restricted as much as possible.		
Improper handling or disposal of construction waste	**Negative**	↓ All building waste generated during construction should be managed in terms of the Gauteng Building and Demolition Waste Guidelines, 2009. ↓ Construction rubble not posing a pollution hazard should be used on site as backfill material wherever possible. Surplus construction rubble that cannot be reused or recycled should be disposed at the nearest registered landfill facility. ↓ No waste material may be burnt on-site. ↓ Litter patrols must take place once a week to ensure the site as well as the property is kept free of litter. ↓ Waste shall be separated into recyclable and non-recyclable waste. Bins shall be clearly marked to ease management of waste and recycling. ↓ The contractor must adhere to all the relevant laws and regulations applicable to the disposal of construction waste and rubble. ↓ The contractor shall provide sufficient closed containers on site, as well as waste skips, which must be placed in	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

		the crew camp, to handle the amount of litter, wastes, and builder's wastes generated on site. - Containers shall be emptied once weekly by a licensed waste contractor and disposed of at a registered landfill site. No solid waste or any materials used may be disposed of on site. - No rubble or discarded building material may remain on site for more than one week. - An area must be designated for mixing of concrete on the western area of the develop site, and must take place on an impervious surface such as a concrete slab, metal or plastic sheeting which is provided with cut-off drains or berms to contain any contaminated run-off. - Contain water and slurry from cement and concrete mixing operations as well as from batching area wash bays. Direct such waste water into a settlement pond or sludge dam for later disposal. - Liquid waste consists mainly of used oil, contaminated fuel, and lubricants, as well as waste paint etc. Liquid wastes must be collected in original containers and stored inside a surfaced or bunded storage area. The bunded surface area volume should be equal to 110% of the total volume of liquid stored. - All hazardous solid and liquid waste to be disposed of at a class H:H registered landfill site only. - All concrete that is spilled outside these areas must be promptly removed by the Contractor and taken to an approved dumpsite. - After all the concrete mixing is complete all		

		waste concrete must be removed from the batching area and disposed of at an approved dumpsite. - No concrete residue is to be washed off into rivers, streams or wetlands.		
Unsupervised and misuse of fire on site could impact negatively on the environment	**Negative**	- Firebreaks that meet the requirements of the National Veld and Forest Fire Act, 1998 must be established and maintained in consultation with the Hartebeestfontein Fire Protection Association. - No fires to be allowed on site. - No smoking is allowed outside of the site camp. - Fire extinguishers must be provided at the site camp, where it is easily accessible. - Fire extinguishers must be serviced, full and in good working order. - The contractor's Health and Safety Plan must include particulars in terms of fire fighting and training.	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2
Rehabilitation of degraded areas	**Positive**	- Rehabilitation of all cleared areas must be done in accordance to the Rehabilitation Plan in the Environmental Management Programme (EMPr) attached as ***Appendix H***. - The Rehabilitation Plan must as far as possible make use of indigenous trees and plants. The use of exotic species must be limited. - Any indigenous groundcovers and shrubs should be removed prior to construction activities and located and maintained in an on-site nursery and replanted within disturbed areas after construction is complete.	**12 Medium** P – 4 I – 2, D – 4, SF – 8 SR – 3	**6 Low** P – 2 I – 2, D – 3, SF – 6 SR – 3
Skills development and job opportunities	**Positive**	- As far as reasonably possible people from surrounding communities must be employed by the principal construction	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2

		contractor and sub-contractors. - This should be included in the contract upon appointment of successful tenderer.		
OPERATIONAL PHASE				
Potential increase in odour emissions	**Negative**	- As far as reasonably possible, the removal of chicken litter and manure after every production cycle should be conducted during calm weather conditions. - The poultry houses must be properly ventilated to reduce the build up of ammonia gases. - After the chicken litter and manure has been removed from the poultry houses, the floors must be thoroughly cleaned and disinfected - The underground mortality tank should remain tightly closed at all times and regularly checked by an expert for defects or any possible leakages.	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2

