

**FINAL BASIC ASSESSMENT REPORT
FOR THE PROPOSED PHIWO'S PIGGERY
LOCATED IN NOMAKHANZANA,
KWA-ZULU NATAL**

DC21/0013/2020



JANUARY 2021

PROJECT APPLICANT:

**PHIWO'S INVESTMENT PRIMARY
COOPERATIVE LIMITED**

Tel: 078 727 5351
Email: ssdhlomo775@gmail.com

PREPARED BY:



K2M Environmental (Pty) Ltd
Encouraging Environmentally Sustainable Development

K2M ENVIRONMENTAL (PTY) LTD
Postnet Suite #509
Private Bag X4
Kloof
3640

Tel: 031 764 6743
Fax: 086 622 7276
Email: gert@k2m.co.za
prisantha@k2m.co.za

**DETAILS OF THE INDEPENDENT
ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)**

THE REPORT WAS COMPILED BY:

Environmental Assessment Practitioner:

Ms Prisantha Govender

Qualifications:

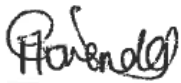
- BSc Honours (Environmental Management) – University of South Africa
- BSc (Environmental Science) – University of KwaZulu Natal
- Short Course in Environmental Impact Assessment Law
- Short Course in Environmental Law

Work Experience:

- October 2019 - Present: Environmental Assessment Practitioner at K2M Environmental
- October 2017- September 2018 - Intern at the Built Environment Training Academy (BETA)

Independence:

I, Prisantha Govender declare that this report has been prepared independently of any influence or prejudice as may be specified by the KwaZulu- Natal Department of Economic Development, Tourism and Environmental Affairs. A record will be kept of all comments received from Interested and Affected Parties (I&APs) and will be submitted in the Final Basic Assessment Report to DEDTEA in the form of a Comments and Responses Report.



Ms Prisantha Govender
K2M Environmental (Pty) Ltd
Environmental Assessment Practitioner

January 2021

Date

THE DOCUMENT WAS REVIEWED BY:

Environmental Assessment Practitioner:

Mr Gert Watson

Qualifications:

- B.Art. et. Scient. (Planning) - University of Potchefstroom
- Advance Project Management (Project Management Body of Knowledge Methodology)
- IEMA Approved Environmental Impact Assessment Course: The National Environmental Management Act Regulations – A Practical Approach
- IEMA Approved Environmental Auditors Course

Work Experience:

- 2009- Present: Director for K2M Environmental
- 2005- 2009: Senior Environmental Consultant for K2M Environmental (Durban Office)
- 2002- 2005: Environmental Consultant for K2M Technologies (Rustenburg Office)

Expertise to undertake Environmental Impact Assessments:

K2M Environmental is an established environmental consultancy since 2008. The consultancy has been involved with more than 100 Environmental Impact Assessments and other environmental related projects in KwaZulu Natal, Mpumalanga, Gauteng and the North-West Province over the last 10 years.

Independence:

I, Gert Watson declare that this report has been prepared independently of any influence or prejudice as may be specified by the Kwa-Zulu Natal Department of Economic Development, Tourism and Environmental Affairs. A record will be kept of all comments received from Interested and Affected Parties (I&APs) and will be submitted in the Final Basic Assessment Report to DEDTEA in the form of a Comments and Responses Report.



Mr. Gert Watson
K2M Environmental (Pty) Ltd
Director

January 2021

Date

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1 BACKGROUND INFORMATION

1.1 INTRODUCTION AND BACKGROUND

A farming enterprise known as Phiwo's Investment Primary Cooperative Limited, represented by Mr Simiso Dhlomo wishes to construct a piggery. The proposed Phiwo's Piggery Development will be funded by the KwaZulu Natal Department of Agriculture and Rural Development. The aim of constructing the proposed piggery is to breed Pigs, produce and sell them to other local enterprises in the meat market. The site of the proposed development is located on the Remaining Extent of farm Alexandra Native Location No. 3 – Farm Number 16459, within Ward 15 of the Umzumbe Local Municipality (see **Map 1.1** and **Appendix C** for Locality Map). K2M Environmental (Pty) Ltd was appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the Environmental Impact Assessment for the proposed development.

The site of the proposed piggery development, which is currently vacant, has a total extent of approximately 1.53 ha and a development footprint of approximately 0.892 ha. There is a channelled valley bottom wetland (HGM 1) that traverses the southern section of the proposed site. The on-site vegetation has a low sensitivity (see **Appendix K: Biodiversity Report**) as it has been modified from its original state by an *Eucalyptus* species thicket. However, it should be noted that the vegetation surrounding the proposed site resembles the KZN Coastal Belt and is thus considered to have a high sensitivity. It should further be noted that upon site clearance, the applicant intends to remove any Eucalyptus trees that remain on site and within the 32m watercourse buffer and replace them with fruit and nut trees.

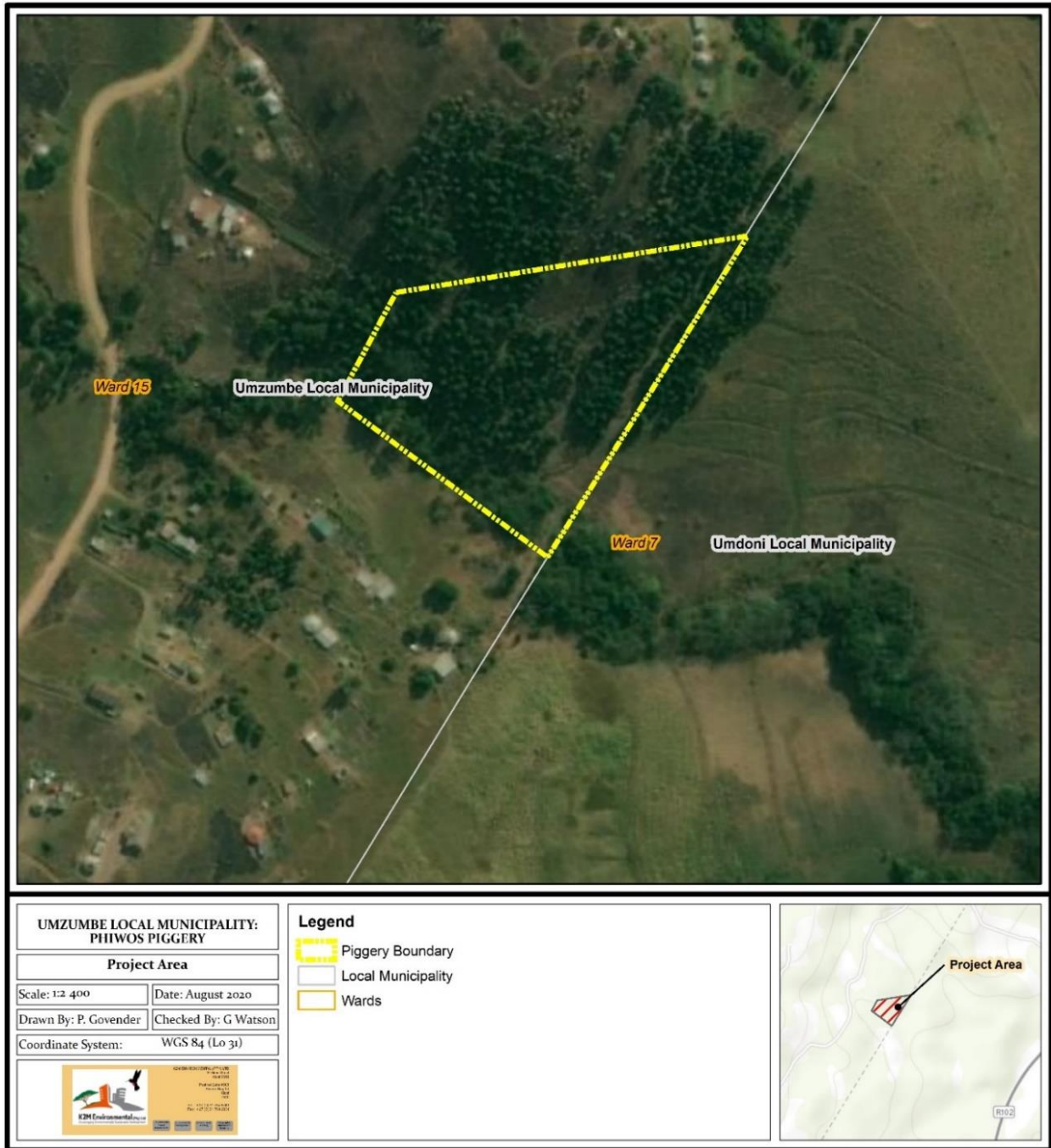
The proposed infrastructure of the piggery upon completion will entail the following:

- removal/clearance of the predominant vegetation, namely Eucalyptus Tree that is found on site
- 6 sow housing units (100 sows will be kept collectively). The dimensions of each sow unit will be 30m x 15m.
- an office/storeroom/ablution/cold-room
- a lined slurry pit/tank of 50m³ in capacity at a height of 1.8m, diameter of 6m and a 1.5m thick wall; a separate tank to store the liquid waste for evaporation and a skip bin for the storage of the solid waste which will then be dried and placed in sacks for the delivery to Inkojane Farm

-
- an onsite jojo tank will be utilised for the collection of water. This tank will be supplied through the existing municipal water network
 - the ablution facility will make use of a septic tank and soakaway system located outside the 32m wetland buffer
 - Access to the proposed development site will be obtained via an existing single local track that connects to the main road to the proposed development site. The track will have a width of 3 metres.

Section 2.2 of this reports further elaborates on the details of the proposed piggery development.

Map 1.1: Project Area



1.2 ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS

The Environmental Impact Assessment Regulations of 2014, as amended, promulgated in terms of Section 24(5) of the National Environmental Management Act, (Act No. 107 of 1998) as amended, requires Environmental Authorisation from the competent authority (KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs) for activities listed in Government Notices R324, R325 and R327. Table 1.1 below identifies the activities that has been triggered for the proposed development.

Table 1.1: Triggered Activities

Activity No.	Description of Activity	Relevance to Project
12 of GN.R 324 (Listing Notice 3)	<p>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.</p> <p><u>d. Kwazulu-Natal</u> v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>The proposed piggery development entails the removal of vegetation within a CBA: Irreplaceable area.</p>
14 of GN.R 324 (Listing Notice 3)	<p>The development of – (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs – (c) if no development setback has been adopted, within 32 metres of a watercourse , measured from the edge of a watercourse;</p> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p><u>d. Kwazulu-Natal</u> vii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>The proposed development will entail construction of infrastructure within 32 m of a watercourse in an areas classified as a CBA.</p>

1.3 TERMS OF REFERENCE

Regulation 19 of the Environmental Impact Assessment Regulations of 2014 (as amended) determines that a Basic Assessment Procedure must be followed for all activities listed in Government Notice R327 and R324. K2M Environmental (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner (EAP) by the applicant and will therefore be responsible for the Basic Assessment procedures concerned with the proposed development as specified in Sections 19 and 20 of Government Notice R326 promulgated in terms of Section 24(5) of the National Environmental Management Act, (Act No. 107 of 1998), as amended.

K2M Environmental has submitted the completed Application form for Environmental Authorisation to the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) (**Appendix D**). DEDTEA registered the project and allocated the reference number **DC21/0013/2020** in their letter dated 12 October 2020 (**Appendix E**). This reference number is to be quoted in all correspondence with DEDTEA for ease of reference. Upon receiving the Draft Basic Assessment Report for the proposed development on the 23rd October 2020, DEDTEA required that the following aspects be addressed in the Final BAR as highlighted in Table 1.2 below (**Appendix F**).

DEDTEA's Comments	EAP's Response
<p>a. Please provide the distance between the channelled valley bottom wetland (outer edge of temporary zone) and the proposed site and ensure that the wetland is delineated with associated buffer and the impacts thereof are assessed.</p> <p>A layout showing the zones of the wetland must be provided and must depict the development in relation to such;</p>	<p>The approximate distance from the edge of the channelled valley bottom wetland to the development footprint is approximately 21 metres (Refer to Appendix J).</p> <p>Refer to Section 5.2.6 of the BAR for the assessment of potential impacts of the development.</p> <p>Refer to Appendix G1 for site layout plan.</p>
<p>b. Specify how the slurry pit will be lined and its capacity;</p>	<p>The slurry pit/tank of 50m³ in capacity at a height of 1.8m, diameter of 6m and a 1.5m thick wall; a separate tank to store the liquid waste for evaporation and a skip bin for the storage of the solid waste which will then be dried. (Refer to Appendix G2 for the Technical Sketch of the Slurry).</p>

	Once the slurry has been constructed, it will be lined with an heavy-duty black plastic to prevent percolation of the effluent into the soil.
c. Specify the size and capacity of the catchment area for the slurry pit;	The catchment area for the slurry will be sow units. Therefore, the total catchment area for the slurry will be 6 units with the dimensions of 30m x 15m.
d. Please provide specifications of ablution facilities;	The construction and installation of a septic tank and soakaway system will be used to handle and treat the on-site sewage. The system will be designed and constructed in accordance with the SANS 10400 P standards during the Design Phase of the Development.
e. Specify the length of the road track;	The existing access tack has a length of approximately 191.3 metres. The track will be graded to a width of 3 metres.
f. Specifications of office/storeroom/cold-room must be provided;	The office/storeroom/cold-room will be located in one building which will have the dimensions of 15m x 30m. The detailed specifications will be determined during the Design Phase of the Development.
g. Please clarify if the road crossings mentioned on page 22 of the dBAR are existing. If new road crossings are proposed, then such must be assessed;	Yes, as indicated on the Delineated Wetlands Map on Page 29 of the BAR, the roads crossings are existing.
h. Ensure that the report is inclusive of the total amount and type of vegetation to be removed and also the amount of Eucalyptus trees to be removed and the impacts of such to the receiving environment;	<p>As indicated in the Biodiversity Report (Appendix K), the project areas was found to be transformed from its original state by Eucalyptus trees. Therefore, the existing vegetation currently found on site is predominately comprises of Eucalyptus trees, all of which will be removed/cleared as a result of the proposed development.</p> <p>Furthermore, the Biodiversity Report states that the Eucalyptus Trees that are currently present on site is categorised as Category 1b invasive species which must be removed and controlled by implementing an alien invasive plant management programme in compliance with section 75 of the National Environmental Management Act: Biodiversity Act (NEMBA). As such, the removal of the Eucalyptus Trees will be beneficial to the receiving environment.</p>
i. Ensure the inclusion of a layout plan at an appropriate scale which superimposes all the proposed activities and associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers;	Refer to Appendix I for the Map illustrating the Site Layout Plan and Environmentally Sensitive Areas.

<p>j. Please ensure that the boundary of the wetland buffer that encroaches into the proposed development footprint is visible on the layout;</p>	<p>Refer to Appendix G1 which illustrates the layout 15m wetland buffer and the flood lines.</p>
<p>k. The Department requests written confirmation of all services from relevant service providers to be included on the amended dBAR report i.e. water, electricity and sewage;</p>	<p>The applicant is in process of undertaking a Water Use License for the proposed development. The Development will make use of the existing water connection located on the northern boundary of the property. The municipality does not service the area in term of sanitation, the applicant will construct a septic tank with a French drain for the staff ablution. This ablution facility is located outside the 32m buffer from the wetland's edge.</p>
<p>l. As per the minutes from the pre-application meeting dated 10th September 2020, an Ecological Assessment was requested, please ensure that this is undertaken and provided to the Department and key stakeholders for review and comment;</p>	<p>Please refer to Appendix K for the Biodiversity and Wetland Assessment Report.</p>
<p>m. A reasoned opinion as to why the development may or may not proceed from the Environmental Assessment Practitioner and from all appointed Specialists must be included in the amended dBAR;</p>	<p>Please refer to Section 7 of the BAR which provides the opinion of Specialists and the EAP.</p>
<p>n. Ensure that the curriculum vitae and expertise of all the specialists are included in the dBAR.</p>	<p>Noted and included.</p>
<p>o. Ensure that all comments are compiled and responded to, and registers for interested and affected parties must be included on the dBAR;</p>	<p>Noted and included in the Comments and Response Report (Appendix A).</p>
<p>p. Please ensure that the public participation process is undertaken in terms of the 2014 EIA Regulations as amended i.e. the report must be inclusive of the images that illustrate where the notice boards were posted i.e. a dated newspaper showing the advert;</p>	<p>Noted and included. Refer to Sections 6 of the BAR.</p>

1.4 APPROACH AND METHODOLOGY

The overall approach to this assignment included the following activities:

- Apply for Environmental Authorisation to DEDTEA regarding the Phiwo's Piggery development.
- A detailed analysis of the proposed development, the area where it will take place, and the identification of potential impacts.
- Identification of specialist input required and the facilitation of the studies.

