

**PROPOSED WELTEVREDEN HATCHERY,  
BROILER AND SOW UNIT**

**FARM WELTEVREDEN 278 JR, MAHIKENG  
LOCAL MUNICIPALITY, NGAKA MODIRI  
MOLEMA DISTRICT**



**DRAFT BASIC ASSESSMENT REPORT FOR  
PUBLIC REVIEW**

**Prepared for:**

JR Poultry CC

Po Box 651

Zeerust

2865

Report Date:

April 2021

**Compiled by:**



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## EXECUTIVE SUMMARY

JR Poultry CC wishes to establish the following on the Farm Weltevreden 278 JR, Mahikeng Local Municipality, Ngaka Modiri Molema District:

- 10 x Broiler Units with 63 000 chickens each (630 000 chickens);
- 1 x Hatcher that can accommodate 80 000 eggs per day; and
- 1 x Sow Unit with 600 pigs.

The following supporting services are planned:

- Water will be sourced from onsite boreholes;
- Electricity will be serviced through Eskom;
- Existing access to the site is available; and
- A Biodigester will be used for the processing of pig manure into solids and liquids.

The Farm is currently used for agricultural purposes and is owned by the Applicant whom also operates a registered abattoir located 5km from the site and will thus continue to service an existing market.

The activity will require an Environmental Authorisation prior to implementation in terms of the 2014 Environmental Impact Assessment (EIA) Regulations, Government Notice Regulation (GNR) 324 – 327 (as amended), promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) (NEMA), namely: GNR 327: Activity 4, 5, 8, 9 and GNR 324: Activity 12.

The following activities in term of Schedule 19 (2) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [NEM:WA] are also relevant, namely: GN 1094: Category A :1 and 3.

This report constitutes as the Draft Basic Assessment Report intended for public review for a period of 30 days after which it will be finalised and submitted to the Department of Economic Development, Environment, Conservation and Tourism - North West Provincial Government (DEDECT) for decision making.



## APPLICANT AND EAP DETAILS

**Table 1: Applicant Details**

|                           |                           |
|---------------------------|---------------------------|
| <b>Name of Applicant:</b> | JR POULTRY CC             |
| <b>Contact Person:</b>    | Cilliers Harman           |
| <b>Contact Number:</b>    | 0842400263                |
| <b>Email:</b>             | cilliers@jrpoultry.co.za  |
| <b>Postal Address:</b>    | Po Box 651, Zeerust, 2865 |

**Table 2: EAP Details**

|                          |  |
|--------------------------|--|
| <b>EAP Company:</b>      | ENVIROSYNERGY CONSULTING   |
| <b>Company Reg. No.:</b> | 2015/236393/07   |
| <b>Postal Address:</b>   | Postnet Suite #252, Private Bag X025, Lynnwood Ridge,0040                    |
| <b>Contact Person:</b>   | Carene Kruger  |
| <b>Contact Number:</b>   | 079 824 7255   |
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| <b>Website:</b>          | <a href="http://www.envirosynergy.co.za">www.envirosynergy.co.za</a>         |



This report fulfils the requirements of Appendix 1 of GNR 326 of the 2014 EIA Regulations (as amended), which outlines the required content of a Basic Assessment Report as summarised in **Table 3** below:

**Table 3: GNR 326 Appendix 1 – Basic Assessment Reporting Requirements**

| NO.     | REQUIREMENT  | REFERENCE                |
|---------|--|--------------------------|
| 2(a)    | Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context.  | Section A.8 / Table 9    |
| 2(b)    | Identify the alternatives considered, including the activity, location, and technology alternatives.   | Section A.3              |
| 2(c)    | Describe the need and desirability of the proposed alternatives.   | Section E                |
| 2(d)    | Through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on degerming the geographical, physical, biological, social, economic, heritage and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine-<br>(i) the nature, significance, consequence, extent, duration and probability of the impacts occurring to; and<br>(ii) the degree to which these impacts:<br>(aa) can be reversed;<br>(bb) may cause irreplaceable loss of resources;<br>(cc) can be avoided, managed or mitigated; and<br>(dd) through a ranking of the site sensitivities and possible impacts of the activity. | Section D                |
| 2(e)    | Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—<br>(i) identify and motivate a preferred site, activity and technology alternative;<br>(ii) identify suitable measures to avoid, manage or mitigate identified impacts; and<br>(iii) identify residual risks that need to be managed and monitored.  | Section D                |
| 3(1)(a) | A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include details of—<br>(i) the EAP who prepared the report; and<br>(ii) the expertise of the EAP, including a curriculum vitae.   | Table 2 and Appendix 9   |
| 3(1)(b) | The location of the activity, including:<br>(i) the 21-digit Surveyor General code of each cadastral land parcel;<br>(ii) where available, the physical address and farm name;<br>(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.  | Section A.2 and Figure 1 |
| 3(1)(c) | A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is—<br>(i) a linear activity, a description and coordinates of the corridor in which the proposed<br>(ii) activity or activities is to be undertaken; or<br>(iii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.  | Figure 2                 |



| NO.     | REQUIREMENT   | REFERENCE             |
|---------|---|-----------------------|
| 3(1)(d) | A description of the scope of the proposed activity, including—<br>(i) all listed and specified activities triggered and being applied for; and<br>(ii) a description of the activities to be undertaken including associated structures and infrastructure.  | Table 6               |
| 3(1)(e) | A description of the policy and legislative context within which the development is proposed including—<br>(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal<br>(ii) development planning frameworks, and instruments that are applicable to this<br>(iii) activity and have been considered in the preparation of the report; and<br>(iv) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments.  | Section A.8 / Table 9 |
| 3(1)(f) | A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.   | Section E             |
| 3(1)(g) | A motivation for the preferred site, activity and technology alternative.   | Section F             |
| 3(1)(h) | A full description of the process followed to reach the proposed preferred alternative within the site, including—<br>(i) details of all the alternatives considered;<br>(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;<br>(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;<br>(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;<br>(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts—<br>(aa) can be reversed;<br>(bb) may cause irreplaceable loss of resources; and<br>(cc) can be avoided, managed or mitigated;<br>(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;<br>(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;<br>(viii) the possible mitigation measures that could be applied and level of residual risk;<br>(ix) the outcome of the site selection matrix;<br>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and<br>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity. | Section D             |



| NO.     | REQUIREMENT   | REFERENCE                        |
|---------|---|----------------------------------|
| 3(1)(i) | A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including—<br>(i) a description of all environmental issues and risks that were identified during the<br>(ii) environmental impact assessment process; and<br>(iii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures. | Section D                        |
| 3(1)(j) | An assessment of each identified potentially significant impact and risk, including—<br>cumulative impacts;<br>(i) the nature, significance and consequences of the impact and risk;<br>(ii) the extent and duration of the impact and risk;<br>(iii) the probability of the impact and risk occurring;   | Section D                        |
| 3(1)(k) | Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;  | Section D                        |
| 3(1)(l) | An environmental impact statement which contains—<br>(i) a summary of the key findings of the environmental impact assessment;<br>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and<br>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;                       | Section F                        |
| 3(1)(m) | Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.  | Section D                        |
| 3(1)(n) | Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;   | Section F                        |
| 3(1)(o) | A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed.   | N/A                              |
| 3(1)(p) | A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.   | Section F                        |
| 3(1)(q) | Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.  | N/A                              |
| 3(1)(r) | An undertaking under oath or affirmation by the EAP in relation to—<br>(i) the correctness of the information provided in the reports;<br>(ii) the inclusion of comments and inputs from stakeholders and I&APs;<br>(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and<br>(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties;  | Included in the Application Form |



| NO.     | REQUIREMENT   | REFERENCE                       |
|---------|---|---------------------------------|
| 3(1)(s) | Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.    | N/A                             |
| 3(1)(t) | Any specific information that may be required by the competent authority;   | To be included in the Final BAR |
| 3(1)(u) | Any other matters required in terms of section 24(4)(a) and (b) of the Act.   | To be included in the Final BAR |
| 3(2)    | Where a government notice gazetted by the Minister provides for the basic assessment process to be followed, the requirements as indicated in such a notice will apply. | N/A                             |



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## DEFINITION OF TERMS

|                            |  |
|----------------------------|--|
| Alien Invasive Vegetation: | Invasive alien vegetation refers to plants brought to South Africa from other countries, both intentionally and unintentionally, that cause human, environmental or economic harm. Without natural enemies, these plants reproduce and spread rapidly, taking valuable water and space from indigenous plants. Many alien plants consume more water than local plants, depleting our valuable underground water resources. Dense alien vegetation can also provide plenty of fuel for veldfires, making them exceptionally hot, which damages the burnt area's soil structure. |
| Assessment                 | A systematic, independent and documented review of operations and practises to ensure that relevant requirements are met.  |
| Construction               | The time period that corresponds to any event, process, or activity that occurs during the Construction phase (e.g., building of site, buildings, and processing units) of the proposed project. This phase terminates when the project goes into full operation or use.   |
| Cumulative Impacts         | The summation of the effects that result from changes caused by a development in conjunction with the other past, present or reasonably foreseen actions (The landscape Institute, Institute of Environmental Management & Assessment. 2002).  |
| Decommissioning            | to remove or retire (a facility, plant etc.) from active service.  |
| Environmental Component    | An attribute or constituent of the environment (i.e., air quality; marine water; waste management; geology, seismicity, soil, and groundwater; marine ecology; terrestrial ecology, noise, traffic, socio-economic) that may be impacted by the proposed project.  |
| Environmental Impact       | A positive or negative condition that occurs to an environmental component as a result of the activity of a project or facility. This impact can be directly or indirectly caused by the project's different phases (i.e., Construction, Operation, and Decommissioning).  |
| Hazardous Waste            | "hazardous waste" means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles.  |
| Operation                  | The time period that corresponds to any event, process, or activity that occurs during the Operation (i.e., fully functioning) phase of the proposed project or development. (The Operation phase follows the Construction phase, and then terminates when the project or development goes into the Decommissioning phase.)  |
| Record of Decision         | Is an environmental authorisation issued by a state department.  |
| Wetland                    | Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.   |



## ACRONYMS

|        |   |
|--------|---|
| BAR    | Basic Assessment Report   |
| DEA    | Department of Environmental Affairs   |
| DEAT   | Department of Environmental Affairs and Tourism                               |
| DEDECT | Department of Economic Development, Environment, Conservation and Tourism     |
| DEFF   | Department of Environment Forestry and Fisheries                              |
| DHSWS  | Department of Human Settlements Water and Sanitation                          |
| EAP    | Environmental Assessment Practitioner   |
| EIA    | Environmental Impact Assessment   |
| GNR    | Government Notice Regulation  |
| ha     | Hectares  |
| I&AP   | Interested and Affected Party   |
| IEM    | Integrated Environmental Management   |
| MBgl   | Metres Below Ground Level   |
| NEMA   | National Environmental Management Act (Act No. 107 Of 1998)                   |
| NEM:BA | National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) |
| NEM:WA | National Environmental Management: Waste Act                                  |
| NHRA   | National Heritage Resources Act,1999 (Act No. 25 of 1999)                     |
| NWA    | The National Water Act 1998 (Act No 36 of 1998)                               |
| PICC   | Presidential Infrastructure Co-ordinating Commission                          |
| PPP    | Public Participation Process  |
| SDF    | Spatial Development Framework   |
| WULA   | Water Use License Application   |



## A. SECTION A: ACTIVITY INFORMATION

### A.1 PROJECT DESCRIPTION

The site (Farm Weltevreden 278 JR) earmarked for the Hatchery, Broiler and Sow Unit is situated in the North West Province near the town of Zeerust (**Figure 2**). The site measures 314.62 hectares (ha) according to the title deed and the proposed development footprint will be 3.6 ha.

The site is currently used for agricultural purposes by the Applicant, who is also the owner of the relevant farm. The Applicant, JR Poultry CC, wishes to establish the following facilities on site (**Figure 2**):

**Table 4: Summary of Proposed Activities**

| Infrastructure      | Description   | Footprint  |
|---------------------|---|--|
| Broiler Units       | 10 broiler units housing 63 000 chickens each (630 000 total chickens).<br><br>Each broiler measured 3000m <sup>2</sup> (20 x150m).   | The total footprint is estimated at 30 000m <sup>2</sup> / 3ha   |
| Hatchery            | One (1) hatchery that can accommodate 80 000 eggs per day.  | The hatchery measures 2000m <sup>2</sup> / 0.2ha   |
| Sow Unit            | One (1) sow unit that can accommodate 600 sows<br><br>No boars will be kept as sows will be artificially inseminated.   | The sow unit measures 1,350m <sup>2</sup> / 0,135ha (92.25m <sup>2</sup> per sow required)   |
| Supporting Services | <p><b>Water:</b><br/>An on-site borehole is available. A water pipeline transporting water to the broiler, hatchery and sow unit from the borehole will be required.</p> <p><b>Power:</b><br/>Electricity will be serviced through an Eskom connection.</p> <p><b>Site Access:</b><br/>Existing Access to the site is available off the R49.</p> <p><b>Other:</b><br/>Showers, Security point, Stock Room, Office, and Parking.</p> | <p>Total size: 2000m<sup>2</sup>/0,2ha<br/>(1000m length of pipeline x 2m servitude)</p> <p>(50m x 10m = 500m<sup>2</sup> / 0,05 ha)</p> |



| Infrastructure | Description   | Footprint  |
|----------------|---|--|
| Waste          | <p><b>Waste Management:</b></p> <p>Manure (estimated at 109,34m<sup>3</sup> per day) will be pumped to a holding pond (Slurry Dam) to be recycled while the solids are concentrated and composted, and then sold to local farmers as fertilizer.</p> <p>Chicken waste will be collected every cycle (6 weeks) when chicken houses are cleaned. Should there be no demand for the waste, the waste will be disposed of at a licensed facility.</p> <p>General waste will be managed according to the norms and standards contained in the National Waste Act and municipal by-laws</p> | 20m x 20 m <sup>2</sup> = 400m <sup>2</sup><br>/0.04ha (slurry dam/effluent dam) |
| Biosecurity    | The facility will be fenced and will have one access point to control entry into the facility. Disinfectant sprayers will be installed at the entrance to the piggery to disinfect all vehicles entering the farm. A biosecurity plan must be implanted prior to operations commencing.   |  |

## A.2 PROPERTY DESCRIPTION

Table 5: Property Description

|                              |                                  |
|------------------------------|----------------------------------|
| <b>Farm</b>                  | FARM WELTEVREDEN 278 JP, ZEERUST |
| <b>LPI Code</b>              | TOJP00000000027800000            |
| <b>Local Municipality</b>    | Mahikeng Local Municipality      |
| <b>Nearest Town</b>          | Mahikeng                         |
| <b>Ward Number</b>           | 4                                |
| <b>District Municipality</b> | Ngaka Modiri Molema District     |









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## A.3 PROJECT ALTERNATIVES

### A.3.1 Option 1: No separation of slurry, storage of effluent

This option does not involve waste separation nor does it utilise effluent for fertilizer. This will require larger storage capacity and is less environmentally sustainable.