Potential erosion and sedimentation if the stormwater drainage system is not properly designed or maintained	**Negative**	- A stormwater Management Plan (SWMP) designed by a suitably qualified engineer should be attached in the EMPr.
		- The SWMP should incorporate the following erosion control measures where practical:
		  ▪ Berms;
		  ▪ Energy dissipating structures;
		  ▪ Vegetation; and
		  ▪ Gabion stabilisation or stone pitching.
		- The stormwater drainage channels must be designed in line with the gradient of the site and slopes steeper than 1(V):3(H) or slopes where the soils are by nature dispersive or sandy, must be stabilised.
		- Stormwater and surface runoff generated by the development should be dissipated and purified
			6 Low
			P – 3
			I – 2, D – 2, SF – 4
			SR – 2
				15 High
				P – 5
				I – 2, D – 4, SF – 8
				SR – 3

		prior to entering any natural drainage system. - No pollutants will be allowed to enter formal stormwater drainage channels. Water should be filtered before entering the system. - Disturbed areas should be rehabilitated on an ongoing basis to prevent long-term impacts and severe erosion. - No wastewater and/or effluent must be discharged to the environment (including the freshwater bodies, groundwater or land surrounding the development). There must be no return of culture water to the environment.		
Potential animal health and safety risks if biosecuity control measures are not strictly adhered to	**Negative**	- Establish sound biosecurity protocols for the entire poultry operation that control animals, feed, equipment, and personnel, entering the facility (for example, quarantine periods for new animals, washing and disinfecting equipment, showering and protective clothing and footwear for personnel, and keeping out stray animals, rodents and birds). - Control farm animals, equipment, personnel, and wild or domestic animals entering the facility (e.g. quarantine periods for new animals, washing and disinfecting crates, disinfection and coverage of shoes before entry into bird housing zones, providing protective clothing to personnel, and closing holes in buildings to keep out wild animals). - Sanitize bird housing areas. - Establish a detailed animal health program supported by the necessary veterinary and laboratory capability. - Identify and segregate	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3

		sick birds and develop management procedures for adequate removal and disposal of mortalities.		
Increase in demand for water supply with potential cumulative impact on the quantity of local groundwater resources in the area	**Negative**	✚ The amount of groundwater abstracted should not exceed the borehole's yield capacity at any given time. ✚ A lag-time should be allowed between pumping periods to allow enough time for the groundwater to regenerate to its natural static level. ✚ All the authorisation or registration conditions by the DWS must be complied with. ✚ Reduce water use and spills from animal watering by preventing overflow of watering devices and using calibrated, well-maintained self-watering devices. ✚ Keep waste as dry as possible by scraping wastes instead of or in addition to flushing with water to remove waste. ✚ Minimise amount of water used during cleaning (for example, by using high-pressure, low-flow nozzles). ✚ If possible, use hot water or steam in cleaning activities instead of cold water, as this can reduce the amount of water used by 50 percent.	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 2, D – 4, SF – 8 SR – 3
Increase in demand for electricity supply with potential cumulative impact on the already strained Eskom grid	**Negative**	✚ An energy audit should be conducted at least once a year to identify opportunities to save energy, determine where energy is being wasted, and prioritise energy saving initiatives based on available budgets, the cost and availability of technologies, the scale of an envisaged retrofit, and its feasibility within the framework of the poultry facility's operations. ✚ Energy efficient technologies such as automated fans, low	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2

		wattage lighting, and efficient heaters should be considered wherever possible.
		- The following measures should also be implemented to reduce the demand for electricity:
		  ▪ Keep houses tight as 'tight' as possible to stop cold air from entering or interior heat from escaping;
		  ▪ Improve insulation by ensuring that there is adequate ceiling insulation - damaged insulation in the roof or walls should be repaired or replaced;
		  ▪ Use mixing fans to maintain uniform temperature;
		  ▪ Check and maintain house controllers;
		  ▪ Prevent excessive moisture build-up by properly ventilating broiler houses according to weather conditions and the age of chickens; and
		  ▪ Use and maintain ventilation fans properly.		