- All legislative requirements in terms of the EIA Regulations and to provide DEDTEA with sufficient information to take a decision regarding the development.

1.5 ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations apply to the EIA:

- The environmental authorization application has been initiated during the conceptual design and planning stages of the development.
- It is assumed that the information provided by the various specialists and project engineers are accurate.
- The EIA project team is of the view that an adequate level of information is provided in order to facilitate the required assessment of potential impacts of the proposed project alternatives and decision-making in this regard.
- The study involves the assessment of impacts on the current conservation value of affected land and not on either the historic or potential future conservation value.

1.5.1 Baseline Information

Sufficient baseline information for the Basic Assessment Report was available from a variety of desktop data sources, reports and relevant data bases. This was supplemented by site visits to the project area and inputs from other professionals involved in the project.

1.5.2 Time Constraints

There were no time constraints and sufficient time was available for the Basic Assessment Process.

1.6 REPORT STRUCTURE

The report is structured as follows:

Section 2 consists of a summary description of the proposed activity.

Section 3 provides a description of the environment that may be affected by the activity.

Section 4 consists of the Engineering Services

Section 5 consists of a summary of the potential **impacts of the proposed activity** on the environment.

Section 6 provides describes the **public participation** process conducted during the scoping phase.

Supporting documents, reports, correspondence and other relevant information are contained in various Appendixes attached to this report. Table 1.2 has been included to assist the reader to find the relevant sections in the report.

Table 1.2: 2014 EIA Requirements for the Basic Assessment Report

Information Required	Document Section
Details of- (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Just after cover page and Appendix Q and R
The location of the activity, including: (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 2.1
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- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 2.1 & Appendix G1
A description of the scope of the proposed activity, including (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	Section 1.2 and Section 2.3
A description of the policy and legislative context within which the development is proposed including- (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section 1.7
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 5.3.2
A motivation for the preferred site, activity and technology alternative;	Section 2.5
A full description of the process followed to reach the proposed preferred alternative within the site, including:	Sections 2.4, 5 and 5

<p>(i) details of all the alternatives considered;</p> <p>(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</p> <p>(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;</p> <p>(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</p> <p>(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-</p> <p>(aa) can be reversed;</p> <p>(bb) may cause irreplaceable loss of resources; and</p> <p>(cc) can be avoided, managed or mitigated;</p> <p>(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;</p> <p>(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;</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk;</p> <p>(ix) the outcome of the site selection matrix;</p> <p>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;</p>	
<p>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-</p> <p>(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</p> <p>(ii) 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;</p>	Section 5
<p>An assessment of each identified potentially significant impact and risk, including-</p> <p>(i) cumulative impacts;</p> <p>(ii) the nature, significance and consequences of the impact and risk;</p> <p>(iii) the extent and duration of the impact and risk;</p> <p>(iv) the probability of the impact and risk occurring;</p> <p>(v) the degree to which the impact and risk can be reversed;</p> <p>(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and</p> <p>(vii) the degree to which the impact and risk can be avoided, managed or mitigated;</p>	Section 5
<p>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;</p>	Sections 3.3, 3.4 and 3.5
<p>An environmental impact statement which contains-</p> <p>(i) a summary of the key findings of the environmental impact assessment;</p>	Section 5.3.1

(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 (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	
Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;	Section 3
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 7
A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 1.5
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 7
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;	This development project does not have an end date.
An undertaking under oath or affirmation by the EAP in relation to: the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (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; and	Just after cover page
Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Not Applicable
Any specific information that may be required by the competent authority; and	Section 1.3
Any other matters required in terms of section 24(4)(a) and (b) of the Act.	Not Applicable

1.7 APPLICABLE LEGISLATION, POLICIES AND GUIDELINES

In addition to the Environmental Impact Assessment Regulations of 2014 (as amended), Table 1.3 below indicates other applicable legislation that has been considered in the preparation of this Basic Assessment Report.

Table 1.3: Applicable Legislation

Legislation	Relevance to the development
National Environmental Management Act (No. 107 of 1998)	This development requires a Basic Assessment to be conducted in terms of the 2014 EIA Regulations, as amended. The purpose of the Basic Assessment is to ensure that the development does not impact on the natural environment.
KwaZulu-Natal Heritage Act (No. 4 of 1998)	This Act has been put into place to conserve, protect and conserve heritage resources. Documentation will be submitted to AMAFA for their comment.
Occupational Health and Safety Act (No. 85 of 1993)	The contractor needs to manage his staff and crew in strict accordance with the Occupational Health and Safety Act in order to prevent injuries to the staff.
Polluters Pay Principal	The Polluters Pay Principal has been included into the preparation the EMPr.
Umzumbe Local Municipality: IDP 2018-2019	According to the Umzumbe IDP, agriculture is a fundamental pillar of the local economy, as such the proposed development is aligned with the Municipality's IDP as it will contribute to the local economy.

1.8 THE APPLICANT

The details of the applicant are as follows:

Applicant name: Phiwo's Investment Primary Cooperative Limited

Contact Person: Mr Simiso Dhlomo

Tel: 078 727 5351

Email: ssdhlomo775@gmail.com

Address: Ward 19, Umzumbe Municipality, 4186

1.9 THE INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER

K2M Environmental (Pty) Ltd was appointed as the Independent EAP responsible for the following tasks:

- Processes, information, plans and reports produced in complying with the Regulations
- Ensuring that the relevant authority has access to all information
- Public Participation Process

The contact details of the independent Environmental Assessment Practitioner are as follows:

Name: K2M Environmental (Pty) Ltd

Contact Person: Mr Gert Watson

Telephone: 031 – 764 6743

Fax: 031 – 764 2354

E-mail: gert@k2m.co.za

Postal Address : PostNet Suite #509, Private Bag X4, Kloof, 3640

2 DESCRIPTION OF PROPOSED ACTIVITY

2.1 PROJECT LOCATION

2.1.1 Co-ordinates

Table 2.1 below indicates the co-ordinates of the project area.

Table 2.1: Central Co- ordinates of the projects area

Latitude /Longitude	Degrees	Minutes	Seconds
South	30	29	7.66
East	30	35	35.07

2.1.2 21 Digit Surveyor General Code

Table 2.2 below indicates the property description and 21-digit surveyor general code.

Table 2.2: Property Description

Property Description	21- Digit Surveyor Code
REM Extent of farm Alexandra Native Location No. 3 – Farm Number 16459	NoET00000001645900000

2.2 ACTIVITY DESCRIPTION

2.2.1 Extent of Development

The total project area is approximately 1.52ha in extent, however the development footprint of the proposed activity is approximately 0.892ha.