### A.3.2 Option 2: Separation of slurry, re-use of effluent

This option was selected as the more preferred option, where the slurry will be fully separated via 'n Biodigester into solids and liquids. Solid waste will be used for fertilizing agricultural lands and /or removed off-site and sold to local farmers. By separating the slurry, the capacity required for waste water storage of effluent decreases and recycling of manure is promoted. This approach is in line with the Waste Management Hierarchy of South Africa.

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## A.4 IDENTIFIED IMPACTS

Most of the impacts associated with the project has a low significance rating after mitigation. The impacts that have been rated as having a medium significance following mitigation include:

- Odour and ambient air quality during the operational phase and as a cumulative impact; and
- Visual Impact of the new facility during the operational phase.

The following impacts have been rated as having a low significant after mitigation, however proper management, mitigation and monitoring is required in order to reduce significant impacts on the receiving environment, these include:

- Ground and surface water pollution from improper waste water management and manure handling;
- Biosecurity risks associated with piggery and poultry facilities; and
- Proliferation of alien vegetation on site.

The project will have the following positive impacts:

- Job creation during the construction and operational phase;
- Stimulation of the local and regional economy; and
- Contribution to food security in South Africa; and



- Meeting of local, provincial and national planning policies on job creation and economic stimulation.

## A.5 DESCRIPTION OF THE LISTED ACTIVITIES

Table 6: Listed Activities

| Listed activity:  | Activity No (s) and Activity Description (in terms of the relevant notice)   | Project Activity Description   |
|---|--|--|
| GOVERNMENT<br>GAZETTE, 7 APRIL 2017-<br>No. 40772 – NO. 327 | <p><b>Activity 4</b></p> <p>The development and related operation of facilities or infrastructure for the- concentration of—</p> <p><del>(0) more than 1 000 poultry per facility situated within an urban area, excluding chicks younger than 20 days;</del></p> <p>(ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days;</p> <p><del>(0) more than 5 000 chicks younger than 20 days per facility situated within an urban area; or</del></p> <p>(iv) more than 25 000 chicks younger than 20 days per facility situated outside an urban area.</p> | <p>Construction of 10 x broiler houses that will accommodate 63 000 young chicks each. Therefore 630 000 young chicks at any one time.</p> <p>The construction of a hatchery (ies) that can produce 80 000 eggs per day.</p> |
| GOVERNMENT<br>GAZETTE, 7 APRIL 2017-<br>No. 40772 – NO. 327 | <p><b>Activity 5</b></p> <p>The development and related operation of facilities or infrastructure for the concentration of animals in densities that exceed—</p> <p>20 square metres per large stock unit and more than 500 units per facility; (ii) 8 square meters per small stock unit and;</p> <p><del>a. more than 1 000 units per facility excluding pigs where (b) applies; or</del></p> <p>b. more than 250 pigs per facility excluding piglets that are not yet weaned.</p>   | <p>The development of a pig facility that can accommodate 600 sows at any one time.</p>  |
| GOVERNMENT<br>GAZETTE, 7 APRIL 2017-<br>No. 40772 – NO. 327 | <p><b>Activity 8</b></p> <p>The development and related operation of hatcheries or agri-industrial facilities outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.</p>  | <p>The construction of a hatchery (ies) that can produce 80 000 eggs per day. The footprint will exceed 2000m<sup>2</sup>.</p>   |



| Listed activity:  | Activity No (s) and Activity Description (in terms of the relevant notice)  | Project Activity Description   |
|---|---|--|
| <p>GOVERNMENT<br/>GAZETTE, 7 APRIL 2017-<br/>No. 40772 – NO. 327</p>  | <p><b>Activity 9</b><br/>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—<br/>(i) with an internal diameter of 0,36 metres or more; or<br/>(ii) with a peak throughput of 120 litres per second or more.</p>   | <p>Water Pipes will be required to transport water from the onsite borehole to the hatchery, broiler and sow unit. The length of the pipe could exceed 1km.</p>  |
| <p>Government Gazette 11<br/>October 2017 – No 41175 –<br/>No 1094<br/><br/>(National Environmental<br/>Management: Waste Act,<br/>2008 (Act No. 59 of 2008)<br/>[NEMWA])</p> | <p><b>Category A: Activity 1</b><br/>The storage of general waste in lagoons.</p>   | <p>The biodegradable wastewater will be collected in a sump. From the sump the solids will be screened out and the liquid will be pump to a lined slurry dam from where it will be reused for irrigation purposes in accordance with the recommendations for the application of wastewater to agricultural land as presented in the prescribed Water Research Commission Guidelines.</p> |
|   | <p><b>Category A: Activity 3</b><br/>The recycling of general waste at a facility that has an operational area of in excess of 500m2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same process.</p>  |  |
| <p>GOVERNMENT<br/>GAZETTE, 7 APRIL 2017-<br/>No. 40772 – NO. 327</p>  | <p><b>Activity 27</b><br/>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.</p>  | <p>The construction footprint could trigger the removal of 1 hectares of indigenous vegetation across the site although the areas where the facilities are planned are already transformed via agricultural fields.</p>  |
| <p>GOVERNMENT<br/>GAZETTE, 7 APRIL 2017-<br/>No. 40772<br/>NO. 324</p>  | <p><b>Activity 12</b><br/>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.<br/><br/><b>h. North West</b><br/><br/>iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;<br/><br/>v. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority.</p> | <p>The construction phase will could entail the removal of more than 300m2 of indigenous vegetation across the site which has been identified as “sensitive” (ESA, CBA) by the Competent Authority.</p>  |



## A.6 DETAIL AND SIZE OF INFRASTRUCTURE

### A.6.1 Buildings and Services

Table 7: Infrastructure Footprints

| Infrastructure                                    | Size (ha)       |
|---|-----------------|
| Broiler Unit x 10                                 | 3 ha            |
| Hatchery x 1                                      | 0,2 ha          |
| Sow Unit x 1                                      | 0,135 ha        |
| Water Pipeline                                    | 0,2 ha          |
| Ablution Facility, Office and Stock Room, Parking | 0,05 ha         |
| Roads   | 0 ha (existing) |
| Power   | 0 ha (existing) |
| Slurry Dam / Effluent Dam                         | 0,04 ha         |
| <b>Total</b>                                      | <b>3, 6 ha</b>  |

### A.6.2 Water Requirements

The combined drinking water requirements for the sows and chickens is estimated at 63m<sup>3</sup> per day. Water will also be required for washing of cages, washing of eggs, office, ablution block and potable water for staff. This is estimated at another 40m<sup>3</sup> per day. The combined water requirement will thus be 103 m<sup>3</sup> per day. The existing boreholes on site have sufficient yield to meet the proposed water requirement.

### A.6.3 Waste and Effluent

Table 8: Quantity of Manure produced per Day

| Unit         | Max Units | Average Volume/ Unit  | Volume / Day               |
|--------------|-----------|-----------------------|----------------------------|
| Broiler Unit | 630 000   | 0,0001 m <sup>3</sup> | 71.94m <sup>3</sup>        |
| Hatchery     | 80 000    | 0, 045 m <sup>3</sup> | 8m <sup>3</sup>            |
| Sow Unit     | 600       | 0,049 m <sup>3</sup>  | 29,4m <sup>3</sup>         |
| <b>Total</b> |           |                       | <b>109,34m<sup>3</sup></b> |

#### A.6.3.1 Sow Unit

The pigs produce on average 28,000 litres of effluent per day. The effluent is a mixture of faeces, urine, and wash water. The pigs are housed in fully slatted or partially slatted floors. No bedding or



sawdust is used. The manure (solids and liquids) excreted by the animals falls through a slatted floor. The manure is temporarily stored under the slatted floor in an effluent holding pit until the “flushing plug” is opened daily to release the effluent, which flows through a pipe to a slurry sump (**Figure 3**). The effluent is then pumped from the slurry sump through a fixed separator which separates any solids from the sludge. The liquid is pumped to a holding pond (Slurry Dam) to be recycled while the solids are concentrated and composted, and then sold to local farmers as manure or sprayed on the agricultural fields via a honey sucker.

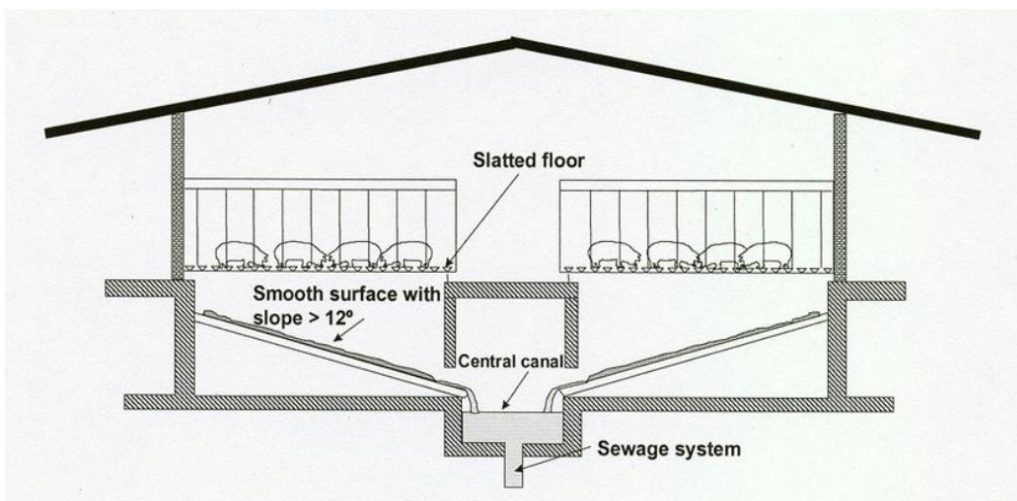


Figure 3: Example of Slatted Floor

Composted Manure: Up to 9000 tons of composted manure can be produced annually by the 600 sow unit. The compost will be used as fertiliser on the existing field or will be sold as compost.

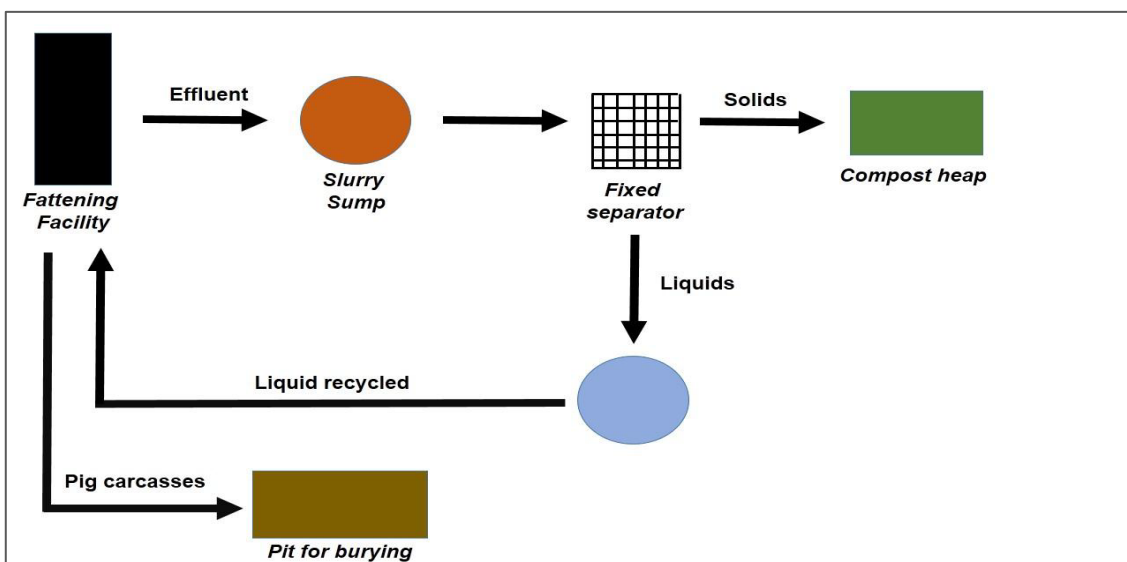


Figure 4: Waste Flow Chart



### A.6.3.2 Broiler House and Hatchery

The broiler houses and hatchery will be cleaned with a low toxicity biodegradable liquid which will result in a slurry mix of the liquid with parts of chicken manure and mortalities. Manure will be collected every cycle (6 weeks) when chicken houses are cleaned. Poultry manure has a very high nitrogen (N) content, making it a valuable fertilizer for crops. It also supplies essential plant nutrients and serve as a soil amendment by adding organic matter, which helps improve the soil's moisture and nutrient retention.<sup>1</sup> Should there be no demand for the manure, it will be disposed of at a licenced facility.



Figure 5: Example of broiler unit

## A.7 FEASIBLE AND REASONABLE ALTERNATIVES

“*Alternatives*”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

<sup>1</sup> <https://edis.ifas.ufl.edu/publication/aa205>





### A.7.1 Site Alternatives

The Applicant is the owner of the property and therefore site alternatives are not considered feasible.

### A.7.2 Layout Alternatives

No layout alternatives have been considered, but could become feasible later on.

### A.7.3 Other Alternatives (scheduling, demand, input, scale and design alternatives)

#### A.7.3.1 Heating efficiency

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Heat lamps within the farrowing pens are known as significant contributors to energy usage as such the Applicant shall install thermostats. Installation of the thermostats will ensure efficiency by controlling temperature in the pens.

#### A.7.3.2 Cooling efficiency

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Large fans will be used as a method of cooling, mainly because they have the ability to move air faster than small fans. These fans will be maintained regularly to ensure that they operate efficiently.

#### A.7.3.3 Lighting efficiency

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Energy saving light bulbs will be used for the development; the use of this energy saving bulbs will improve the efficiency of the operation.

#### A.7.3.4 Technology Alternatives – Slurry handling

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#### **Option 1: No separation of slurry, storage of effluent**

This option does not involve waste separation nor does it utilise effluent for fertilizer. This will require larger storage capacity and is less environmentally sustainable.