Potential groundwater pollution risks due to potential leachate seepage from the mortality tank if poorly maintained or monitored	**Negative**	- The mortality tanks should be located at least 200m down gradient from any existing borehole and as far as possible from the 100m wetland buffer. Caution should also be taken to avoid the perched water table area on the lower north-easterly slopes towards the wetland. This perched water table may fluctuate depending on the season and amount of precipitation experienced. - The mortality tank must be regularly checked for any defects or malfunction likely to result in leakages (e.g. inspect tanks for corrosion of seams, especially those near ground level, and empty tanks at least annually or as necessary). - Use double valves on	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3

		outlets from the mortality tanks to minimise the risk of unintentional release.		
Increase in the number of vehicles supplying goods or providing services to the poultry facility might result in additional dust and noise pollution along the existing external gravel roads, and possible damage to these roads	**Negative**	✚ Collection or delivery and service trucks to and from the poultry farm must use designated routes as determined by the Farm Manager in consultation with the farming community in the area. ✚ All truck drivers must abide to the road regulations and penalties implemented for over speeding or negligent driving. ✚ The poultry farm management should work in conjunction with the local authorities and surrounding community in maintaining the external access roads. ✚ Collection or delivery trucks should only be allowed weekdays during working hours, and not permitted on Sundays and Public Holidays, unless in the case of an emergency.	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2
Occupational Health and Safety hazards related to the daily operations of the poultry facility	**Negative**	✚ Prepare a health and safety plan in line with the poultry industry requirements, legislation, or standards. ✚ Workers should be fully aware of the health and safety plan and trained on standard operational procedures and techniques. ✚ Workers should be provided with appropriate personal protective equipment (PPE), such as gloves and aprons, to prevent scratches. ✚ Ensure that workers potentially exposed to dust and bioaerosols, such as catching gangs, are provided with adequate respiratory protection including properly fitted masks equipped with filters especially designed to capture dust and micro-organisms.	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3
Contribute to meeting local and national	**Positive**	✚ Local, provincial, and national authorities	**12 Medium** P – 4	**6 Low** P – 3

demand for poultry meet thereby substituting imports , while at the same time ensuring food security		should formulate strategies and policies aimed at incentivising poultry meat farmers. - Access to markets and opportunities should be given to local poultry meat producers as a first preference.	I – 4, D – 2, SF – 8 SR – 2	I – 2, D – 2, SF – 4 SR – 2

Alternative 1: Closed Environmentally Controlled Broiler Houses (CBH)

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Reduced demand for water supply	**Positive**	- Ensure water drinking systems are well maintained to avoid any potential blockages or malfunction. - All automated and high pressure water equipment to be regularly calibrated and serviced for operational efficiency. - Keep waste as dry as possible by scraping wastes instead of or in addition to flushing with water to remove waste. - Minimise amount of water used during cleaning (for example, by using high-pressure, low-flow nozzles). - If possible, use hot water or steam in cleaning activities instead of cold water, as this can reduce the amount of water used by 50 percent.	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2
Increased demand for energy / electricity due to the highly controlled temperature system, though less demand for heating during winter	**Negative**	- An energy audit should be conducted at least once a year to identify opportunities to save energy, determine where energy is being wasted, and prioritise energy saving initiatives based on available budgets, the cost and availability of technologies, the scale of an envisaged retrofit, and its feasibility within the framework of the poultry facility's operations. - Energy efficient technologies should be well maintained and calibrated to maximise on efficiency and reduce	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

		demand for electricity.
		- The following measures should also be implemented to reduce the demand for electricity:
		  ▪ Keep houses tight as 'tight' as possible to stop cold air from entering or interior heat from escaping;
		  ▪ Improve insulation by ensuring that there is adequate ceiling insulation - damaged insulation in the roof or walls should be repaired or replaced;
		  ▪ Use mixing fans to maintain uniform temperature;
		  ▪ Check and maintain house controllers; and
		  ▪ Prevent excessive moisture build-up by properly ventilating broiler houses according to weather conditions and the age of chickens.
		- A standby source of power supply must be readily available or if possible inter connected to automatically trigger in the event of power failure.		