2.2.2 Description of the proposed activity

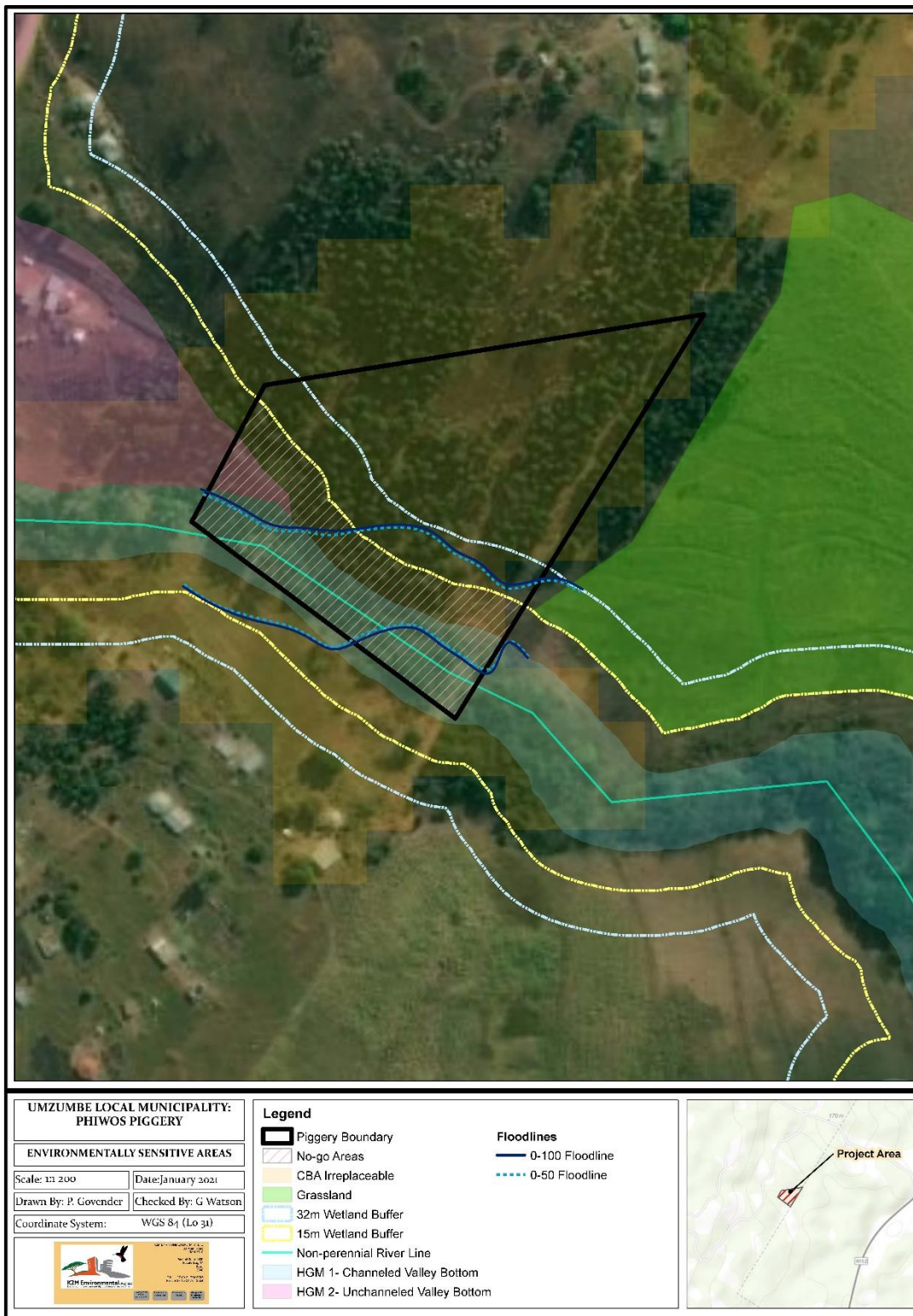
As illustrated in the proposed site plan and technical sketch of the slurry (**Appendix G1** and **Appendix G2, respectively**), the proposed project will entail the removal of vegetation for the purpose of constructing the following:

- removal/clearance of the predominant vegetation, namely Eucalyptus Tree that is found on site
- 6 sow housing units (100 sows will be kept collectively). The dimensions of each sow unit will be 30m x 15m.
- an office/storeroom/ablution/cold-room which will be located in one building which will have the dimensions of 15m x 30m
- a lined slurry pit/tank of 50m³ in capacity at a height of 1.8m, diameter of 6m and a 1.5m thick wall; a separate tank to store the liquid waste for evaporation and a skip bin for the storage of the solid waste which will then be dried and placed in sacks for the delivery to Inkojane Farm
- an onsite jojo tank will be utilised for water. This tank will be supplied through the existing municipal water network
- the ablution facility will make use of a septic tank and soakaway system which will be located outside the 32m wetland buffer. The septic tank and soakaway system will be designed and constructed in accordance with the SANS 10400 P standards during the Design Phase of the Development.
- Access to the proposed development site will be obtained via an existing single local track that connects to the main road to the proposed development site. The track will have a width of 3 metres.
- It should be noted that upon site clearance, the applicant intends to remove any Eucalyptus trees that remain and replace them with fruit and nut trees.

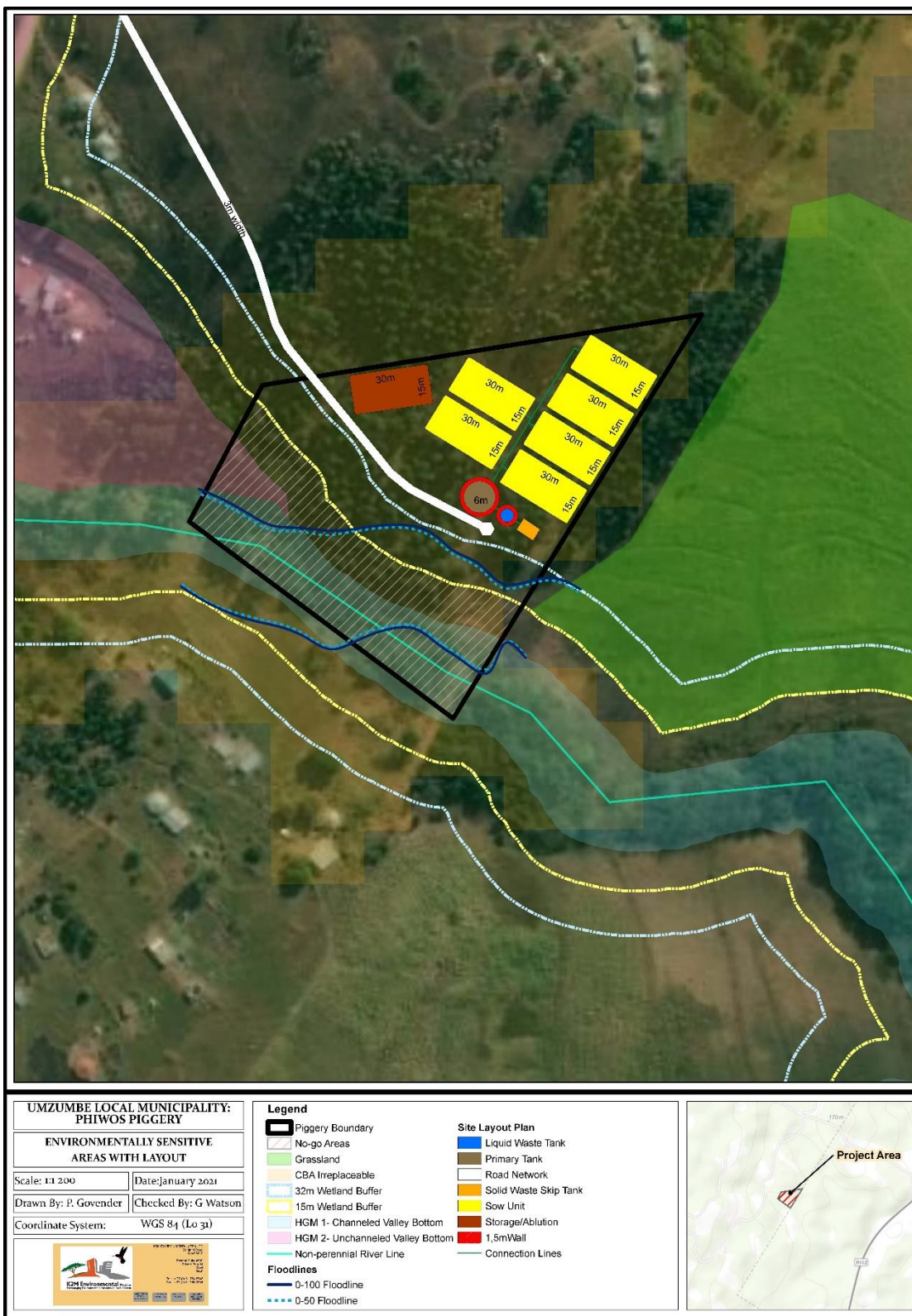
Map 2.1 and **Appendix H** provides an illustration of the environmentally sensitive areas within and surrounding the project area such as the watercourses, wetlands, 15 and 32m wetland buffers, 1:50 year flood line, 1:100 year floodline, CBA Irreplaceable and grasslands (high sensitivity). According to the Biodiversity Assessment, the project area, containing CBA Irreplaceable has been transformed by an *Eucalyptus sp* thicket and no longer supports Species of Conservation Concern (SCC) thus is considered to have a low sensitivity. However, the patches of grassland surrounding the site, especially to the east, is considered to have a high sensitivity. Although somewhat degraded, the grassland resembles KZN Coastal Belt to some extent and there are numerous *Trinervitermes sp.* mounds. All areas outside of the development area should be regarded as no-go areas throughout all the phases of the project.