#### **Option 2: Separation of slurry, re-use of effluent**

This option was selected as the more preferred where the slurry will be fully separated via 'n Biodigester into solids and liquids. Solid wastes will be used for fertilizing agricultural lands and /or removed off-site and sold to local farmers. By separating the slurry, the capacity required for waste water storage of effluent decreases and recycling of manure is promoted. This approach is in line with the Waste Management Hierarchy of South Africa<sup>2</sup>

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<sup>2</sup> Department of Environmental Affairs, Waste Management Hierarchy, 2017

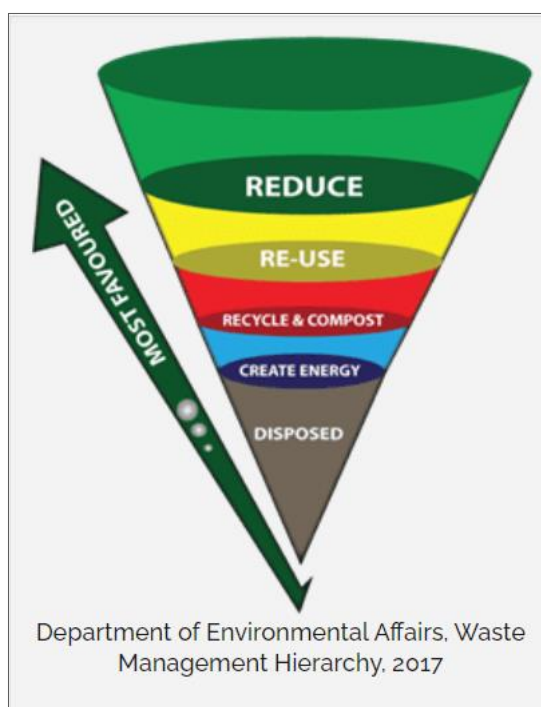


Figure 6: Waste Flow Chart

#### A.7.4 No-Go Alternative

Numerous jobs and infrastructure development will not be realised including various in-direct economic spin offs will be lost.

### A.8 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Table 9: Applicable Legislation

| Title of legislation, policy or guideline:                                    | Administering authority: | Promulgation Date: |
|---|--------------------------|--------------------|
| Constitution of the Republic of South Africa Act, 1996 (Act No 108 of 1996)   | National                 | 1997               |
| National Environmental Management Act, 1998 (Act No. 107 of 199) as amended   | National & Provincial    | 27 November 1998   |
| National Water Act, 1998 (Act No. 36 of 1998) as amended                      | National & Provincial    | 26 August 1998     |
| National Waste Act ,2008 (Act No. 59 of 2008)                                 | National                 |                    |
| National Heritage Resources Act, 1999 (Act No. 25 of 1999)                    | National & Provincial    | 1999               |
| National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) | National & Provincial    | 2004               |





| Title of legislation, policy or guideline:   | Administering authority: | Promulgation Date: |
|--|--------------------------|--------------------|
| Environmental Impact Assessment Regulations, 2014 (as amended)   | National                 | 2014               |
| Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)   | National                 | 2000               |
| Spatial Planning and Land Use Management Act, 2013: Spatial Development Framework, 2016: North West Province | Provincial               | 2016               |
| Mahikeng Local Municipal IDP, 2017 -2022   | Local                    | 2017               |

Table 10: Legislative Framework

| Legislation, Policy Or Guideline   | Description Of Compliance  |
|--|--|
| <b>Constitution of the Republic of South Africa Act, 1996 (Act No 108 of 1996)</b> | <i>Section 24 of the Constitution of South Africa No. 108 of 1996 states that "...everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."</i> This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development.<br><br>The project will ensure of such rights. |
| <b>National Environmental Management Act, 1998 (Act No. 107 of 1998)</b>           | The Environmental Authorisation for the proposed development is lawfully applied for in terms of the EIA Regulations, 2014, promulgated under NEMA. The conditions on the Environmental Authorisation, if approved, will be adhered to.  |
| <b>The National Water Act 1998 (Act No 36 of 1998)</b>                             | The proposed activity requires a Water Use License Application under Section 21 (a); (c); (e); (g) and (i) of the National Water Act. An application will be submitted to the Department of Water and Sanitation.  |
| <b>National Waste Act ,2008 (Act No. 59 of 2008)</b>                               | The proposed project requires a Waste Management License under the National Environmental Management: Waste Act (Act no. 59 of 2008), Category A (1) and (3) of GN. R 921 (29 November 2013).  |



| Legislation, Policy Or Guideline  | Description Of Compliance  |
|---|--|
| <p><b>National Heritage Resources Act,1999 (Act No. 25 of 1999)</b></p>                     | <p>Activities exceeding 0.5ha and/or linear infrastructure exceeding 300m must be subjected to a Heritage Impact Study and subsequent Section 38 approval of SAHRA.</p> <p>To this effect, a Heritage Impact Study was undertaken.</p>   |
| <p><b>National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)</b></p> | <p>The fauna and flora prevailing in the proposed project site will be handled in terms or respect of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) as amended (NEMBA) including all the pieces of legislation published in terms of this act.</p> <p>To this effect, a Biodiversity Study was undertaken</p>  |
| <p><b>Conservation Of Agricultural Resources Act 43 Of 1983 (Act No 43 of 1983)</b></p>     | <p>The objects of this Act are to provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.</p> <p>The site will adhere to these principles via soil conservation and management of alien and invasive species</p>   |
| <p><b>DEA Guidelines on Public Participation</b></p>  | <p>Integrated Environmental Management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development. IEM is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (Department of Environmental Affairs: DEAT, 2004). The IEM guidelines intend endearing a pro-active approach to sourcing, collating and presenting information at a level that can be interpreted at all levels.</p> <p>The report has considered such guidelines.</p> |
| <p><b>DEA Guidelines on Alternatives</b></p>  |  |
| <p><b>DEA Guidelines on Need &amp; Desirability</b></p>                                     |  |
| <p><b>Development Facilitation Act, 1995</b></p>  | <p>The Development Facilitation Act, 1995 stipulates that <i>“policy, administrative practice and laws should promote efficient and integrated development in that they ... discourage the phenomenon of urban sprawl in urban areas and contribute to the development of more compact towns and cities”</i>.</p>  |



| Legislation, Policy Or Guideline  | Description Of Compliance  |
|---|--|
|   | The Weltevreden project is in line with the Local Municipal IDP and SDF.   |
| <b>Hazardous Substances Act, Act No. 15 of 1973</b>                                       | Hazardous substances handling on site complies with the prescription of the Act and general practices have been included in EMPr.      |
| <b>Norms and standards for the storage of waste on site as per GNR926, November 2013.</b> | The EMPr has included measures for the storage and handling of all wastes on site.   |
| <b>North West Spatial Development Planning Framework – 2017</b>                           | The project is in line with the provincial and local development policies and will stimulate the economy and employment opportunities. |



## B. SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

### B.1 CLIMATE

Summer rainfall with very dry winters and the MAP has a relatively narrow range between 550 mm to 600mm (Mucina and Rutherford, 2006). Frost fairly frequent in winter with mean monthly maximum and minimum temperatures for Marico weather station 36.7°C and -0.4°C for January and June, respectively (Mucina and Rutherford, 2006).

### B.2 LAND USE CHARACTER OF THE SURROUNDING AREA

The development area falls within the quarter degree square 2526CA. The site is currently surrounded by existing agricultural land, Rocky Mountains and bushveld, however, the construction of the units will be on the transformed landscape.



Figure 7: Current Land Use

### B.3 TOPOGRAPHY

The area ranges in altitude from 1108 m to 1604 m above sea level. A Digital Elevation Model (DEM) of the aerial photography of the site revealed that the topography of the landscape is relatively



mountainous through the landscape. These mountains are incised with numerous valleys. The landscape is eventually drained by the Sandsloot and Marico rivers and its tributaries.

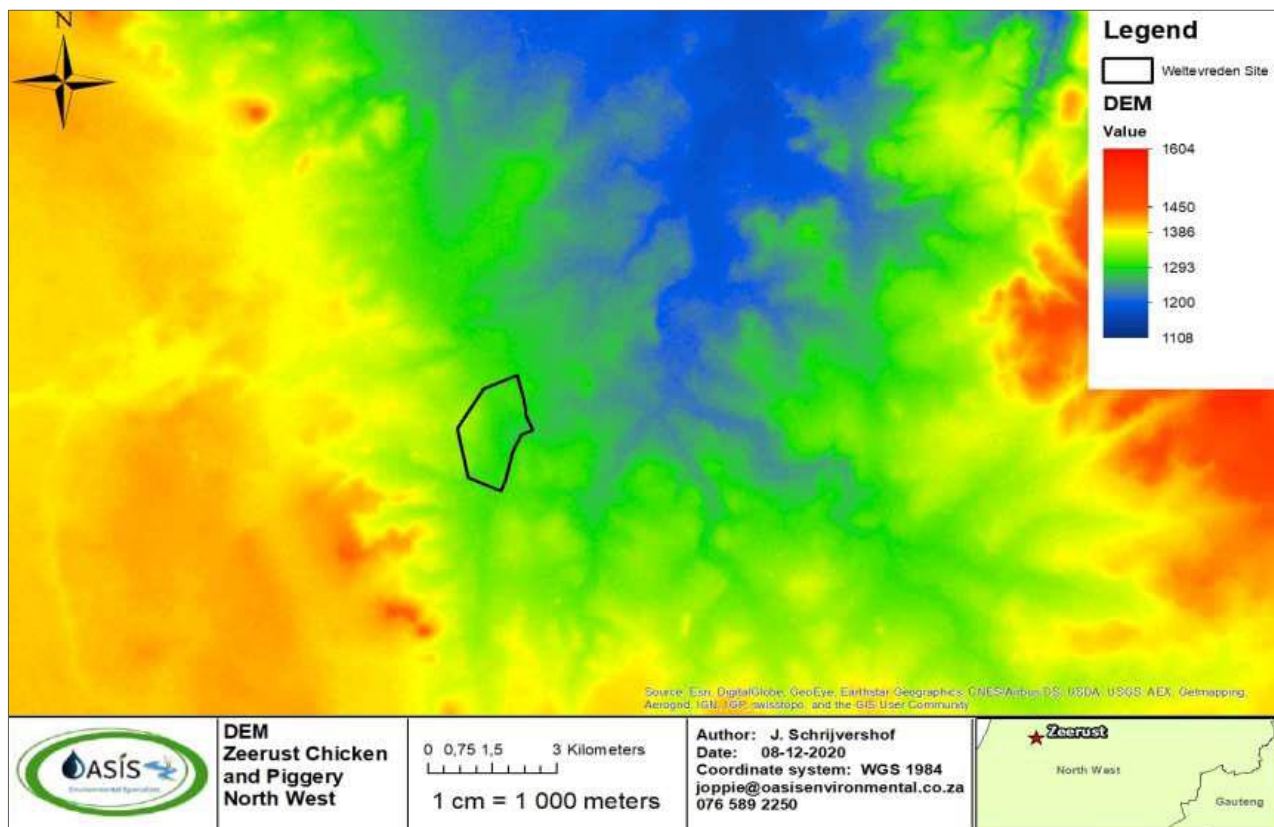


Figure 8: Digital Elevation Model

## B.4 VEGETATION

According to the Critical Biodiversity Areas datasets provided by SANBI (2020), almost the entire application area falls within Critical Biodiversity Area 2 as seen in **Figure 9**. Only a small portion lies within an Ecological Support Area 2. The database needs to be updated as the area has been transformed immensely since this data were obtained.

The farm boundaries fall within the Zeerust Thornveld vegetation type. No plant species of conservation concern were identified during the site visit within the proposed development area, but could be found beyond the reaches in the Mountain and Bushveld. Observed plants included *Vachellia karroo*, *Aloe davyana*, *Phragmites australis*.



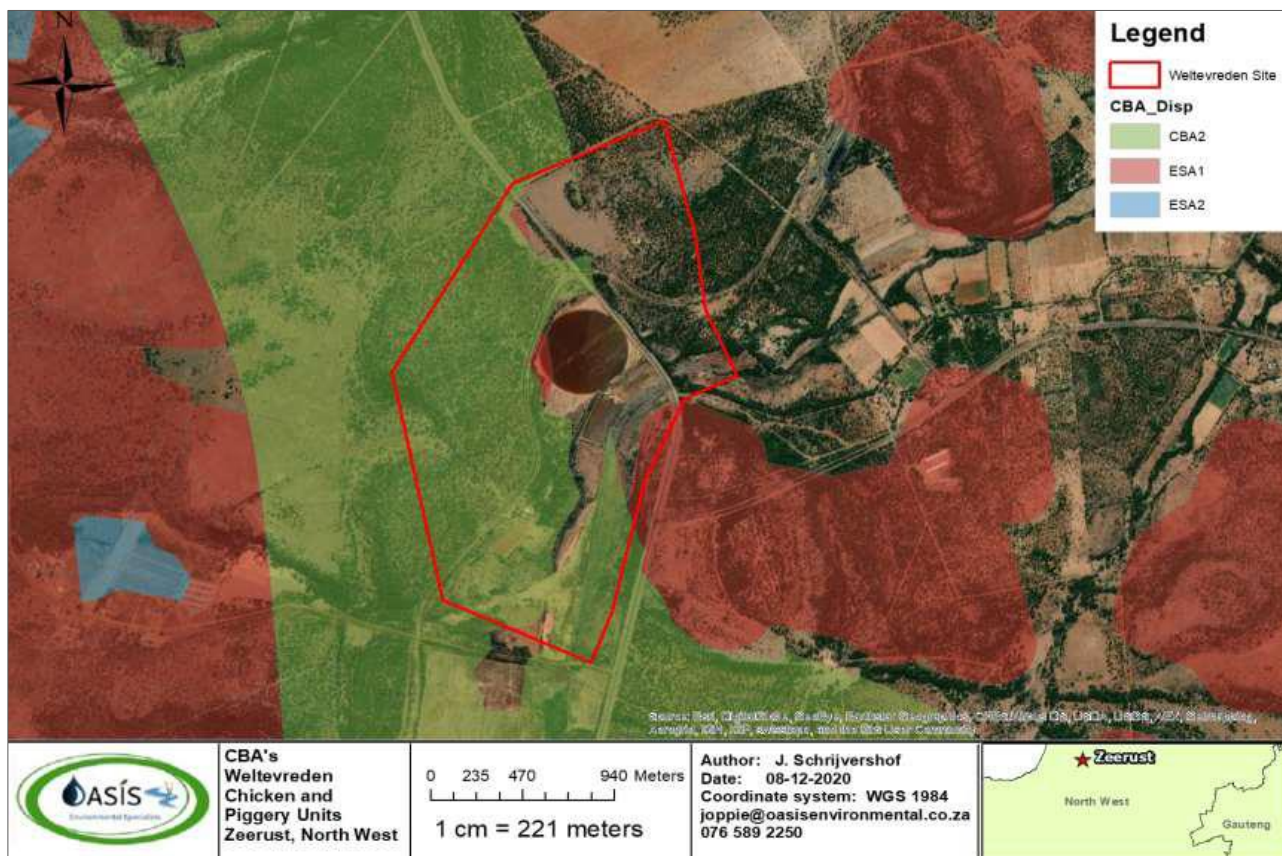


Figure 9: Critical Biodiversity Areas

## B.5 THREATENED ECOSYSTEMS AND ROTECTED AREAS

The proposed development does not overlap with any threatened ecosystems and/or protected areas.