Less odour emissions from the poultry houses due to a fully automated temperature control and ventilation system	**Positive**	- Monitor ammonia gas build up by controlling the temperature and humidity. - After the chicken litter and manure has been removed from the poultry houses, the floors must be thoroughly cleaned and disinfected.	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

Alternative 2: Semi-closed Broiler Houses (SBH)

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Reduced demand for energy/ electricity due to semi-automated system	**Positive**	- The system must be properly designed to maximise on natural conditions as much as possible. - The operation of energy intensive equipment such as ventilation fans and heaters must only be	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

		done when necessary to maintain the required optimum temperature.		
Reduced demand for water supply	**Positive**	↓ Ensure water drinking systems are well maintained to avoid any potential blockages or malfunction. ↓ All automated and high pressure water equipment to be regularly calibrated and serviced for operational efficiency. ↓ Keep waste as dry as possible by scraping wastes instead of or in addition to flushing with water to remove waste. ↓ Minimise amount of water used during cleaning (for example, by using high-pressure, low-flow nozzles). ↓ If possible, use hot water or steam in cleaning activities instead of cold water, as this can reduce the amount of water used by 50 percent.	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2
Less odour emissions from the poultry houses due to a fully automated temperature control and ventilation system	**Positive**	↓ Monitor ammonia gas build up by controlling the temperature and humidity. ↓ After the chicken litter and manure has been removed from the poultry houses, the floors must be thoroughly cleaned and disinfected.	**10 Medium** P – 5 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

1. Geotechnical Site Investigation by J Louis van Rooy (***Appendix G1***);
2. Wetland Assessment and Delineation by EcoAgent CC (***Appendix G2***); and
3. Phase 1 Cultural Heritage Impact Assessment by J A van Schalkwyk (***Appendix G3***).

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

The following information gaps were identified in the assessment of potential environmental impacts:

1. Pending confirmation on the capacity of existing boreholes to meet additional water supply requirements for the new proposed poultry facility;
2. Pending confirmation on the capacity of the existing electricity substation to meet the electrical demand of the new proposed poultry houses;
3. Pending confirmation on the location, size, and capacity of the septic tank system for the new ablution facilities;
4. Investigation into the availability and quantity of groundwater resources necessary for any proposed additional boreholes.

5. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Damage of the wetland and its buffer by construction vehicles and machinery	**Negative**	▪ All demolition or disassembling activities should be confined within the fenced bio-security area of the poultry facility. ▪ Trucks off loading construction rubble or disassembled material off site including any other machinery used during the demolition process must access the poultry site via existing designated roads. ▪ The wetland and its buffer must be pegged and demarcated with danger tape prior to commencement of demolition activities.	**4 Low** P – 2 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3
Improper handling of material in the process of removal or demolition resulting in possible injury	**Negative**	▪ Workers should be provided with appropriate protective clothing or equipment during the demolition or disassembling process to prevent any potential injuries or fatalities. ▪ Necessary health and safety precautionary measures should be implemented during the decommissioning phase based on the approved health and safety plan. ▪ All workers should receive proper training in health and safety.	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3
Improper storage of salvaged and demolished material **Illegal dumping or disposal of demolished material such as concrete rubble**	**Negative**	▪ All the waste streams requiring reduction, reuse, recycling, and disposal must be identified prior to the commencement of any decommissioning activities. The components and quantities of the waste streams must be projected and categorized based on	**8 Medium** P – 4 I – 2, D – 2, SF – 4 SR – 2	**15 High** P – 5 I – 2, D – 4, SF – 8 SR – 3

		the appropriate waste minimization measure. The primary objective is to identify materials that can be salvaged for possible reuse or recycling instead of disposal. - Facilities for the temporary storage of waste prior to reuse, recycling, and disposal must be properly designated. Design measures to divert storm water off the waste facilities must be incorporated. - The poultry facility owner or management must ensure registered waste services providers are contracted for the disposal of none reusable or recyclable waste generated on site. They must be appointed prior to demolition. - A waste record keeping structure should be formulated prior to any construction activities commencing on site.		
Soil erosion and alien infestation if the site is not properly rehabilitated	**Negative**	- Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish; - Upon evacuation of all material the site should be graded and shaped in such a way as to resemble the natural surrounding landscape; - All compacted areas must be ripped / scarified, and re-vegetated with indigenous grass species; - As far, as is practical, implement concurrent rehabilitation processes in order to limit degradation of soil biota. - Terrestrial invasive removal programs must be maintained throughout the proposed development	**6 Low** P – 3 I – 2, D – 2, SF – 4 SR – 2	**12 Medium** P – 4 I – 4, D – 2, SF – 8 SR – 2

		as well as in the aftercare and maintenance phases; - Use Natural Infiltration and Best Practices for Stormwater Management. - Institute a monitoring programme to detect Invasive Alien Species early, before they become established and, in the case of weeds, before the release of seeds. - Institute an eradication/control programme for early intervention if invasive species are detected, so that their spread to surrounding natural ecosystems can be prevented.		