Map 2. and **Appendix I** illustrate the development layout which is overlaid by the environmentally sensitive areas. As can be seen, the proposed piggery development will entail constructing 6 sow units, a slurry with, slurry pipelines, an office/storage/ ablution block and an access track. It should be noted that the illustration clearly depicts that the proposed site development layout falls outside of wetland/watercourse buffers and the floodline.

Map 2.1: Environmental Sensitive Areas



Map 2.2: Environmental Sensitive Areas and Site Layout Plan



2.2.3 Access to the proposed development

To access the site, take the N2 towards Port Shepstone, travel for 670km and take Exit 84 towards Ifafa/Elysium and then turn right. After 1.7km turn left onto the R102, travel for 2.5km and turn right. After 550m turn left, and then left again after 400m. Travel for approximately 1.7km and the site will be on the right.

Access to the proposed development site during the construction and operational phase will be obtained via an existing single local track that connects to the main road to the proposed development site. The track will have a width of 3 metres.

2.2.4 Existing Situation

As indicated in Figure 2.1, the site currently contains Eucalyptus species tree plantations.

Figure 2.1: Existing Situation



Source: Google Earth, 2020

Photo 2.1: *Eucalyptus sp* tree plantations within the project area



2.3 PROJECT PHASING AND CONSTRUCTION PROGRAM

The construction of the project is scheduled to commence as soon as all the processes to comply with applicable legislation are completed. There will only be one phase in terms of construction, which will be completed from start to finish in one phase.

2.4 CONSIDERATION OF ALTERNATIVES

Alternatives are seen as different means of meeting the general purpose and need of a proposed activity. Alternatives could include, amongst others, the following:

- Activity Alternatives: This requires a change in the nature of the proposed activity. This alternative is most appropriate at a strategic decision making level.
- Location Alternatives: Alternative locations for the entire project proposal, or for components of the project proposal.
- Layout Alternatives: This alternative allows different spatial configurations of an activity on a specific site.
- Scheduling Alternatives: also refer to alternative phasing options for the development. This alternative considers different phasing options during the implementation of the development.
- Infrastructure/ Input Alternatives: Also referred to as technological or equipment alternatives. This option considers various alternatives that will result in the same end result.

Layout and Infrastructure (technology) alternatives are the most pertinent to this EIA process, however all the above mentioned alternatives are briefly explored in the subsections below as well as the alternative of maintaining the status quo, commonly known as the “no-go” option.

2.4.1 Activity Alternatives

Activity alternatives refer to the consideration of alternatives requiring a change in the nature of the proposed activity to be undertaken. The applicant wishes to establish a piggery to breed live pigs and sell them to local enterprises in the meat market. The project activity was finalized prior to the commencement of the EIA process, therefore, no activity alternatives were considered by the EAP in this regard.

2.4.2 Location Alternatives

The location of the proposed development was predetermined prior to the commencement of the EIA process. The preferred location that was determined is situated on the applicant's farm (Remaining Extent of farm Alexandra Native Location No. 3 – Farm Number 16459) as such no location alternatives were considered during the EIA process.

2.4.3 Layout Alternatives

The proposed design and layout have been informed by the Wetland and Biodiversity studies undertaken as part of the BAR process to minimise impacts on the sensitive wetland areas. The preferred proposed layout is on part of the property which has the least potential impact on the sensitive areas on site. As such, no alternative layouts have been proposed as the current and preferred layouts are on modified land.

2.4.4 Scheduling Alternatives

The detailed time frame for implementation and completion of the proposed development is not currently available. No scheduling alternatives were considered.

2.4.5 Technology Alternatives

The technology and process options have been researched by the Engineers.

2.4.6 “No-go” Alternative

The “no-go” alternative should in all instances be considered as part of the EIA process. It assumes that the activity does not proceed, implying a continuation of the current situation of status quo. Should this development not go through, the following will apply:

- The vacant piece of land will be left vulnerable to illegal occupation, dumping and informal housing.

- Vegetation will not be removed.
- No soil erosion or soil pollution.
- Ecosystem services will not be compromised.
- Alien invasive Eucalyptus trees will still remain on site

2.4.7 Motivation for Preferred Alternatives

2.4.7.1 Site Location and Layout Alternative

No alternative site locations were considered since the Project Applicant had already acquired the site prior to commencement of the EIA Process. As such, it was not economically feasible for the business to find or purchase new property. The proposed design and site layout have been informed by the Biodiversity and Wetland Assessment (**Appendix K**) that was undertaken as part of the EIA Process to minimise any potential impacts on the sensitive wetland areas. As such, no alternative layouts were considered as the preferred layout is situated on transformed land which is conducive for the proposed project.

2.4.7.2 Activity Alternative

The preferred activity was determined prior to commence with the EIA Process, as such no activity alternatives were considered. The development of a piggery facility is the type of development activity the applicant wishes to establish.

2.4.7.3 Technology Alternative

The agricultural waste produced from the proposed piggery will be stored in a lined slurry pit. Once dried, the sludge will then be used as compost. An agricultural engineer and/or civil engineer be consulted in order to adequately design the required agricultural waste disposal ponds.

3 SITUATION ASSESSMENT OF PROJECT AREA AND AFFECTED ENVIRONMENT

3.1 PHYSICAL AND LANDSCAPE CHARACTERISTICS OF THE SITE

The project area is situated along a hillside with elevation decreasing from 124m MSL in the north to approximately 112m MSL in the south towards a small tributary that borders the south western portion of the site. Drainage is mainly dictated by a network of rivers and their tributaries including Mfazazana River and the QulaMtwalume-uMgeni Rivers, which drains excess water towards the coast.

3.2 SURROUNDING LAND USES

As indicated in Figure 3.1, the proposed site is surrounded by residential dwellings to the south and west and agricultural land to the east of the site.

Figure 3.1: Surrounding Land Uses



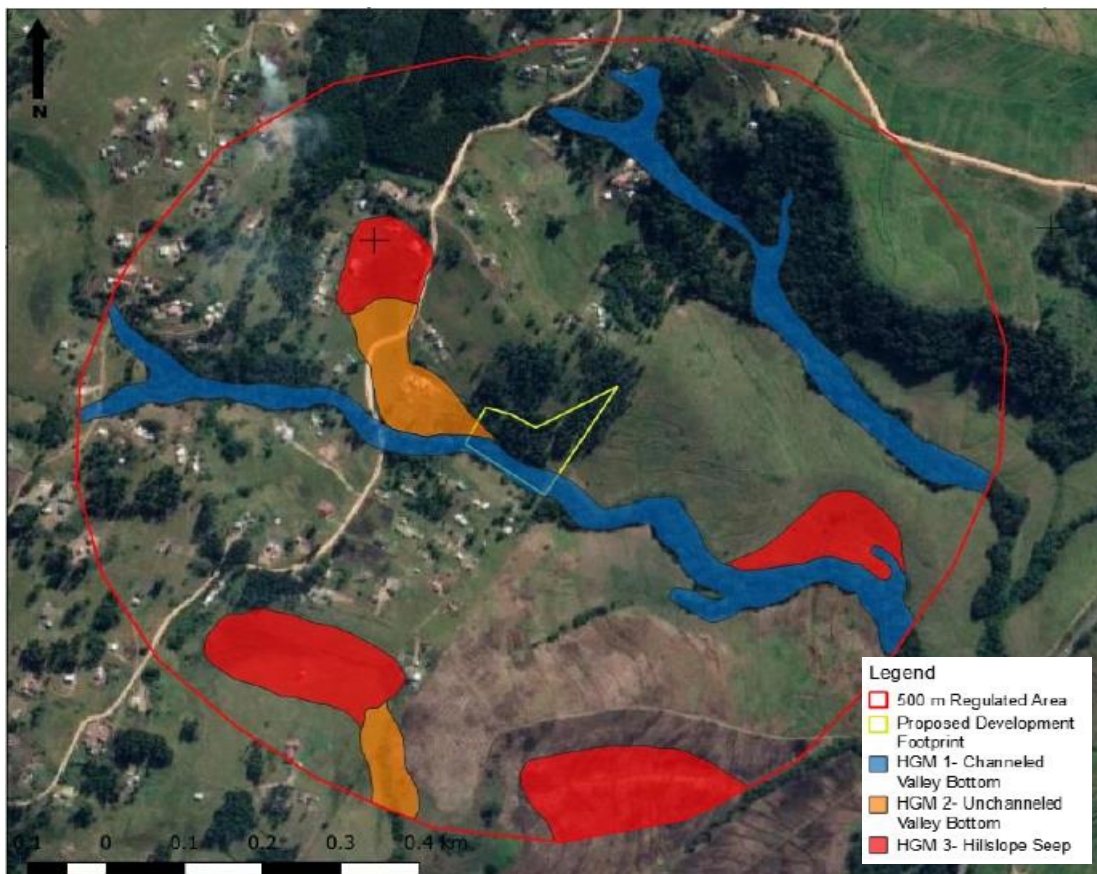
3.3 WETLAND SYSTEM

A Wetland Assessment was undertaken by the Biodiversity Company in August 2020. A copy of the report is attached as **Appendix K**.