## B.6 IMPORTANT BIRD AREAS

The proposed prospectation project not fall within close proximity to any Important Bird Areas (IBAs).

## B.7 FAUNA

Faunal activity was very low which could be due to the small size of the site and the fact that it falls within a cultivated land and that the site is fenced off from the rest of the natural areas. During the site visit African Warthog (*Phacochoerus africanus*) and Impala (*Aepyceros melampus*) were identified within the Bushveld Areas in the game farms within the area close to the site. The development site could be regarded as a **low sensitive** area with the area being on a historical cultivated land.



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## B.8 SURFACE WATER

The site falls within the quaternary drainage region A31D which is part of the Limpopo Water Management Area. The Limpopo water management area is the northern most water management area in the country and represents part of the South African portion of the Limpopo Basin which is also shared by Botswana, Zimbabwe and Mozambique. The water management area shares international boundaries with Botswana and Zimbabwe, where the Limpopo River demarcates the entire length of the international boundaries before flowing into Mozambique where it discharges into the Indian Ocean. Within South Africa it borders on the Luvuvhu and Letaba, Olifants, and Crocodile (West) and Marico water management areas. (DWS, 2016). Present land use in the water management area is characterised by patches of rain fed cultivation in the central and southern part of the water management area, (DWS, 2016). The natural veld is used for sheep and cattle grazing and to a lesser extent game farming.

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## B.9 WETLANDS

No NFEPA Wetlands were identified within 500 m of the application area according to the NFEPA wetlands database. No wetland conditions were identified based on the soil and vegetation characteristics within 500 m of the proposed chicken broiler development.

'A' section and 'B' section channels were identified within the area of the proposed activity. 'A' section channels are those that do not have baseflow and convey surface runoff immediately after a storm event and are not associated with a riparian zone. 'B' Section channels are categorised as channels that sometimes have baseflow, dependant on rainfall events and are therefore non-perennial. 'The 100 m of the channel's regulated area overlaps with the site as per regulations GN 509 dated August 2016 under the Section 21 (c) and (i) water uses of the NWA, 1998 (Act No 36 of 1998) but not with any proposed infrastructure.



Figure 10: Overall view of the dry channels





The riparian habitat associated with the channels has been classified as moderately modified, Category C with a minor loss of natural habitat, biota and basic ecosystem functions due to adjacent poultry farming and upstream damming. Some alien invasive plant species were also identified within the non-marginal zone of the riparian areas of the channel.

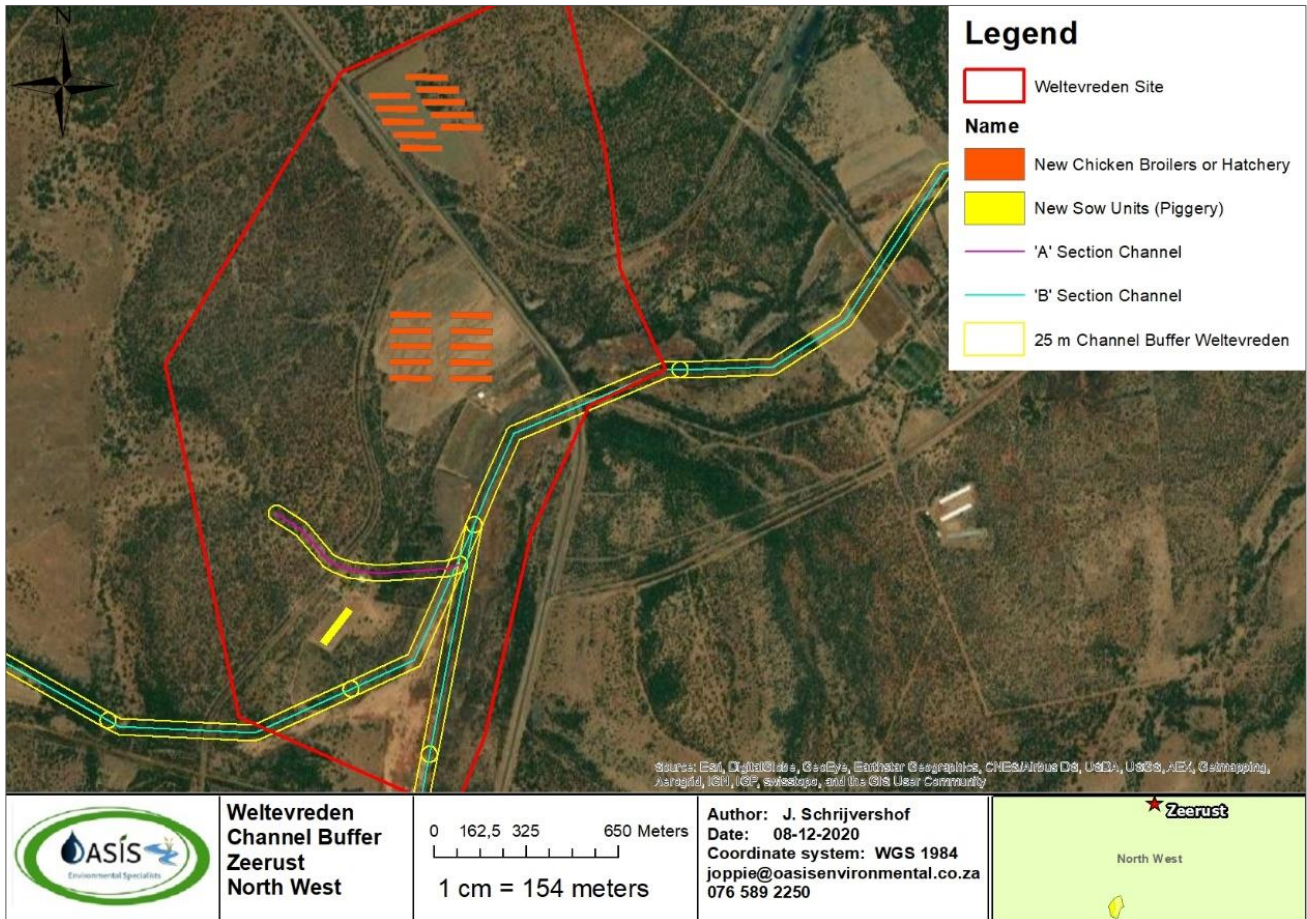


Figure 11: Channel with 100m buffer

## B.10 GROUNDWATER

The general hydrogeology of the study area consists of weathered shallow aquifer overlying the fractured groundwater system. The shallow weathered aquifer generally extends to depths of 10 Metres Below Ground Level (mbgl). The grains in the fresh rock below the weathered zone are well cemented and have low permeability. Most groundwater movement therefore occurs and moves along secondary structures, such as fractures, cracks and joints in the rock. These secondary groundwater storage and flow features are best developed in the sandstone thus leading to improved water-yielding properties of the underlying fractured aquifer system.





During the hydro census, 3 boreholes were available for groundwater level measurement. The groundwater levels varied between a minimum of 9.4 m to a maximum of 12.5 mbgl at an average of 11.2 mbgl. It should be noted that boreholes are situated within 50m of each other and therefore is expected to influence each other once abstracted.

The groundwater type can be described as freshly recharged, unpolluted bicarbonate type waters. Total coliforms were elevated in both boreholes analysed. The elevated coliforms suggest inadequate excessive concentration of nutrients in the groundwater. Several conventional water purification processes, including sedimentation, absorption, coagulation and flocculation will all result in the partial removal of micro-organisms in water (**Table 11**). These processes, however, do not necessarily inactivate the micro-organisms and additional disinfection processes need to be applied. Chlorine disinfection is often practised. Disinfection, however, requires careful process control of the disinfection species, dosage and contact time. In situations where no conventional treatment is practised, micro-organisms can be destroyed by boiling the water before use.

A Water Use License Application is underway for the abstraction of water from the boreholes.

Table 11: Water qualities compared to SANS 241: 2015 drinking water limits

| Determinant  | Risk         | Unit       | Standard limits | WEL BH2 | WEL BH3 |
|--|--------------|------------|-----------------|---------|---------|
| <b>Physical and aesthetic determinants</b>                   |              |            |                 |         |         |
| Conductivity at 25 °C  | Aesthetic    | mS/m       | 170             | 111.3   | 111.2   |
| Total dissolved solids                                       | Aesthetic    | mg/L       | 1 200           | 820     | 788     |
| pH at 25 °C <sup>b</sup>                                     | Operational  | pH units   | 5 to 9.7        | 7.39    | 7.57    |
| <b>Chemical determinants – macro-determinants</b>            |              |            |                 |         |         |
| Nitrate as N (NO <sub>3</sub> - N)                           | Acute health | mg/L       | 11              | 0.94    | 0       |
| Nitrite as N (NO <sub>2</sub> - N)                           | Acute health | mg/L       | 0.9             | 0       | 0       |
| Sulphate as SO <sub>4</sub> <sup>2-</sup>                    | Acute health | mg/L       | 500             | 234     | 227     |
|  | Aesthetic    | mg/L       | 250             | 234     | 227     |
| Chloride as Cl <sup>-</sup>                                  | Aesthetic    | mg/L       | 300             | 10.05   | 9.69    |
| Sodium as Na   | Aesthetic    | mg/L       | 200             | 7.19    | 6.21    |
| Zinc as Zn   | Aesthetic    | mg/L       | 5               |         |         |
| <b>Chemical determinants – micro-determinants</b>            |              |            |                 |         |         |
| Iron as Fe   | Aesthetic    | mg/L       | 0.3             | 0.19    | 0.09    |
| Manganese as Mn  | Aesthetic    | mg/L       | 0.1             | 1       | 0       |
| <b>Microbiological determinants</b>                          |              |            |                 |         |         |
| <i>E. coli</i> <sup>a</sup> or faecal coliforms <sup>b</sup> | Acute health | cfu/100 mL | 0               | 0       | 0       |
| Total coliforms <sup>d</sup>                                 | Operational  | cfu/100 mL | 10              | 180     | 620     |



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## **B.11 CULTURAL / HISTORICAL FEATURES**

In the 1820's the area was affected by the disruptive influence of Mzilikazi (Zulu warrior) and later during the middle and late 19th century the area was settled in by white farmers which resulted in the establishment of fenced farms and formal towns. The town Zeerust was founded in 1868 and named after D.J. Coetzee, the earlier version being Coetzeerust. The town was captured during the South African War (1899-1902) by General R. Baden-Powell. During the site visit/field work no indication of spiritual activity was observed on the site earmarked for development

### **B.11.1 Spiritual value**

During the site visit/field work no indication of spiritual activity was observed on the site earmarked for development.

### **B.11.2 Scientific value**

No sites of scientific value were observed on or near the site earmarked for development.

### **B.11.3 Historical value**

No historical value associated with the site could be found in primary and secondary sources.

### **B.11.4 Aesthetic value**

No heritage item with exceptional aesthetic (architectural) value was identified in the study area.

### **B.11.5 Social value**

Social value is attributed to sites that are used by the community for recreation and formal and informal meetings regarding matters that are important to the community. These sites include parks, community halls, sport fields etc. None of the above is situated on the area earmarked for development.

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## **B.12 SOCIO-ECONOMIC CHARACTER**

### **B.12.1 Mahikeng Municipality**

The total area of the Mahikeng Local Municipality is approximately 3 703km<sup>2</sup>. It is divided into 35 Wards consisting of 102 villages and suburbs. According to the recently released Community Survey results by Statistics South Africa (Stats SA 2011), the population of the municipality is estimated at 305 291 people. Approximately 75% of the area is rural. The rural areas are in the southern and western part of the municipality and are under tribal control.



### B.12.2 Local Economic Development

Agriculture is of extreme importance to the North West economy. It contributes about 6.2% of the total GDP and 19% of formal employment. **Some 5.6% of the South African GDP and 16.9% of total labour in agriculture are based in the North West (2003)**. The province is an important food basket in South Africa. Maize and sunflowers are the most important crops while the Province is also a major producer of white maize in the country. Some of the largest cattle herds in the world are found at Stella and near Vryburg.

Broiler Productions projects can help the Agricultural Sector of Mafikeng LM to add value to their already established poultry industry. This is aimed at slowly incorporating and providing all the services and materials needed to harvest, package and sell the chickens and the eggs they produce (Mahikeng Local Municipal IDP, 2017 -2022).

### B.12.3 Demographics

Within Ward 4 Mafikeng, North West, the majority of the population group is Black Africa (92%) followed by White (7%) persons. Over 50% of the population is male. The most spoken language is Setswana followed by Afrikaans. The median age of the populations is 24 which is little more compared to the greater municipal area of Ngaka Modiri Molema of 23.