The above identified potential environmental impacts associated with the decommissioning phase are similar in nature and magnitude for both Alternatives 1 and 2.

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

1. Wetland Assessment and Delineation by EcoAgent CC (***Appendix G2***)

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

Not applicable.

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

1. Potential increase in odour emissions

The proposed upgrade of the poultry farm by an additional 142 000 broilers/cycle from the current 112 000 broilers/cycle has the potential to result in increased odour emissions due to the associated increase in the amount of manure droppings releasing ammonia. This increase in ammonia gases has the potential to result in further odour nuisance for surrounding neighbours.

2. Increase in demand for water supply with potential cumulative impact on the quantity of local groundwater resources in the area

The amount of groundwater currently being abstracted from two Boreholes on site is not sufficient enough to meet the additional demand from the operations of the new poultry facility. Therefore, the drilling of additional boreholes is being proposed as part of the new development with potential constraints on the availability and quantity of groundwater resources in the area, which are already under pressure.

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Proposal

The proposed upgrade of the poultry facility will have no significant negative impacts on the environment during the construction phase provided the recommended mitigation measures are implemented , and none of these impacts identified are considered as irreversible. According to specialist findings, the only ecologically sensitive area is a small seasonal watercourse located approximately 800m east of the development site and its associated small earthen dams. Water flows only during the rainy season, often intermittently, down the central part of the watercourse. There is no clear channel and the wetland is considered to be an unchannelled valley bottom. Seasonal diffuse flow is often restricted to the central, bottom part of the vlei, but the vegetation is not much different from the wider temporary zone. A buffer zone of 100m from the edge of the temporary wetland zone has been delineated and overlayed on to the site development plan (refer to ***Appendix A3***). No development will be allowed within this buffer zone expect for the formalisation of the existing crossing which forms part of the access road to the development site. An water use licence or registration for the crossing in terms of Section 21 (c) and (i) of the National Water Act is also being applied for by the applicant. Furthermore, as confirmed by the Geotechnical findings, perched water table conditions (<1.5m) exist on the entire development site and precautionary measures such as providing a suitable lining for the mortality pit will be required prior installation to prevent any potential groundwater contamination. Other Geotechnical constraints identified include possible collapsible soils, and soils with medium to high potential expansiveness. All proposed structures therefore must be designed and founded according to the recommended Geotechnical specifications and standards.

Odour nuisance, potential surface and groundwater contamination, and the potential increase in the demand for water supply and electricity are the main negative environmental impacts anticipated during the operational phase. However, odour nuisance can be effectively mitigated through general housekeeping practices such as ensuring the houses are properly cleaned and disinfected after every production cycle. Potential surface and groundwater contamination can be prevented by ensuring the separation of clean storm water from contamination and the installation of a suitable lining at the bottom of the mortality pit to prevent any potential seepage of leachate. The demand for water and electricity supply depends on the type of poultry house technology, assessed as alternatives in this report. Cost and efficiency of production play an important role when deciding on a particular type of housing. Semi-closed Broiler Houses (SBH) are the most cost effective and energy efficient compared to the Closed Environmentally Controlled Broiler Houses (CBH) and the proposed Open Broiler Houses-OBH(naturally ventilated). However, the OBH is the most cheapest and easy to operate compared to the other two, but resource intensive on water supply and energy if not properly managed. The additional demand on water supply through groundwater abstraction will add pressure to the availability and quantity of groundwater reserves in the area. Furthermore, the additional demand for energy mainly electricity will further add pressure to the local grid, though not significantly. To mitigate this demand it is recommended an energy and water usage audit be conducted at least once a year to identify opportunities to save energy and water, determine where energy or water is being wasted, and prioritise energy or water saving initiatives based on available budgets, the cost and availability of technologies, the scale of an envisaged retrofit, and its feasibility within the framework of the poultry facility's operations.