3.3.1 Delineated Wetland

The wetland areas were delineated in accordance with the DWAF (2005) guidelines. Various wetland systems have been identified within the 500 m regulated area which have been grouped together in three HGM types, namely HGM 1 (channelled valley bottom), HGM 2 (unchannelled valley bottom) and HGM 3 (hillslope seep). It is worth noting that HGM 3 is in such a position in the landscape that very little to no impacts are expected towards these systems.

Map 3.1: Delineated Wetlands



3.3.2 Wetland Indicators

3.3.2.1 Hydromorphic Soils

Three dominant soil forms were identified within the identified wetlands, namely the Dundee, Mispah and Didema soil form.

3.3.2.2 Hydrophytes

During the site visit, one dominant hydrophyte species (*Juncus spp.*) was identified within the delineated wetlands.

3.3.3 Ecological Functional Assessment

The ecosystem services provided by the wetlands identified on site was assessed and rated using the WET-EcoServices method (Kotze *et al.* 2008). Both HGM units have been scored “Intermediate” average ecosystem service scores. The summarised results for the delineated wetlands are illustrated in Table 3.1 below.

“High” and “Very High” scores are attributed to indirect benefits concerning the assimilation of contaminants, flood attenuation, streamflow regulation and erosion control. The surrounding community contributes to pollutants nitrates, phosphates and many other toxicants) entering the systems. These wetlands therefore play an integral role in cleaning stormwater before contaminants enter important watercourses downstream. Additionally, HGM 2 is characterised by a stabilise soil profile and diffuse flows which contributes to streamflow regulation and erosion control.

Table 3.1: Ecosystem services provided by the HGM types

			Wetland Unit	HGM 1	HGM 2	
Ecosystem Services Supplied by Wetlands	Indirect Benefits	Regulating and supporting benefits	Flood attenuation	2.4	2.1	
			Streamflow regulation	2.1	2.1	
			Water Quality enhancement benefits	Sediment trapping	2.5	2.3
				Phosphate assimilation	2.5	2.9
				Nitrate assimilation	2.2	2.8
				Toxicant assimilation	2.1	2.9
				Erosion control	1.9	2.3
			Carbon storage	1.1	1.9	
	Direct Benefits	Biodiversity maintenance		1.1	1.0	
		Provisioning benefits	Provisioning of water for human use	1.2	0.7	
			Provisioning of harvestable resources	0.0	0.0	
			Provisioning of cultivated foods	0.0	0.0	
		Cultural benefits	Cultural heritage	0.0	0.0	
			Tourism and recreation	0.4	0.4	
			Education and research	1.3	1.3	
			Average Eco Services Score	1.4	1.5	

3.3.4 The Ecological Health Assessment

The PES for the assessed HGM types is presented in Table 3.2. The Hydrology of HGM 1 and 2 have been scored “Critically Modified” and “Seriously Modified” respectively. These scores are attributed to road crossings in both wetlands’ cases the presence of alien invasive trees and altered water inputs.

The Geomorphology of HGM 1 and 2 have been determined to be “Moderately Modified”. These scores are predominantly attributed to the road crossings which alter the flow dynamics to some extent.

The Vegetation aspect of the delineated wetlands have been affected by erosion and overgrazing which has resulted in the loss of indigenous vegetation. HGM 1 and 2 has been determined to be characterised by a “Largely Modified” and “Seriously Modified” vegetation component.

The overall wetland health for HGM 1 and 2 have been scored “Seriously Modified” and “Largely Modified” respectively. This indicates a slightly higher level of disturbances for HGM 1 due to the effect the road crossing has on this system’s hydrology and geomorphology.

Table 3.2: Summary of the scores for the wetland PES

Wetland	Hydrology		Geomorphology		Vegetation		Overall PES	
	Rating	Score	Rating	Score	Rating	Score	Rating	Score
HGM 1	Seriously Modified	8	Moderately Modified	3.5	Largely Modified	5.9	Seriously Modified	6.1
HGM 2	Seriously Modified	7	Moderately Modified	2.5	Seriously Modified	6.3	Largely Modified	5.5

3.3.5 Ecological Importance & Sensitivity Assessment

The wetland EIS assessment was applied to the HGM units described in the previous section in order to assess the levels of sensitivity and ecological importance of the wetland. The results of the assessment are shown in Table 3.3.

The Ecological Importance and Sensitivity has been scored “Moderate” for both HGM units predominantly due to the fact that very little suitable habitat for significant species were identified.

The Hydrological/Functional Importance refers to the ability of a wetland to indirectly provide the surrounding environment of services and the importance of such functions. The hydrological/functional importance for both HGM units has been scored “High”.

The Direct Human Benefits have been scored “Low” for both HGM units. This level of score illustrates the lack of provisioning to the surrounding community.

Table 3.3: The EIS results for the delineated wetlands

Metric	HGM 1	HGM 2
Ecological importance and sensitivity	1.8	1.2
Hydrological/functional importance	2.3	2.5
Direct human benefits	0.5	0.5

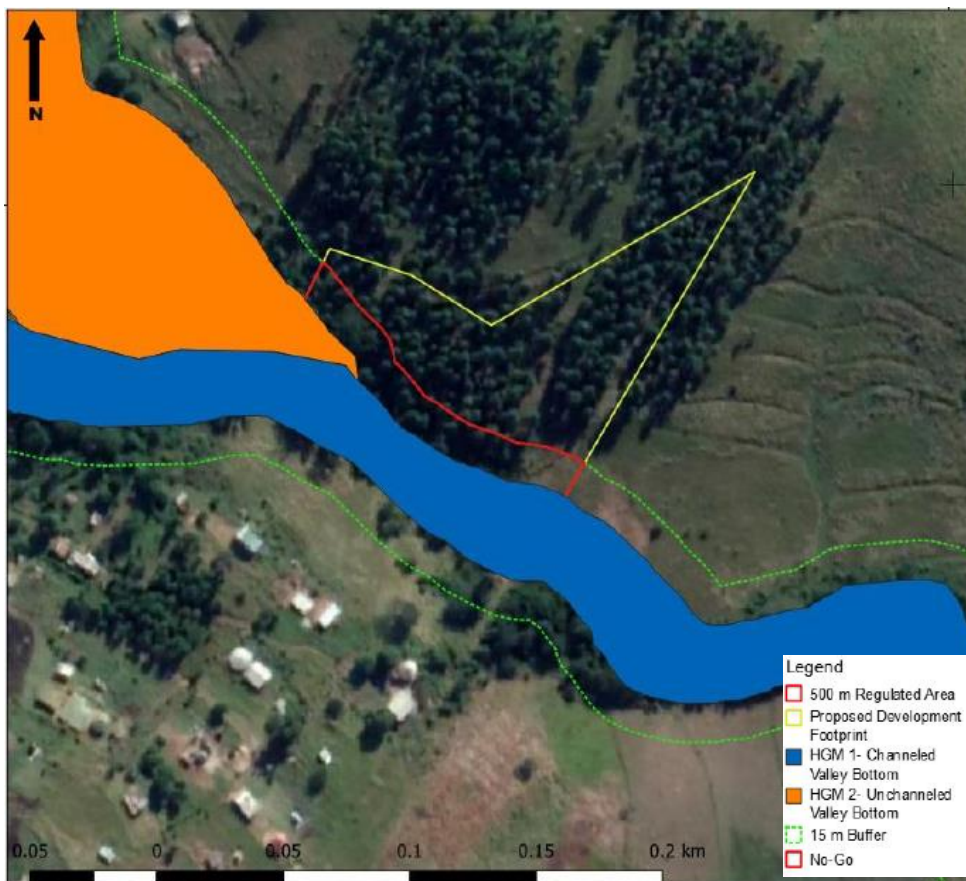
3.3.6 Buffer Zones

The “Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries” (Macfarlane *et al.*, 2014) was used to determine the appropriate buffer zone for the proposed activity. A pre-mitigation buffer zone of 30 m is recommended for the identified wetlands, which can be decreased to 15 m with the addition of all prescribed mitigation measures. Table 3.4 below indicates the pre and post mitigation buffer requirements. Map 3.2 below depicts the 15 m wetland buffer and the no-go areas within the site.