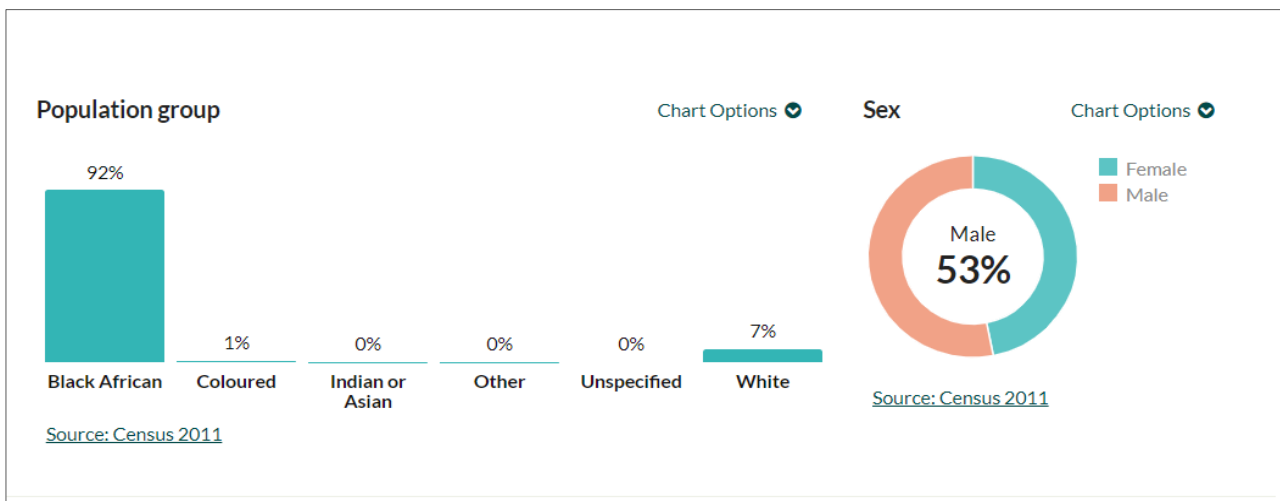


Figure 12: Population Group

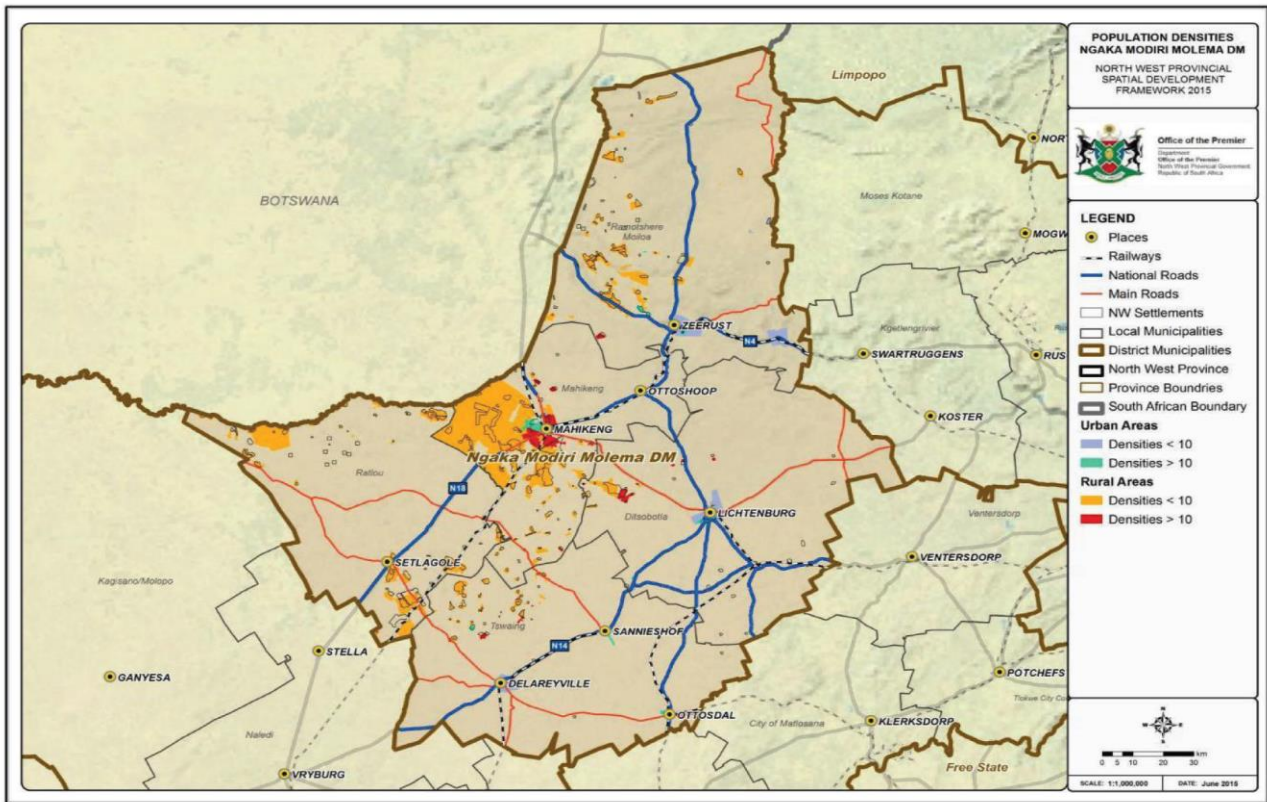


Figure 13: Population Density for Ngaka Modiri Molema District

### B.12.4 Households

In comparison to Ngaka Modiri Molema (12.345), households that are informal dwellings are double which is also 10% higher than the rate for the Province (20. 5%). The majority of households reside in formal housing. 52.2% of households are owned and paid off by the owner.

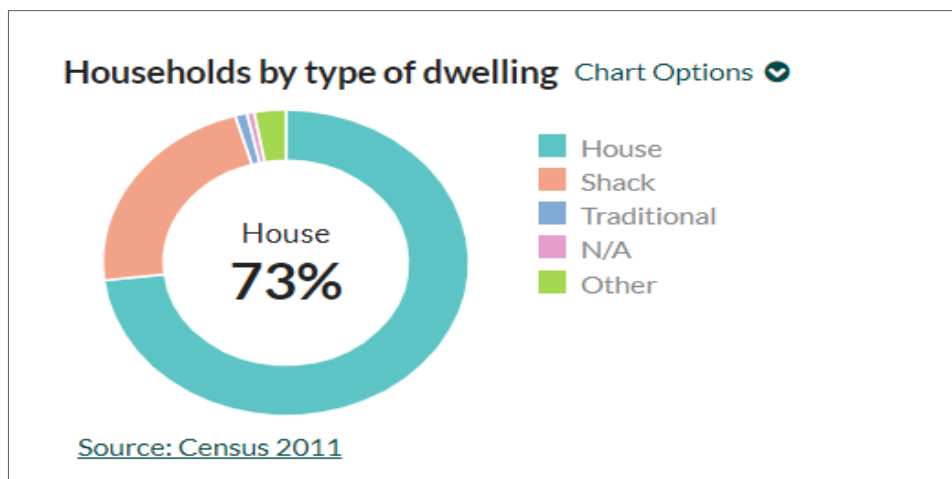


Figure 14: Household by dwelling



The average annual household income is R 14,600, which is less than half of the North West Province average.

### B.12.5 Employment

Over 40% of the population is employed in Ward 4 of the Mafikeng Municipal Area compared to 37% of the rate in North West Province. The majority of employment (55%) is within the formal sector.

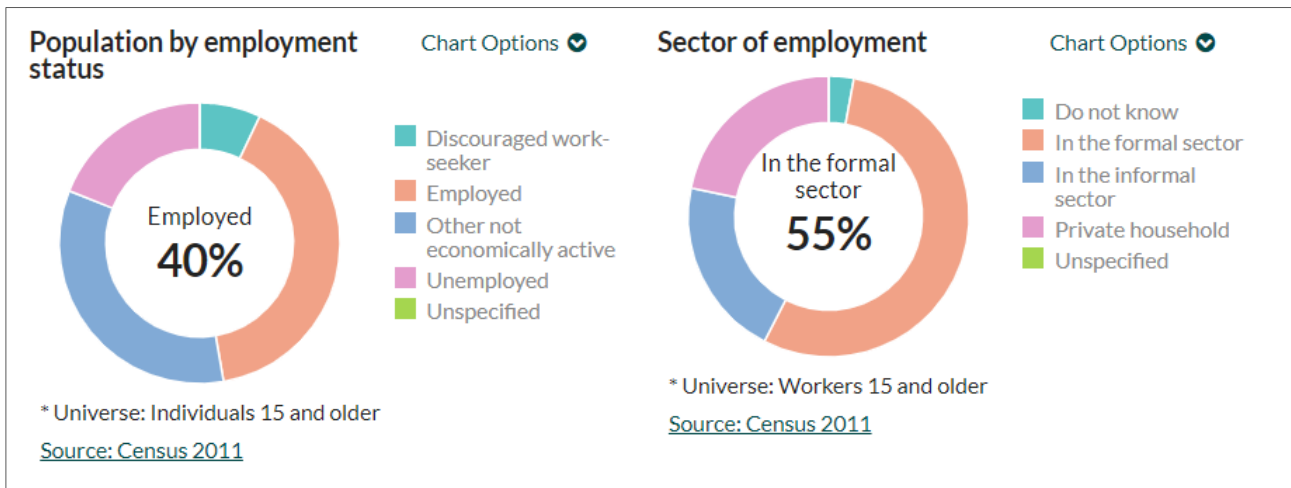


Figure 15: Employment and Sector of Employment



## C. SECTION C: PUBLIC PARTICIPATION

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### C.1 OVERVIEW

Section 41 of NEMA Regulation 982 (specifically Chapter 6) set out the Legal and Regulatory Requirement for Public Participation. The Public Participation Process (PPP) aims to involve the authorities and I&APs in the project process, and determines their needs, expectations and perceptions which in turn ensures a complete and comprehensive environmental study. The Department of Environment, Forestry and Fisheries (DEFF) Directions Regarding Measures to Address, Prevent and Combat the Spread of Covid -19 relating to National Environmental Management Permits and Licences (Government Notice No. 650) as gazetted on 05 June 2020.

### C.2 ADVERTISEMENT

A newspaper advert will be placed in the local newspaper, Mahikeng Mail.

### C.3 SITE NOTICE

Two (2) site notices of (60cm by 42cm) will be fixed along the boundary of the farm.

### C.4 I&AP NOTIFICATIONS

Written notice will be given to the following persons, via email, registered post (where applicable) and other methods of communications including:

- Occupiers of land adjacent to the site where the activity is or is to be undertaken;
- The municipal councillor of the ward in which the site;
- The municipality which has jurisdiction in the area;
- Any organ of state having jurisdiction in respect of any aspect of the activity (Eskom, DAFF, SANRAL, DHSWS etc.); and
- Any other party as required by the competent authority.

### C.5 I&AP DATABASE

A register of Interested and Affected parties including their contact details will be opened and maintained throughout the project. This will be submitted to the Competent Authority with the Final Report.



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## C.6 COMMENTS AND RESPONSE REPORT

A Comments and Response Report will be submitted with the Final Report. All comments of I&APs will be contained in this report including responses to such comments and records of meetings (if applicable). Reasonable alternative methods of recording comments will be provided to persons that are unable to access written comments.



## D. SECTION D: IMPACT ASSESSMENT AND MANAGEMENT

### D.1 IMPACT ASSESSMENT AND RANKING METHODOLOGY

The assessment and evaluation of environmental impacts is often complicated by the subjective nature of these impacts. Ideally, the degree of severity or significance of a particular impact should be expressed in quantitative terms, against a quantitative assessment of the conditions that pertained before a particular activity started. There must also be some expression as to whether a particular impact is desirable or not, as the desirability of an impact will depend largely on the attitude and experience of the assessment team, subjectivity is unavoidable. In order to address these issues and to provide a basis for comparison of the different impacts associated with the activities, a number of standard definitions and approaches will be used. For the purpose of assessing impacts of the proposed project has been divided into the following phases:

Table 12: Impact Phases

|                           |  |
|---------------------------|--|
| Construction Phase:       | All the construction related activities on site, until the contractor leaves the site. Estimated to take 7 months. |
| Operational Phase         | All activities, including the operation and maintenance of the proposed development.                               |
| Decommissioning & Closure | When the activity has ceased and decommissioning occurs.   |

#### D.1.1 Impact Rating Assessment Approach

The activities arising from each of these phases were included in the impact assessment tables. This was done to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts was conducted according to a synthesis of criteria as set out in **Table 13** below.

**Assessment Weighting** – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. To establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

**Ranking, Weighting and Scaling** – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist's element of bias is taken into account. The weighting factor also provides a means





whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance.

### **D.1.2 Cumulative Impacts Assessment Approach**

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts). Possible cumulative impacts of the development were evaluated.

### **D.1.3 Steps in Assessing Cumulative Impacts**

Three (3) general steps, which are discussed below, were utilised in the assessment of cumulative impacts.

#### *D.1.3.1 Determining the Extent of Cumulative Impacts*

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To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

#### *D.1.3.2 Describing the Affected Environment*

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The following approach was used for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.



*D.1.3.3 Assessment of Cumulative Impacts*

The general methodology which was used for the assessment of cumulative impacts comprised of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

**Table 13: Impact Criteria and Assigned Rating**

| <b>INTENSITY (MAGNITUDE)</b>   |   | <b>ASSIGNED QUANTITATIVE SCORE</b> |
|--|---|------------------------------------|
| The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it has a significant, moderate or insignificant. |   |                                    |
| (L)ow  | The impact alters the affected environment in such a way that the natural processes or functions are not affected.  | 1                                  |
| (M)edium   | The affected environment is altered, but functions and processes continue, albeit in a modified way.  | 3                                  |
| (H)igh   | Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.  | 5                                  |
| <b>DURATION</b>  |   |                                    |
| The lifetime of the impact, that is measure in relation to the lifetime of the proposed development.   |   |                                    |
| (S)hort term   | The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.  | 1                                  |
| (SM) Short - Medium term   | The impact will be relevant through to the end of a construction phase.   | 2                                  |
| (M)Medium  | The impact will last up to the end of the development phases, where after it will be entirely negated.  | 3                                  |
| (L)ong term  | The impact will continue or last for the entire operational lifetime (i.e. exceed 20years) of the development, but will be mitigated by direct human action or by natural processes thereafter. | 4                                  |
| (P)ermanent  | This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact is transient.   | 2                                  |



**SPATIAL SCALE / EXTENT**

Classification of the physical and spatial aspect of the impact.

|                 |  |   |
|-----------------|--|---|
| (F)ootprint     | The impacted area extends only as far as the activity, such as footprint occurring within the total site area.   | 1 |
| (S)ite          | The impact could affect the whole, or a significant portion of the site.   | 2 |
| (R)egional      | The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns. | 3 |
| (N)ational      | The impact could have an effect that expands throughout the country (South Africa).                              | 4 |
| (I)nternational | Where the impact has international ramifications that extend beyond the boundaries of South Africa.              | 5 |

**PROBABILITY**

This describes the likelihood of the impact actually occurring. The impact may occur for any length of time during the life cycle of the activity. The classes are rated as follows:

|                 |   |   |
|-----------------|---|---|
| (I)mprobable    | The possibility of the Impact occurring is none, due to the circumstances or design. The chance of this Impact occurring is zero (0%).  | 1 |
| (P)ossible      | The possibility of the Impact occurring is very low, due either to the circumstances or design. The chance of this Impact occurring is defined as 25% or less.  | 2 |
| (L)ikely        | There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of the Impact occurring is defined as 50%.  | 3 |
| (H)ighly Likely | It is most likely that the Impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.                | 4 |
| (D)efinite      | The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%. | 5 |