Negative potential impacts associated with the decommissioning phase are minimal and manageable, and can be effectively mitigated to negligible level through proper planning prior decommissioning.

It can be concluded based on the above there are no environmental fatal flaws associated with the proposed construction, operation, and decommissioning of the new poultry facility. The proposed upgrade may proceed from an environmental perspective provided all the recommended mitigation measures in the EMPr are strictly adhered to in all the project phases.

Alternative 1

Same as above.

Alternative 2

Same as above.

No-go (compulsory)

There no biophysical or socio-economic benefits associated with this option. The proposed development site on the western portion of the farm is currently undeveloped and under-utilised, with sporadic alien shrubs and trees. No vegetation of conservation importance exists on site and the risk for alien infestation and subsequent colonisation will increase if the site remains undeveloped. However, there no potential risks to the ecological integrity of the sensitive wetland should the development not occur.

The financial viability of the existing operation will remain under threat in a highly competitive poultry market. Furthermore, the poultry farmer will not be able to maximise opportunities available in the market for meeting the huge demand in poultry meat and products.

In addition, the following socio-economic benefits will not be realised by the no-go option:

- The opportunity to contribute to meeting the local demand for poultry meat;
- Create more business opportunities in the poultry meat production and processing value chain;
- The opportunity to contribute in the reduction of the South African government's fiscal deficit through reduced import costs of poultry meat and other related products;
- The opportunity to absorb a few of the unemployed locals during construction and operation;
- Opportunity for improved living conditions for the employed locals;
- Contribute to local economic growth through increase in business opportunities for local contractors and suppliers during construction and operation; and
- Increase in profitability will result in financial stability and investment in efficient and cleaner production technology.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

It can be summarised based on the above preceding sections that the proposed upgrade of the poultry facility by four additional houses will have the following negative and positive environmental impacts during construction, operation, and decommissioning:

Construction Phase

- Potential soil erosion and subsequent sedimentation of the wetland area down gradient during and after site clearance;
- Potential wetland disturbance and functional loss;
- Soil compaction and increased risk of sediment transport and erosion;
- Potential increase or spread in alien and invasive plants;
- Potential traffic disruption and damage to existing external roads;
- Noise and dust pollution generated during construction activities, which could be of nuisance to surrounding people in the area;
- Improper handling or disposal of construction waste;
- Risk of fire spreading rapidly on site due to the propensity of the vegetation to easily catch fire;
- Further erosion and alien infestation if the site is not properly rehabilitated after construction; and
- Skills development and job opportunities.

Operational Phase

- Potential increase in odour emissions;
- Potential erosion and sedimentation if the stormwater drainage system is not properly designed or maintained;
- Potential animal health and safety risks if bio-security control measures are not strictly adhered to;
- Increase in demand for water supply with potential cumulative impact on the quantity of local groundwater resources in the area;

- Increase in demand for electricity supply with potential cumulative impact on the already strained Eskom grid;
- Potential groundwater pollution risks due to possible leachate seepage from the mortality tank if poorly maintained or monitored;
- Increase in the number of vehicles supplying goods or providing services to the poultry facility might result in additional dust and noise pollution along the existing external gravel roads, and possible damage to these roads;
- Occupational Health and Safety hazards related to the daily operations of the poultry facility; and
- Contribute to meeting local and national demand for poultry meat thereby substituting imports , while at the same time ensuring food security.

Decommissioning Phase

- Possible damage of the wetland and its buffer by construction vehicles and machinery;
- Improper handling of material in the process of removal or demolition resulting in possible injury;
- Improper storage of salvaged and demolished material;
- Illegal dumping or disposal of demolished material such as concrete rubble; and
- Soil erosion and alien infestation if the site is not properly rehabilitated.

None of the above identified adverse environmental impacts are considered a fatal flaw, and can be effectively mitigated or prevented where feasible provided all the recommended mitigation measures in the EMPr are strictly adhered to during the construction, operational, and decommissioning phases.

For alternative:

Alternative 1: Closed Environmentally Controlled Broiler Houses (CBH)

- Reduced demand for water supply;
- Increased demand for energy / electricity due to the highly controlled temperature system, though less demand for heating during winter; and
- Less odour emissions from the poultry houses due to a fully automated temperature control and ventilation system.