Table 3.4: Pre-mitigation and post mitigation buffer requirement

Buffer Type	Buffer Widths
Pre-mitigation buffer	30 m
Post-mitigation buffer	15 m

Map 3.2: 15m buffer zone an no-go area within the site



3.3.7 Risk Assessment

The impact assessment considered both direct and indirect impacts to the wetland systems. The mitigation hierarchy as discussed by the Department of Environmental Affairs (2013) was considered for this component of the assessment. In accordance with the mitigation hierarchy, the preferred mitigatory measure is to avoid impacts by considering options in project location, sitting, scale, layout, technology, and phasing to avoid impacts. As indicated, the delineated wetlands and their buffer zones cover the majority of the proposed development area, which indicates a flaw in the first step in the mitigation hierarchy, namely avoidance. The following risk assessment is aimed at identifying and quantifying risks towards sensitive receptors, and to focus on achieving the second step in the mitigation hierarchy (minimising impacts) by means of mitigation.

It is the specialist's opinion that the avoidance of buffer zones will decrease the significance ratings considerably. Three significance rating situations were assessed during the risk assessment, including "pre-mitigation," "post-mitigation" and "post mitigation and adherence to buffer zones." Various aspects were determined to have "Moderate" pre-mitigation significance ratings with some not expected to be decreased to "Low" significance ratings with the application of mitigation measures. Those aspects that are not expected to be decreased in significance ratings by means of mitigation, will only be decreased to "Low" once the recommended buffer zones are implemented.

In the event that adherence to the buffer zones is not feasible in regard to the economics of the proposed development, it is recommended that the third and fourth step of the mitigation hierarchy be combined to provide a form of compensation for the impacted/lost resources, but in the form of on-site rehabilitation. It is worth noting that the removal of alien invasive trees within the hillslope adjacent to the wetland system is not recommended for such rehabilitation, as this activity could result in an increase in wetland size given a higher sub-surface flow flux. Therefore, it is recommended that on-site rehabilitation be focussed on the channel of the wetland itself.

3.3.8 Mitigation Measures

The following mitigation measures has been recommended by the wetland specialist:

- The contractors used for the construction should have spill kits available prior to construction to ensure that any fuel, oil or hazardous substance spills are cleaned-up and discarded correctly.

- It is deemed important that all wetland areas be demarcated as sensitive areas, and no construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones (where possible).
- During construction activities, all rubble generated must be removed from the site.
- The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm.
- Construction vehicles and machinery must make use of existing access routes as much as possible, before adjacent areas are considered for access.
- All chemicals and toxicants to be used for the construction must be stored outside the channel system and in a bunded area.
- All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site.
- All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good “housekeeping”.
- Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation).
- All removed soil and material must not be stockpiled within the system. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.
- Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil.
- No dumping of construction material on site may take place.
- All waste generated on site during construction must be adequately managed. Separation and recycling of different waste materials should be supported.
- The boundary of the wetland buffer that encroach into the proposed development footprint must be made visible to those individuals making use of the proposed development. This can be done by erecting signs along the wetland buffer bordering against the proposed footprint area to ensure that unwanted activities do not take place within this area. The signs will indicate the extent of the no-go area while allowing humans and animals to still make use of the wetland.
- Signs erected along the indicated buffer zone must warn individuals against unwanted anthropogenic activities, including dumping, construction and laydown yards during the operational phase. Recreational activities can still be permitted within this area (i.e. walks, having picnics etc.). Key

activities that should be disallowed within this zone includes swimming, grazing, harvesting plants and consuming water from the wetland.

- In the event that the buffer zones cannot be adhered to, a wetland offset strategy must be compiled focussing on on-site rehabilitation by means of diverting stormwater with a stormwater management plan.

3.4 BIODIVERSITY ASSESSMENT

The Biodiversity Assessment was undertaken by the Biodiversity Company in August 2020. A copy of the report is attached as **Appendix K** and summarised below.

3.4.1 Ecologically Important Landscape Features

- The proposed development is within a CBA: Irreplaceable
- The National Web based Environmental Screening Tool has characterised the plant species as a “medium sensitivity” within the proposed site.

3.4.2 Botanical Assessment

3.4.2.1 Indigenous Flora

The project area was found to be transformed from its original state by an *Eucalyptus sp* thicket. It is the opinion of the specialists that the project area does not support SCC anymore as the habitat has been modified. However, there are patches of grassland surrounding the property that is regarded as possessing a high sensitivity. This is because, although somewhat degraded, the grassland resembles KZN Coastal Belt to some degree and there are numerous *Trinervitermes sp.* mounds and therefore, all areas outside of the provided development area should be regarded as no-go areas throughout all the phases of the project.

3.4.2.2 Invasive Alien Plants (IAPs)

The *Eucalyptus sp* that were recorded within the assessment area is categorised as Category 1b, and must therefore be removed and controlled by implementing an alien invasive plant management programme in compliance with section 75 of the National Environmental Management: Biodiversity Act (NEMBA), 2004.

3.4.3 **Sensitivity and habitat summary**

The proposed development footprint was found transformed due to the presence of the alien vegetation thicket and has been given a low sensitivity. A change to the land use is not envisioned to have an effect to the project area directly due to the current transformed state, however the surrounding grassland areas, especially to the east are regarded as possessing a high sensitivity. The development footprint does not represent the medium plant sensitivity as per the screening report, nor the CBA: Irreplaceable status, as it has been determined to have a low sensitivity.

3.4.4 **Mitigation Measures**

The following mitigation measures have been recommended by the biodiversity specialist:

- It is recommended that areas to be developed be specifically demarcated so that during the construction phase and operational phase, only the demarcated areas be impacted upon. All work areas, offices, and access roads must be clearly demarcated from surrounding sensitive areas. All areas outside of the demarcated areas should be declared a 'no-go' area during all the project phases and all efforts must be made to prevent access to this area from construction workers and machinery.
- These must be designated as 'open-spaces' during the operational phase but it is imperative to inform the residents on the importance of these no-go areas and the valid uses and restrictions of them.
- All dumping of waste material, especially bricks and contaminated materials or soils, into the environment must be prevented. Solid waste is to be disposed legally off-site in the relevant waste disposal manner.
- Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated.

- Any topsoil that is removed during construction must be appropriately removed and stored. This includes on-going maintenance of such topsoil piles so that they can be utilised for re-vegetation purposes when necessary.
- Implementation of an alien vegetation management plan for the site is required. This is especially in areas that are cleared of vegetation and left exposed. Upon completion of construction any exposed areas must be re-vegetated with local indigenous plants to prevent IAP encroachment.
- Construction activities and vehicles could cause spillages of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the project area.
- Any possible contamination of topsoil by hydrocarbons, concrete or concrete water must be avoided and an emergency spill kit must always be available on site.
- Materials must be stored in leak-proof, sealable containers or packaging.
- No storage of vehicles or equipment will be allowed outside of the designated area.
- Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.
- No servicing of equipment on site unless absolutely necessary.
- Leaking equipment shall be repaired immediately or be removed from site to facilitate repair.
- Have action plans on site, and training for contactors and employees in the event of sewage spills, leaks and other impacts to the surrounding environment.

3.5 FLOODLINE DELINEATION REPORT

A Floodline Delineation Report was prepared for the proposed development and is attached as **Appendix L**.