**WEIGHTING FACTOR**

Subjective score assigned by Impact Assessor to give the relative importance of a particular environmental component based on project knowledge and previous experience.

|                    |  |   |
|--------------------|--|---|
| <b>(L)ow</b>       | The impact alters the affected environment in such a way that the natural processes or functions are not affected.     | 1 |
| <b>LOW- MEDIUM</b> | The affected environment is altered, but functions and processes continue, albeit in a modified way.                   | 2 |
| <b>MEDIUM (M)</b>  | Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases. | 3 |



|  |  |     |
|--|--|-----|
| <b>MEDIUM-HIGH</b>   |  | 4   |
| <b>HIGH (H)</b>  |  | 5   |
| <b>Mitigation Measures</b>   |  |     |
| <p>Mitigation measures were recommended in order to enhance benefits and minimise negative impacts and address the following:</p> <p><u>Mitigation objectives:</u> what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an “educated guess” based on his/ her professional experience;</p> <p><u>Recommended mitigation measures:</u> For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;</p> <p><u>Effectiveness of mitigation measures:</u> The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and</p> <p><u>Recommended monitoring and evaluation programme:</u> The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.</p> |  |     |
| <b>HIGH</b>  |  | 0.2 |
| <b>MEDIUM-HIGH</b>   |  | 0.4 |
| <b>LOW TO MEDIUM</b>   |  | 0.6 |
| <b>LOW</b>   |  | 1   |



**Table 14: Description of bio-physical assessment parameters with its respective weighting**

| Extent             | Duration             | Intensity         | Probability        | Weighting Factor (WF) | Significance Rating (SR) | Mitigation Efficiency (ME) | Significance Following Mitigation (SFM) |
|--------------------|----------------------|-------------------|--------------------|-----------------------|--------------------------|----------------------------|---|
| Footprint<br>1     | Short term<br>1      | Low<br>1          | Probable<br>1      | Low<br>1              | Low<br>0-19              | High<br>0,2                | Low<br>0-19                             |
| Site<br>2          | Short to medium<br>2 | Medium<br>2       | Possible<br>2      | Low to medium<br>2    | Low to medium<br>20-39   | Medium to high<br>0,4      | Low to medium<br>20-39                  |
| Regional<br>3      | Medium term<br>3     | High<br>3         | Likely<br>3        | Medium<br>3           | Medium<br>40-59          | Medium<br>0,6              | Medium<br>40-59                         |
| National<br>4      | Long term<br>4       | Very High<br>4    | Highly Likely<br>4 | Medium to high<br>4   | Medium to high<br>60-79  | Low to medium<br>0,8       | Medium to high<br>60-79                 |
| International<br>5 | Permanent<br>5       | Catastrophic<br>5 | Definite<br>5      | High<br>5             | High<br>80-100           | Low<br>1,0                 | High<br>80-100                          |

**Table 15: Significant Rating Scale without mitigation**

| <b>Potential Impacts Without Mitigation Measures (WOM)</b>   |                      |  |
|--|----------------------|--|
| Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures). |                      |  |
| <b>SIGNIFICANT RATING EQUATION</b>   |                      |  |
| Significant Rating (SR) = (Extent + Intensity + Duration) x Probability  |                      |  |
| <b>S=0</b>   | <b>INSIGNIFICANT</b> | The impact will be mitigated to the point where it is regarded as insubstantial.   |
| <b>SR &lt; 30</b>  | <b>LOW (L)</b>       | The impact will be mitigated to the point where it is of limited importance.   |
| <b>20&lt;SR&lt;39</b>  | <b>LOW- MEDIUM</b>   | The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;  |
| <b>40&gt; SR &lt; 59</b>   | <b>MEDIUM (M)</b>    | Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.  |
| <b>60&lt;SR&gt;79</b>  | <b>MEDIUM-HIGH</b>   | The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.  |
| <b>80&lt;SR &gt; 100</b>   | <b>HIGH (H)</b>      | The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable. |



## D.2 IMPACT ASSESSMENT – CONSTRUCTION PHASE ALTERNATIVES 1 AND 2

Table 16: Construction Phase Impacts – Alternative 1 and 2

| Construction Phase Impact  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Loss of terrestrial vegetation, faunal habitat and riparian vegetation | 2      | 4        | 3         | 4           | 3                | 39                              | 0,6                   | a) Active stormwater management must be implemented to stop silt and sediments from entering the channel.<br>b) Disturbed soils and stockpiled soils must be protected from erosional features.<br>c) Dumping of materials must only take place in designated areas away from natural vegetation. The area which will be impacted on by the construction activities should be fenced off and no people or vehicles should be allowed into the natural areas surrounding the construction area.<br>d) Building material, ablution facilities or construction vehicles should not be stored in areas containing natural vegetation but the disturbed areas adjacent to the study area should be used.<br>e) Protect as much indigenous vegetation as possible, a 25 m buffer must be retained away from the channel. | 23,4                              |
| Loss of arable land  | 2      | 4        | 5         | 4           | 3                | 45                              | 0,4                   | a) Disturbed soils and stockpiled soils must be protected from erosional features<br>b) Implement an appropriate stormwater management plan.   | 18                                |
| Ambient Air Quality (dust)   | 2      | 2        | 3         | 5           | 4                | 48                              | 0,4                   | a) Dust suppression measures on active and stockpile, excavated, and cleared areas<br>b) Adherence to speed limits to ensure minimal dust entrainment.<br>c) Store topsoil from construction area in stockpiles  | 19,2                              |



| Construction Phase Impact                                    | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures   | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|-----------------------------------|
|  |        |          |           |             |                  |                                 |                       | not more than 3m in height.<br>d) Cover and / or maintain appropriate freeboard on trucks hauling any loose material that could produce dust when travelling.   |                                   |
| Destruction of palaeontological and archaeological artefacts | 2      | 4        | 5         | 1           | 2                | 24                              | 0,4                   | a) Care should be taken during any work in the entire area and if any artefacts are discovered, an archaeologist/heritage practitioner should be commissioned to investigate.   | 9,6                               |
| Increased traffic and safety risk associated with the R49    | 2      | 2        | 5         | 4           | 3                | 39                              | 0,2                   | Compliance with applicable road regulations and any permit issued in terms of the National Road Traffic Regulations Signage must be placed at relevant points along the access road to caution pedestrians of the movement of construction vehicles and machinery.  | 7,8                               |
| Soil Erosion and Soil Pollution                              | 2      | 4        | 3         | 3           | 3                | 36                              | 0,2                   | a) Active stormwater management must be implemented to stop silt and sediments from entering the channel.<br>b) Disturbed soils and stockpiled soils must be protected from erosional features.<br>c) Dumping of materials must only take place at designated and properly managed areas.<br>d) Any disturbed areas should be rehabilitated in line with the rehabilitation guidelines, this includes the clearing of alien vegetation, following the guidelines of a suitable alien invasive plant management plan.<br>e) Waste should be separated and stored in separate | 7,2                               |





| Construction Phase Impact                      | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
|  |        |          |           |             |                  |                                 |                       | skips for appropriate re-use, recycle, or disposal options.<br>f) Hazardous waste storage (including used oils and material containing oils, solvents etc.) should be within impermeable bunded, ventilated and covered storage areas, capable of containing 110% of total volume. All storage containers are to be labelled, sealed and stored in accordance with MSDS requirements;<br>g) Waste receptacles should be located with consideration to stormwater management and covered to prevent windblown waste; Working areas are to be cleared of litter on a daily basis.<br>h) No litter / waste may be burnt on-site.  |                                   |
| Ground and Surface Water Quality Deterioration | 2      | 3        | 3         | 3           | 4                | 44                              | 0,2                   | a) Active stormwater management must be implemented to stop silt and sediments from entering the channel.<br>b) Disturbed soils and stockpiled soils must be protected from erosional features<br>c) Dumping of materials must only take place at designated and properly managed areas.<br>d) Any disturbed areas should be rehabilitated in line with the rehabilitation guidelines, this includes the clearing of alien vegetation, following the guidelines of a suitable alien invasive plant management plan;<br>e) 25 m buffer must be retained away from the channel e) Waste should be separated and stored in separate skips for appropriate re-use, recycle, or disposal options.<br>f) Hazardous waste storage (including used oils and material containing oils, solvents etc.) should be | 8,8                               |



| Construction Phase Impact                   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures   | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|-----------------------------------|
|   |        |          |           |             |                  |                                 |                       | within impermeable bunded, ventilated and covered storage areas, capable of containing 110% of total volume. All storage containers are to be labelled, sealed and stored in accordance with MSDS requirements.<br>g) Waste receptacles should be located with consideration to stormwater management and covered to prevent windblown waste; Working areas are to be cleared of litter on a daily basis.<br>h) No litter / waste may be burnt on-site. |                                   |
| Visual Impact related to site clearance     | 2      | 3        | 4         | 4           | 3                | 39                              | 0,6                   | The construction camp must be located in an area that will not create a visual hazard to motorists using the R49.   | 23,4                              |
| Increase in ambient noise levels            | 2      | 2        | 3         | 3           | 3                | 30                              | 0,8                   | a) Construction at night not permitted.<br>b) Undertake all noisy construction activities during normal working hours i.e. 08h00 – 17h00 during weekdays (unless authorised)  | 24                                |
| Temporary job creation +                    | 3      | 2        | 3         | 3           | 4                | 44                              | POSITIVE IMPACT       |   |                                   |
| Stimulation of local and regional economy + | 3      | 3        | 3         | 5           | 4                | 56                              | POSITIVE IMPACT       |   |                                   |



### D.3 IMPACT ASSESSMENT – OPERATIONAL PHASE – ALTERNATIVE 1

Table 17: Operational Phase Impacts- Alternative 1

| Operational Phase Impact  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|-----------------------------------|
| Degradation of terrestrial vegetation, faunal habitat and riparian vegetation. Introduction and proliferation of alien vegetation on site | 2      | 4        | 5         | 4           | 4                | 60                              | 0,4                   | 24                                |
| Noise Contribution for adjacent land users (sensitive receptors)  | 2      | 4        | 5         | 3           | 3                | 42                              | 0,6                   | 25,2                              |
| Light Pollution during night times.   | 2      | 4        | 3         | 4           | 4                | 52                              | 0,6                   | 31,2                              |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency |  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Groundwater and Surface water pollution resulting from improper general waste management         | 2      | 4        | 3         | 3           | 3                | 36                              | 0,2                   | a) No stockpiling of any materials may take place adjacent to the channel;<br>b) Ensure that all stockpiles are well managed and have measures to minimise the mobilisation of sediments such as the use of sand bags, hessian sheets, etc.<br>c) Good housekeeping measures must be prioritised at all times.   | 7,2                               |
| Groundwater and Surface water pollution resulting from improper wastewater and manure management | 3      | 4        | 5         | 4           | 5                | 80                              | 0,4                   | a) Wastewater sludge must be classified in terms of the South African Wastewater Sludge Classification System.<br>b) The Pollutant, Microbial and Stability Classes of the wastewater sludge must be established.<br>c) The wastewater management system must regularly be maintained and inspected to ensure that it is in working condition. This will prevent the development of leaks.<br>d) All land application of wastewater must be in accordance with the DHSWS and Water Research Commission Guidelines for the Utilisation and Disposal of Wastewater Sludge.<br>e) The nutrient content of the wastewater sludge must be confirmed before each major planting season by determining the phosphorous, nitrogen and potassium concentration on at least four composite samples.<br>f) Slope and land preparation must not result in soil erosion or potential surface runoff.<br>g) Each mortality must be placed in the pit and | 32                                |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Significance Following Mitigation   |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|
|  |        |          |           |             |                  |                                 |                       | covered with sawdust or straw.<br>h) Solid animal waste may only be temporarily stored in designated areas, on impermeable surfaces.<br>i) Preparation and Implementation of Waste and Water Management Plan as part of the Water Use License Application<br>j) Contaminated runoff must be contained and managed in accordance with the Stormwater Management Plan (SWMP).<br>k) Surface water and groundwater monitoring must be undertaken throughout the operational phase.<br>l) Diseased culls and mortalities must be stored in closed, leak-proof containers and must be removed from site by a licenced hazardous waste contractor to be disposed at a facility registered for hazardous waste disposal. |
| Health and Safety risks associated with waste handling (Employees) | 1      | 4        | 5         | 3           | 4                | 52                              | 0,2                   | 10,4  |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency |  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Biosecurity Risks associated with Poultry and Piggery Facilities | 3      | 4        | 5         | 4           | 4                | 64                              | 0,6                   | <p>a) The feed storage and distribution systems must be designed and maintained in a manner that prevents the presence and breeding of pests.</p> <p>b) Effective sanitation and housekeeping at the piggery will minimise the area where flies can rest and breed.</p> <p>c) Regular flushing of the wastewater from the houses will minimise fly breeding.</p> <p>d) Regularly clean the feeding areas and collect wasted feed. This will prevent the attraction of flies.</p> <p>e) Electrocutation devices are available to kill flies, while other mechanical devices include traps, sticky tapes or baited traps.</p> <p>f) Access control to the site must be implemented.</p> <p>g) The Animal Disease Act (Act number 35 of 1984) must be complied with including regular vaccination programmes.</p> <p>h) Requirements of the following acts must be adhered to:</p> <ul style="list-style-type: none"> <li>- Animal Improvement Act (Act no 62 of 1998)</li> <li>- Animal Disease Act (Act no 35 of 1984)</li> <li>- Animal Protection Act (Act no 71 of 1962)</li> </ul> <p>i) Enforcement of all required veterinary requirements as legislated.</p> | 38,4                              |