Alternative 2: Semi-closed Broiler Houses (SBH)

- Reduced demand for energy/ electricity due to semi-automated system;
- Reduced demand for water supply; and
- Less odour emissions from the poultry houses due to a fully automated temperature control and ventilation system.

Although the impacts associated with each of the alternative poultry houses are mainly in the operational phase, the construction related impacts are similar for all the poultry houses including the proposed open house. The difference in the operational phase between the proposed and alternative poultry houses is mainly resource utilisation and efficiency, of which the latter can be effectively controlled to minimise and improve efficiency in water and energy demand.

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

In terms of impact assessment and significance, the proposed and alternative poultry houses have similar impacts in the construction phase, but the Semi-closed Broiler House is the best environmentally sustainable option based on operational efficiency as the temperature conditions can be easily automated or naturally controlled. However, cost and efficiency of production play an important role when deciding on a particular type of housing and currently due to financial constraints the Open Broiler House - OPH (naturally ventilated) is the applicant's preferred option. The OPH can be retrofitted with energy efficient technology and the applicant is committed in the long term to improving the operational efficiency of the facility

In comparative terms, the proposed OPH has the following advantages over the CBH and SBH:

- Low capital expenditure and high return on investment if properly managed;

- Low operational and maintenance costs;
- Labour intensive thereby contributing to job creation;
- Less reliance back up power; and
- Easy to operate and maintain- no complex automated equipment.

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

1. Gauteng Provincial Environmental Management Framework, 2015

The proposed development site is in *Zone 4: Normal Control Zone* suitable for agricultural related development.

2. West Rand District Municipality – Environmental Management Framework Revision 2, 2013

The development site is situated outside the urban edge in a rural area, and the soils are classified as of low agricultural potential. In terms of ecological sensitivity, the development site is traversed by a seasonal stream and therefore the entire length and its floodplains are classified as an Ecological Support Area.

3. West Rand District Municipality: Spatial Development Framework, 2014

The development site falls within a rural node in the northern parts of the district between Hekpoort (R560/R563) and Magaliesberg (R24). In terms of the Management Zones, the area is zoned agriculture, surrounded with pockets of land zoned conservation.

4. Mogale City Spatial Development Framework, 2009

The Land uses and Cover Map indicates the development sites is on cultivated: temporary-commercial dry land. In terms of spatial planning, the development site is located in a rural area between the rural canters of Hekpoort and Magaliesberg. Agriculture is the dominant land use and the development of cooperatives, commonages and agri-villages are the main initiatives proposed in the SDF. Central to this is the development of the rural centres to provide much needed services to surrounding rural communities.

5. Mogale City Rural Development Strategy, 2012

MCM's role in terms of the RDS is to create a business environmental for rural development through support of locally developed initiatives, programs, plans and projects. The proposed development site falls within the approved Magaliesberg Precinct Plan. Agriculture is recognised as the main activity in the area.

6. Magaliesberg Precinct Plan, 2011

The proposed upgrade of the poultry facility is in line with the development priorities of the MPP as it conforms with the rural character of the area. The development site occurs in an area designated for Environmental Oriented Development. These areas are in close proximity to environmental sensitive features such river ways, and only residential, agriculture and tourism related activities designed in an environmentally friendly way are supported. Primary agricultural activity, as well as related secondary activities such as agri-processing are considered as one of the key agricultural drivers in the area.

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	**YES**

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

It is recommended based on the findings of this report that the proposed Open Broiler House - OPH (naturally ventilated) be authorised by the Department subject to the following conditions:

1. All construction and operational activities are conducted in accordance to the EMPr conditions and any requirements made by the relevant authorities.
2. The 100m wetland buffer zone must be pegged and demarcated by the wetland specialist prior to the commencement of any construction activities.
3. A water use licence or registration for the formalisation of the existing internal access road crossing is obtained from the Department of Water and Sanitation prior to the commencement of any construction activities.
4. After construction of the crossing, the surrounding disturbed areas must be rehabilitated as recommended by the wetland specialist and as required by the DWS in their Water Use Licence or Registration conditions.
5. The existing and new mortality pits are properly lined with an approved material (e.g. Geomembrane or Geosynthetic clay liners) to prevent any potential leachate seepage and subsequent groundwater contamination. In addition, the mortality pits must be located at least 200m away up-gradient from any existing or future proposed borehole and as far as possible from the 100m wetland buffer zone.
6. The site development plan and architectural drawings including any proposed drilling of additional boreholes should be approved by Mogale City prior to construction.
7. Electrical confirmation and approval must be received from Eskom prior to connecting to any existing substation.
8. Construction of the wetland crossing should be scheduled during the dry season when the stream flow is at its lowest or completely dry.
9. Storm water during construction should be channelled down gradient towards the wetland buffer and dissipaters or siltation traps installed where necessary to prevent erosion and sedimentation.
10. General housekeeping standards and strict biosecurity control should be maintained to prevent any potential disease or infections including odour nuisance.
11. Further measures to minimise odour nuisance should be taken if and when necessary, and any complaints received from surrounding neighbours in this regard are to be taken seriously.
12. Groundwater abstraction should be limited to the borehole's yield capacity as determined by a suitably qualified hydrologist or DWS. All boreholes must be registered or licenced by the DWS.
13. Wastewater from the washing of poultry houses should be detained if possible and reused where practical.
14. An energy and water usage audit should be conducted at least once a year to identify opportunities to save energy and water, determine where energy or water is being wasted, and prioritise energy or water saving initiatives based on available budgets, the cost and availability of technologies, the scale of an envisaged retrofit, and its feasibility within the framework of the poultry facility's operations.
15. Only registered waste service providers with licenced facilities should be contracted for any waste removed from the poultry facility.
16. Compliance with this EMP must be audited at least once every year and immediately after decommissioning (if applicable at any stage) and rehabilitation.

9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

In order for the poultry facility to remain competitive in the backdrop of high feed costs and rising electricity prices, an upgrade is urgently required to achieve the economies of scale necessary for sustenance and profitability of the operations. There is a huge demand for poultry meat in South Africa as confirmed by the Industrial Development Corporation's head of research and information, Jorge Maia, in one article published in the BDlive on 20th March 2015; "*Though the number of broilers slaughtered and poultry meat produced have increased in recent years, SA still does not produce sufficient quantities to satisfy demand, with the shortfall addressed through imports. Poultry imports, particularly chicken, have posed a major*

problem for the domestic industry, especially in recent years and particularly for smaller producers ". The proposed upgrade of the poultry facility will therefore contribute in meeting the market demand for poultry meat thereby reducing imports and promoting the entire poultry value chain in South Africa.

Furthermore, according to Jorge Maia, poultry producers and processors must be assisted in attaining economies of scale, gaining market access and achieving sustainable competitiveness. "*This will gradually contribute towards satisfying local demand, which is growing rapidly, while enhancing the industry's overall contribution to the economy, including job creation"*. The proposed upgrade will create additional jobs and business opportunities during construction and operation.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED
(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)

Five years from the date of issue.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	**YES**

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s)

Appendix A1: Locality Maps

Appendix A2: Site Development Plan

Appendix A3: Ecological Sensitivity Layout & Gauteng C-Plan

Appendix B: Photographs

Appendix C: Facility illustration(s) *(Not Available)*

Appendix D: Route position information *(Not Applicable)*

Appendix E: Public participation information

Appendix E1 – Proof of site notice

Appendix E2 – Written notices issued as required in terms of the regulations

Appendix E3 – Proof of newspaper advertisements

Appendix E4 –Communications to and from interested and affected parties

Appendix E5 – Minutes of any public and/or stakeholder meetings

Appendix E6 - Comments and Responses Report

Appendix E7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix E8 –Comments from I&APs on amendments to the BA Report

Appendix E9 – Copy of the register of I&APs

Appendix E10 –Draft BAR distribution list and proof of submission

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information *(Not yet available)*

Appendix G: Specialist reports

Appendix G1: Preliminary Geotechnical Investigation

Appendix G2: Wetland Assessment & Delineation

Appendix G3: Heritage Impact Assessment

Appendix H: EMPr

Appendix I: Other information

Appendix I1: Confirmation on submitted Eskom application

Appendix I2: Confirmation on contracted waste service provider

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.