| Operational Phase Impact                                    | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency |   | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|-----------------------------------|
| Biosecurity Risks associated with Egg Collection (Hatchery) | 3      | 4        | 5         | 4           | 4                | 64                              | 0,6                   | a) Eggs should be collected regularly from the system (at least once per day) and placed in clean and dry handling equipment.<br>b) In the case of cage systems the cage floors and the egg handling system should be kept clean.<br>c) In Free Range and Barn systems the nest boxes and nest material should be kept clean.<br>d) Eggs are to be handled gently so as to avoid fine cracks.<br>e) Dirty, broken, cracked leaking and any other abnormal eggs should be collected in separate equipment and should not be used for human consumption.<br>f) Eggs should be stored in appropriate holding rooms in which temperature fluctuation is kept to the minimum.<br>g) Enforcement of all required veterinary requirements as legislated. | 38,4                              |
| Odour and ambient air quality                               | 2      | 4        | 5         | 5           | 5                | 80                              | 0,6                   | a) Effective housekeeping and best management practices must be implemented. Houses should be cleaned and maintained on a regular basis.<br>b) Ventilation points on the piggery houses must be as high as possible to ensure exiting gases enter the air column as high as possible<br>c) Covering the wastewater collection pond can reduce odorous emissions<br>d) Waste spillages should be prevented at all times.   | 48                                |





| Operational Phase Impact                             | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency  | Significance Following Mitigation   |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|------------------------|---|
|  |        |          |           |             |                  |                                 |                        | e) Drains and treatment systems should be well maintained.<br>f) Disposal of wastewater should be done in accordance with DHSWS and WRC guidelines.   |
| Increase in local traffic, especially the R49        | 2      | 4        | 3         | 4           | 4                | 52                              | 0,6                    | a) Compliance with applicable road regulations and any permit issued in terms of the National Road Traffic Regulations<br>b) Signage must be placed at relevant points along the access road to caution pedestrians of the movement of construction vehicles and machinery  |
| Visual Impact of new facility                        | 2      | 4        | 3         | 5           | 4                | 56                              | 0,8                    | a) Minimize light pollution such as glare.<br>b) Minimising light over spill from lighting fittings.<br>c) Direct lighting for a specific purpose.<br>d) Avoid general flood lighting against and around buildings.<br>e) Switch off of unnecessary light.<br>f) Colours and materials chosen will be a compromise between low visibility given natural surrounding colours (i.e. no dark green / bright blue / white / silver roofs) and heat reflectivity to minimise heating input to buildings. |
| Job creation and security                            | 3      | 4        | 5         | 5           | 5                | 85                              | <b>POSITIVE IMPACT</b> |   |
| Change in land use, creating a taxable land portion+ | 3      | 4        | 5         | 5           | 4                | 68                              | <b>POSITIVE IMPACT</b> |   |



| Operational Phase Impact                  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|-----------------------------------|
| Stimulation of local and regional economy | 3      | 4        | 5         | 5           | 5                | 85                              |                       | POSITIVE IMPACT                   |
| Food security                             | 4      | 4        | 3         | 4           | 4                | 60                              |                       | POSITIVE IMPACT                   |



## D.4 IMPACT ASSESSMENT – OPERATIONAL PHASE – ALTERNATIVE 2

Table 18: Operational Phase Impacts- Alternative 2

| Operational Phase Impact  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Degradation of terrestrial vegetation, faunal habitat and riparian vegetation. Introduction and proliferation of alien vegetation on site | 2      | 4        | 5         | 4           | 4                | 60                              | 0,4                   | a) A suitable alien invasive eradication and management programme must be implemented.<br>b) No stockpiling of any materials may take place adjacent to the channel. Ensure that all stockpiles are well managed and have measures to minimise the mobilisation of sediments such as the use of sand bags, hessian sheets, etc.<br>c) Protect as much indigenous vegetation as possible, a 25 m buffer must be retained away from the channel. | 24                                |
| Noise Contribution for adjacent landusers (sensitive receptors)   | 2      | 4        | 5         | 3           | 3                | 42                              | 0,6                   | a) Maintain vehicles and machinery in good working order.<br>b) Vehicles travelling to and from the site during night-time hours must be kept to a minimum.<br>c) A complaints register should be kept onsite<br>d) All local municipal noise by-laws must be adhered to.  | 25,2                              |
| Light Pollution during night times  | 2      | 4        | 3         | 4           | 4                | 52                              | 0,6                   | Using light fixtures that shield the light and focus illumination on the ground (or only where light is required).   | 31,2                              |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures   | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|-----------------------------------|
| Groundwater and Surface water pollution resulting from improper general waste management         | 2      | 4        | 3         | 3           | 4                | 48                              | 0,4                   | a) No stockpiling of any materials may take place adjacent to the channel.<br>b) Ensure that all stockpiles are well managed and have measures to minimise the mobilisation of sediments such as the use of sand bags, hessian sheets, etc.;<br>c) Good housekeeping measures must be prioritised at all times.   | 19,2                              |
| Groundwater and Surface water pollution resulting from improper wastewater and manure management | 3      | 4        | 5         | 4           | 5                | 80                              | 0,6                   | a) Wastewater sludge must be classified in terms of the South African Wastewater Sludge Classification System.<br>b) The Pollutant, Microbial and Stability Classes of the wastewater sludge must be established.<br>c) The wastewater management system must regularly be maintained and inspected to ensure that it is in working condition. This will prevent the development of leaks.<br>d) All land application of wastewater must be in accordance with the DHSWS and Water Research Commission Guidelines for the Utilisation and Disposal of Wastewater Sludge.<br>e) The nutrient content of the wastewater sludge must be confirmed before each major planting season by determining the phosphorous, nitrogen and potassium concentration on at least four composite samples.<br>f) Slope and land preparation must not result in soil erosion or potential surface runoff. | 48                                |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
|  |        |          |           |             |                  |                                 |                       | g) Each mortality must be placed in the pit and covered with sawdust or straw.<br>h) Solid animal waste may only be temporarily stored in designated areas, on impermeable surfaces.<br>i) Preparation and Implementation of Waste and Water Management Plan as part of the Water Use License Application<br>j) Contaminated runoff must be contained and managed in accordance with the Stormwater Management Plan (SWMP).<br>k) Surface water and groundwater monitoring must be undertaken throughout the operational phase<br>l) Diseased culls and mortalities must be stored in closed, leak-proof containers and must be removed from site by a licenced hazardous waste contractor to be disposed at a facility registered for hazardous waste disposal. |                                   |
| Health and Safety risks associated with waste handling (Employees) | 1      | 4        | 5         | 3           | 4                | 52                              | 0,2                   | a) Training must be provided continuously to all employees working with waste and all contract workers that might be exposed to waste.<br>b) Operational personnel must wear basic PPE (e.g. gloves, goggles etc.) as stipulated by the Occupational Health and Safety Act<br>c) Strict access disinfection mechanisms to be enforced of all vehicles and staff.   | 10,4                              |



| Operational Phase Impact   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Biosecurity Risks associated with Poultry and Piggery Facilities | 3      | 4        | 5         | 4           | 5                | 80                              | 0,6                   | a) The feed storage and distribution systems must be designed and maintained in a manner that prevents the presence and breeding of pests<br>b) Effective sanitation and housekeeping at the piggery will minimise the area where flies can rest and breed.<br>c) Regular flushing of the wastewater from the houses will minimise fly breeding.<br>d) Regularly clean the feeding areas and collect wasted feed. This will prevent the attraction of flies.<br>e) Electrocutation devices are available to kill flies, while other mechanical devices include traps, sticky tapes or baited traps.<br>f) Access control to the site must be implemented<br>g) The Animal Disease Act (Act number 35 of 1984) must be complied with including regular vaccination programmes.<br>h) Requirements of the following acts must be adhered to:<br>- Animal Improvement Act (Act no 62 of 1998)<br>- Animal Disease Act (Act no 35 of 1984)<br>- Animal Protection Act (Act no 71 of 1962)<br>i) Enforcement of all required veterinary requirements as legislated. | 48                                |



| Operational Phase Impact                                    | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Biosecurity Risks associated with Egg Collection (Hatchery) | 3      | 4        | 5         | 4           | 4                | 64                              | 0,6                   | <p>a) Eggs should be collected regularly from the system (at least once per day) and placed in clean and dry handling equipment.</p> <p>b) In the case of cage systems the cage floors and the egg handling system should be kept clean.</p> <p>c) In Free Range and Barn systems the nest boxes and nest material should be kept clean.</p> <p>d) Eggs are to be handled gently so as to avoid fine cracks.</p> <p>e) Dirty, broken, cracked leaking and any other abnormal eggs should be collected in separate equipment and should not be used for human consumption.</p> <p>f) Eggs should be stored in appropriate holding rooms in which temperature fluctuation is kept to the minimum.</p> <p>g) Enforcement of all required veterinary requirements as legislated.</p> | 38,4                              |
| Odour and ambient air quality                               | 2      | 4        | 5         | 5           | 5                | 80                              | 0,8                   | <p>a) Effective housekeeping and best management practices must be implemented. Houses should be cleaned and maintained on a regular basis.</p> <p>b) Ventilation points on the piggery houses must be as high as possible to ensure exiting gases enter the air column as high as possible.</p> <p>c) Covering the wastewater collection pond can reduce odorous emissions.</p>   | 64                                |





| Operational Phase Impact                      | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures   | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---|-----------------------------------|
|   |        |          |           |             |                  |                                 |                       | d) Waste spillages should be prevented at all times.<br>e) Drains and treatment systems should be well maintained.<br>f) Disposal of wastewater should be done in accordance with DHSWS and WRC guidelines.   |                                   |
| Increase in local traffic, especially the R49 | 2      | 4        | 3         | 4           | 4                | 52                              | 0,6                   | a) Compliance with applicable road regulations and any permit issued in terms of the National Road Traffic Regulations Signage must be placed at relevant points along the access road to caution pedestrians of the movement of construction vehicles and machinery.   | 31,2                              |
| Visual Impact of new facility                 | 2      | 4        | 3         | 4           | 4                | 52                              | 0,8                   | a) Minimize light pollution such as glare.<br>b) Minimising light over spill from lighting fittings.<br>c) Direct lighting for a specific purpose.<br>d) Avoid general flood lighting against and around buildings.<br>e) Switch off of unnecessary light.<br>f) Colours and materials chosen will be a compromise between low visibility given natural surrounding colours (i.e. no dark green / bright blue / white / silver roofs) and heat reflectivity to minimise heating input to buildings. | 41,6                              |
| Job creation and security                     | 3      | 4        | 5         | 5           | 5                | 85                              |                       | <b>Positive Impact</b>  |                                   |
| Change in land use, creating a                | 3      | 4        | 5         | 5           | 4                | 68                              |                       | <b>Positive Impact</b>  |                                   |



| Operational Phase Impact                  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures | Significance Following Mitigation |
|---|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|---------------------|-----------------------------------|
| taxable land portion+                     |        |          |           |             |                  |                                 |                       |                     |                                   |
| Stimulation of local and regional economy | 3      | 4        | 5         | 5           | 5                | 85                              |                       | Positive Impact     |                                   |
| Food security                             | 4      | 4        | 3         | 4           | 4                | 60                              |                       | Positive Impact     |                                   |



## D.5 IMPACT ASSESSMENT – DECOMMISSIONING PHASE

Table 19: Decommissioning Phase Impacts

| Decommissioning Phase - Impact                                   | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Noise Contribution for adjacent land users (sensitive receptors) | 2      | 1        | 3         | 2           | 2                | 16                              | 0,6                   | a) Limit demolition activities to day time hours.<br>b) Minimize or eliminate security and decommissioning lighting, to reduce the disturbance of nocturnal fauna.   | 9,6                               |
| Introduction and increase in alien vegetation                    | 2      | 4        | 3         | 4           | 3                | 39                              | 0,4                   | a) A suitable alien invasive eradication and management programme must be implemented  | 15,6                              |
| Increased dust and erosion                                       | 2      | 3        | 5         | 4           | 3                | 42                              | 0,6                   | a) Commence (and preferably complete) decommissioning during winter, when the risk of erosion should be least<br>Revegetate denude areas with locally indigenous flora a.s.a.p.<br>b) Implement erosion protection measures on site. Measures could include bunding around soil stockpiles, and vegetation of areas not be used again. | 25,2                              |



| Decommissioning Phase - Impact | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--------------------------------|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
|                                |        |          |           |             |                  |                                 |                       | c) Implement effective and environmentally-friendly dust control measures, such as mulching or periodic wetting. |                                   |



## D.6 IMPACT ASSESSMENT – CUMULATIVE IMPACT – ALTERNATIVES 1 AND 2

Table 20: Cumulative Impacts – Alternative 1 and 2

| Cumulative Impact  | Extent | Duration | Intensity | Probability | Weighting Factor | Significance Without Mitigation | Mitigation Efficiency | Mitigation Measures  | Significance Following Mitigation |
|--|--------|----------|-----------|-------------|------------------|---------------------------------|-----------------------|--|-----------------------------------|
| Local Groundwater and Surface Water Pollution                              | 3      | 5        | 3         | 4           | 4                | 60                              | 0,6                   | Refer to operational phase mitigation measures relating to ground and surface pollution. | 36                                |
| Contribution to odour  | 2      | 4        | 5         | 5           | 5                | 80                              | 0,6                   | Refer to operational phase mitigation measures relating to odour control                 | 48                                |
| Loss of sense of place for adjacent land users                             | 3      | 4        | 3         | 4           | 3                | 42                              | 0,2                   | Mitigation is not possible   | 8,4                               |
| Employment and economic stimulation  | 3      | 5        | 3         | 4           | 5                | 75                              |                       | Positive Impact  |                                   |
| Contribution to food security in South Africa                              | 4      | 4        | 3         | 4           | 4                | 60                              |                       | Positive Impact  |                                   |
| Meeting objectives of the Local, Provincial and National Planning Policies | 4      | 4        | 5         | 4           | 4                | 68                              |                       | Positive Impact  |                                   |



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## D.7 IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

The key mitigation measure is impact avoidance. Where adverse impacts cannot reasonably be prevented, construction and operations should be managed through the effective implementation of the Environmental Management Programme (EMPr) with a strong emphasis on post-construction rehabilitation and operational management and monitoring.

The EMPr informs the Applicant and the technical team of the guidelines which will need to be followed during construction and operation of the project to ensure that there are no lasting or cumulative negative impacts of the construction process on the environment. This includes:

- The standards and guidelines that must be achieved in terms of environmental legislation;
- Mitigation measures and environmental specifications which must be implemented for all phases of the project to minimise the extent of environmental impacts, to manage environmental impacts and where possible to improve the condition of the environment;
- Guidance through method statements that are required to be implemented to achieve the environmental specifications;
- Corrective actions that must be taken in the event of non-compliance with the specifications; of the EMPr; and
- Measures to prevent long-term or permanent environmental degradation.

The EMPr is available as part of the BAR (**Appendix 6**).





## E. SECTION E: NEED AND DESIRABILITY

### E.1 NATIONAL

#### E.1.1 Agriculture

Agriculture's plays an important role in the economy with various backward and forward linkages to other sectors. Purchases of goods such as fertilisers, chemicals and implements form backward linkages with the manufacturing sector, while forward linkages are established through the supply of raw materials to the manufacturing industry. About 70% of agricultural output is used as intermediate products in the sector. Agriculture is therefore a crucial sector and an important engine of growth for the rest of the economy (DEFF, 2016)

The agricultural industry contributes over 4 % annually to the National GDP. It is the only sector that had a positive growth rate in the last quarter of 2020 despite the COVID 19 pandemic lock down (StatsSA; 2021). The GDP showed a decline of 51% (making it the fourth consecutive quarter decline since the second quarter of 2019 leading to a recession). Due to increased production of field crops and horticultural and animal products, the agricultural sector expanded by 13,1%. This sector was the only positive contributor, contributing 0,3% to GDP during the second quarter of 2020.

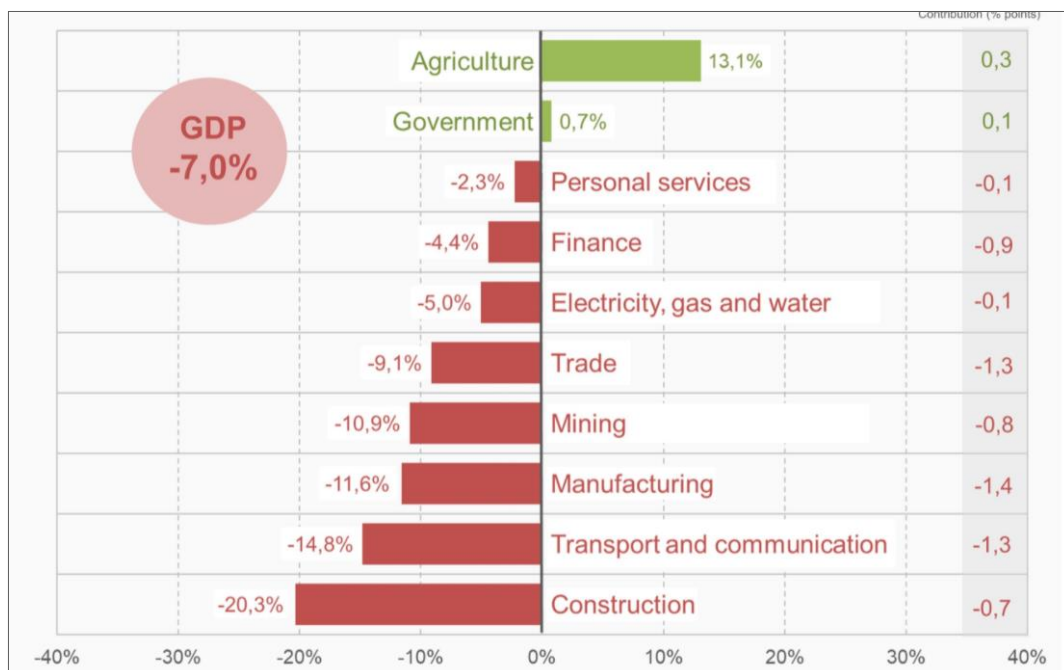


Figure 16: Agriculture GDP Contribution



### E.1.2 National Infrastructure Plan

The Infrastructure Plan prepared by the Presidential Infrastructure Co-ordinating Commission (PICC) is intended to transform the economic landscape of South Africa, create significant numbers of new jobs, strengthen the delivery of basic services to the people of South Africa and support the integration of African economies. It sets out the challenges and enablers South Africa needs to respond to in the building and developing of infrastructure. Seventeen Strategic Integrated Projects (SIPs) have been developed and approved to support economic development and address service delivery in the poorest provinces. The following SIP's will have a direct impact on economic development within North West, with SIP 11 being relevant the proposed Weltevreden project:

- SIP 4: Unlocking Economic Opportunities in the North West
- SIP 6: Integrated Municipal Infrastructure Project
- SIP 7: Integrated Urban Space and Public Transport Programme
- SIP 8: Green Energy in support of the South African economy
- SIP 9: Electricity Generation to support socio-economic development
- SIP 10: Electricity Transmission and Distribution for all
- **SIP 11: Agri-logistics and rural infrastructure**
- SIP 12: Revitalisation of public hospitals and other health facilities
- SIP 13: National school build programme
- SIP 14: Higher Education Infrastructure
- SIP 15: Expanding access to communication technology
- SIP 17: Regional Integration for African cooperation and development
- SIP 18: Water and sanitation infrastructure

Agriculture is of extreme importance to the North West economy. It contributes about 6.2% of the total GDP and 19% of formal employment. **Some 5.6% of the South African GDP and 16.9% of total labour in agriculture are based in the North West (2003)**. The province is an important food basket in South Africa. Maize and sunflowers are the most important crops while the Province is also a major producer of white maize in the country. Broiler productions projects can help the Agricultural Sector of Mafikeng LM to add value to their already established poultry industry. This is aimed at slowly incorporating and providing all the services and materials needed to harvest, package and sell the chickens and the eggs they produce (Mahikeng Local Municipal IDP, 2017 -2022).

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## E.2 NORTH WEST SPATIAL DEVELOPMENT PLANNING FRAMEWORK - 2017

The development strategies of the North West Spatial Development Framework need to be supportive of the objectives of the Vision 2030 National Development Plan, North West Development



Plan 2030, and international and national policies, principles and initiatives to reduce poverty and inequality over the next two decades. The North West Development Plan 2030 provides desired socio-economic outcomes, mechanisms to achieve it and conditions necessary to provide the focus for strategic priorities.

The socio-economic outcomes include:

- **Economy and employment**
- Improving education, training and innovation
- Social protection

In order to achieve the above outcomes, the following mechanism are required:

- Economic Infrastructure
- Transforming human settlements
- Environmental sustainability and resilience
- Inclusive rural economy

Mahikeng has been identified as a Primary Node and Zeerust as a Tertiary node in the overall Spatial Development Frameworks for the North West Province. Improved agricultural productivity is a one of the development objectives in supporting the development strategies of the Province which includes:

- Strategic Objective 1: Focus development on regional spatial development initiatives, development corridors, development zones and nodes
- Strategic Objective 2: Protect biodiversity, water and agricultural resources
- Strategic Objective 3: Promote Infrastructure Investment
- Strategic Objective 4: Support economic development and job creation guiding the spatial development pattern of North West
- Strategic Objective 5: Balance urbanisation and the development of rural areas within North West

Mahikeng Municipality is identified is one of the four local economies (others include Madibeng, Rustenburg and Matlosana) that make of 63 % of the total economic activity of the North West Province. All the main concentrations experienced very low or declining economic growth rates. Due to the large existing activity nodes such as the N4 Platinum Development Corridor, the four municipalities provide a strong basis for urbanisation and nuclei for attracting and distributing economic development. Mahikeng is linked with the The Western (N18) Corridor that intersects with the Platinum and Treasure corridors at Zeerust and west of Taung (**Figure 17, the white circle**



indicates the project area). The R49 which runs along the project site has also been identified as an important route within the Mahikeng Municipality with agricultural being one of the sectoral drivers of the Province.

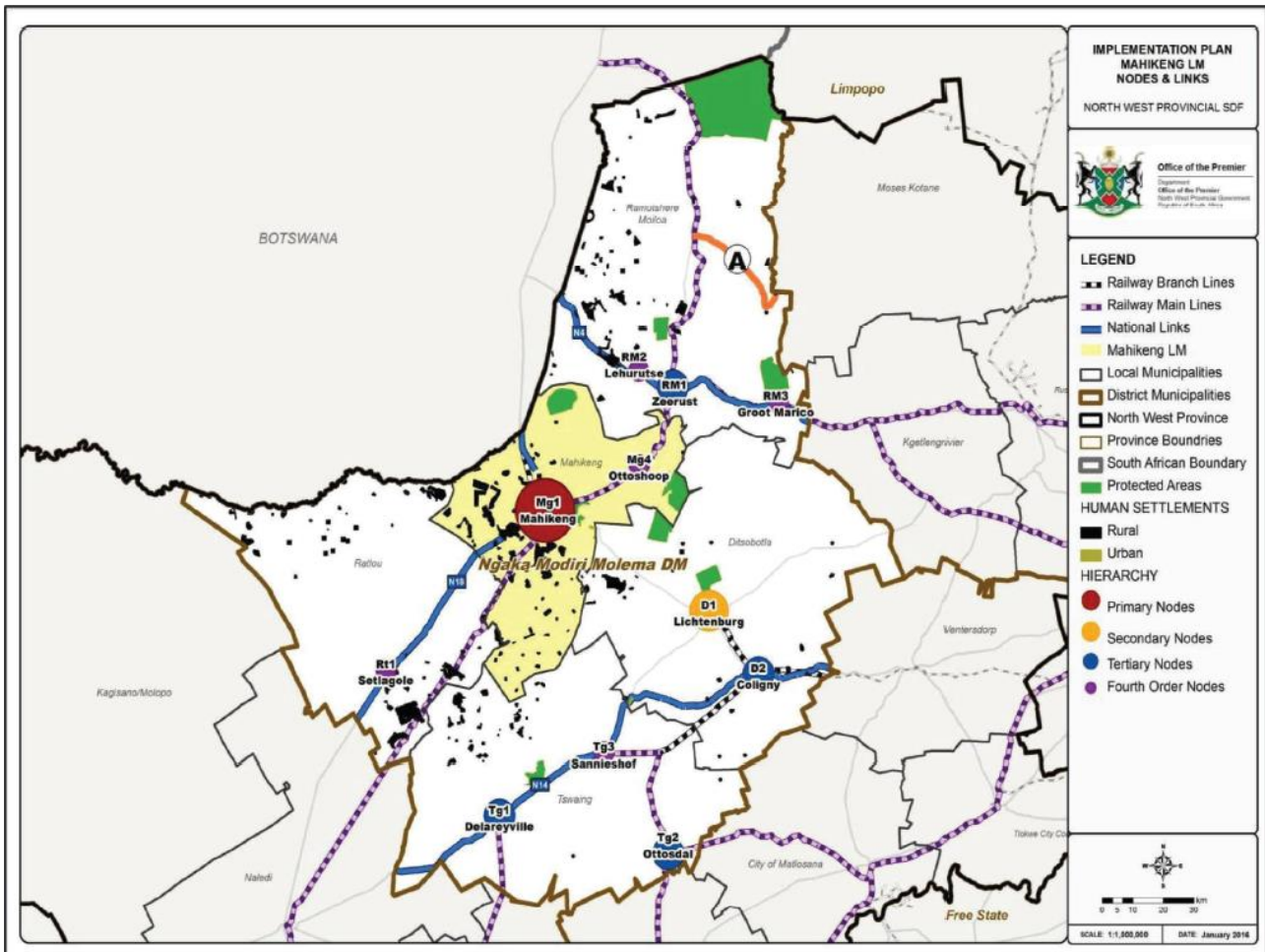


Figure 17: Ngaka Modiri Molema District Implementation Framework (Nodes & Links) – Mahikeng LM

The following development guidelines for the Mahikeng Local Municipality as part of the North West Strategic Development Implementation Plan.

- Focus investment in the core urban areas of Mafikeng and Mmabatho to create agglomeration advantages, fastening economic growth;
- Investing in infrastructure development and maintenance within Mafikeng will help to strengthen the economy's position;
- Create a sustainable urban form through zoning and adequate planning;
- Promote the Industrial Development Zone and create a conducive environment for private sector investment; and
- Develop agro-industries.



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### E.3 OTHER FACTORS

- The expected capital value of the project over the construction and operational phase combined is R 120 160 000,00.
- Over 20 jobs will be created during the development phase.
- Thirty (30) permanent jobs will be created within the operational phase.
- The land is already owned by the Applicant and further infrastructure investment on the property will further increase the land value.
- The property is already used for agricultural purposes.
- The project will contribute to food security through the production of eggs, chickens and pigs.
- The Applicant already owns and operates a Chicken Abattoir located just south - east of the site and will thus further service an existing market.
- The site is not ecologically sensitive.
- The borders the R 49 and strategic nodes.



## F. SECTION F: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

The project is not envisaged to have a detrimental impact on the environment during the construction phase due to the site being transformed by current agricultural activities. During the operational phase, significant impacts can be effectively mitigated and managed through compliance with industry standards and good housekeeping practise.

Although a number of potential short and long-term environmental and social impacts can be expected during the construction and operational phases of the proposed activity, it was found that the significance of these impacts could be reduced through the successful implementation of appropriate mitigation measures as outlined in the EMPr (**Appendix 6**).

It is recommended that Alternative 2 (Separation of slurry, re-use of effluent) is approved over Alternative 1 (No Separation of slurry, re-use of effluent) as it complies with the Waste Management Hierarchy of South Africa and will lessen the potential environmental impacts associated with water pollution, soil pollution and odour control.

The project will have the following positive impacts:

- Job creation during the construction and operational phase;
- Stimulation of the local and regional economy;
- Contribution to food security in South Africa; and
- Meeting of local, provincial and national planning policies on job creation and economic stimulation.

Should Environmental Authorisation be granted by DEDECT, it should be subject to the following conditions:

- All mitigation measures in **Section D** of the BAR and recommendations made by the specialist studies (**Appendix 5**) should be adhered to during the Construction and Operational Phases of the development;
- All recommendations and mitigation measures in the Environmental Management Programme (EMPr) and Mitigation Plans (**Appendix 6**) should be complied with and monitored during the Pre-Construction, Construction as well as the Operational Phases;
- Section 38 approval in terms of the NHRA approval must be obtained from SAHRA prior to commencement.
- A Stormwater Management Plan must be approved by the Mahikeng Local Municipality and be implemented during the construction and operational phases of the project;



- An Environmental Control Officer (ECO) must be appointed during the construction phase to ensure environmental compliance;
- Conditions attached to the Water Use Licence, to be issued by DHSWS, must be complied with;
- Compliance with EMPr, Water Use License and industry standards must be monitored throughout the life of the project.





## G. APPENDIXES

**Appendix 1: Maps**

**Appendix 2: Photograph Plate**

**Appendix 3: Authority Correspondence**

**Appendix 4: Public Participation**

**Appendix 5: Specialist Reports**

- *Appendix 5-1 Ecological and Wetland Report t*
- *Appendix 5-2 Heritage Impact Report*
- *Appendix 5-3 Geohydrological Report*

**Appendix 6: Draft EMPr**

**Appendix 7: Water Use License Application**

**Appendix 8: EAP CV's**

**Appendix 9: DEA Screening Report**