The findings from the Flood Delineation Report are summarised below:

- A floodline determination was required in order to determine the position and extent of the 1:50, 1:100 year flood lines for the proposed development.
- Drainage Area: The noted water course within the proposed development area, is subject to periodic flooding depending on the rainfall and subsequent runoff at any point in time, either within or upstream of the specific catchment area. Therefore, in terms of the Water Act, as well as various other

applicable developmental legislations, these areas are subject to a 1:100 year flood line restriction as far as any form of formal development is concerned.

- A single drainage area was identified for the purpose of the flood calculations.
- **Conclusion:** It is recommended that no development take place below the calculated flood lines in terms of the National Water Act and other development legislation. Further, it is hereby confirmed that the 1:100 year flood lines as indicated on the floodline drawing, situated along the water course within the proposed development area, represent the maximum flood levels that is likely to be reached on an average every 100 years, by flood water within the said watercourses.

3.6 GEOTECHNICAL ASSESSMENT

A Preliminary Geotechnical Report was undertaken by Davies, Lynn and Partners in July 2020 for the Proposed Phiwos Piggery Development. A copy of the reports is attached as **Appendix M** and summarized below.

- The proposed new Agricultural Piggery is anticipated to be entirely underlain by the Natal Group and its related residual and colluvial subsoil material.
- The main Geotechnical concerns believed to be of Intermediate to High Risk include the following:
 - Collapsible soil horizon with a depth greater than 750mm in thickness (A₂)
 - Difficulty of Excavation (F₃)
 - Steep Slopes (I₂)
- (A₂)- The site is anticipated to be underlain by potentially highly collapsible sands (which classify as C₂ in terms of the Part 1, Section 2, Table 6 of the NHBRC Home Builders manual. Accordingly, the construction of reinforced stiffened concrete raft foundations with ground improvement measures will likely be necessary to provide stable founding for the proposed structures. These additional reinforced raft and/or ground improvement measures may result in additional cost implications for the proposed new development.
- (F₃)- During the site investigation certain areas were noted to contain hard rock/boulder exposures above surface. The presence of these materials at shallow depths will likely result in the requirement for heavy ripping and/or blasting in order to achieved the required depths for the installation of services and waste disposal ponds.
- (I₂)- The site of the proposed new development includes several topographical variances, some of which include steeper slopes particularly near zones adjacent to nonperennial tributaries. The steep nature of some slopes in this area would have an additional cost implication for development as these

- slopes may require costly retaining structures and access to some of the steeper sites will require intervention by heavy machinery and professional design.
- The proposed site is adjacent to a nearby tributary and therefore adequate remediation measures need to be implemented in terms of the disposal of the waste water, which will be generated on site, in order to prevent the contamination of the existing water resources on site.
 - It is anticipated that two main sources of pollutants will need to be considered:
 - On-site effluent from the proposed toilet facilities for the employees of the farm and
 - The agricultural waste generated from the piggery operations.
 - It is recommended that the disposal of on-site effluent generated from the toilet facilities on site be contained and treated through the use of a septic tank and soakaway system constructed according to the SANS 10400 P standards.

3.7 SITES WITH ARCHEALOGICAL INTEREST

A Heritage Letter of Exemption for the proposed development was undertaken by Umlando Archaeological Surveys and Heritage Management and it attached as **Appendix N1**. The findings of the Report indicate that the site is of low heritage status and no further heritage mitigation should be undertaken.

The Heritage Letter of Exemption was subsequently submitted to KZN AMAFA for their final comment. In their final comment (**Appendix N2**), AMAFA indicated that they have no objection to the proposed development, provided that conditions stated below are adhered to:

- The KwaZulu Natal Amafa and Research Institute should be contacted if any heritage objects are identified during earth-moving activities and all development should cease until further notice.
- No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from the KwaZulu Natal and Amafa Research Institute.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of the KwaZulu Natal and Amafa Research Institute and a heritage specialist.
- Should any remains be found on site that is potentially human remains, the South African Police Service (SAPS) should also be contacted. No SAPS official may disturb or exhume such remains, without the necessary permission from the KwaZulu Natal and Amafa Research Institute.
- No activities are allowed within 50m of a site, which contains rock art.

-
- Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation.

3.8 MINERAL DEPOSITS

There are no mining activities found within the project area and none in close proximity.

4 ENGINEERING SERVICES

4.1 INTERNAL SERVICES

4.1.1 Sanitation (Staff Ablution)

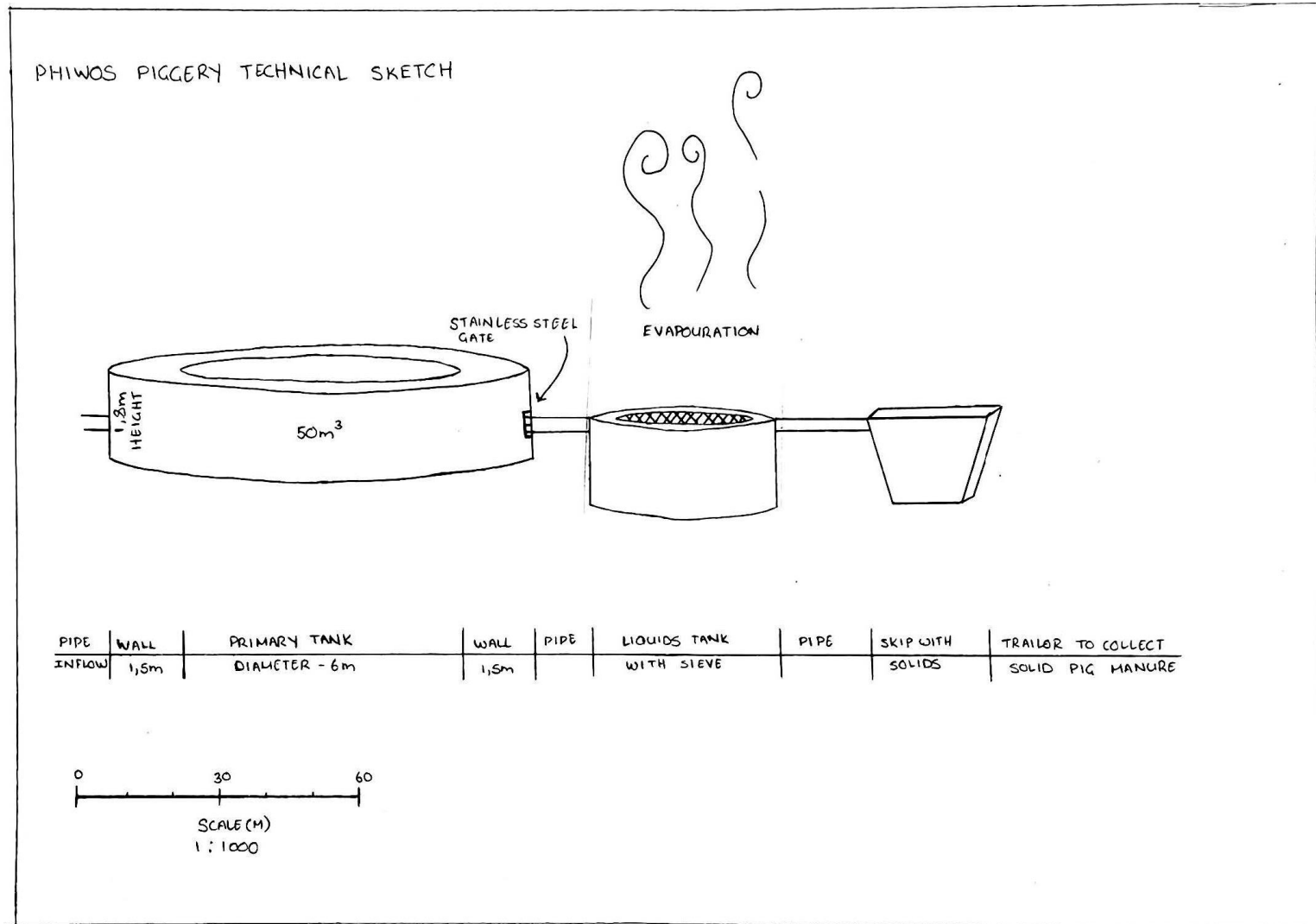
The construction and installation of a septic tank and soakaway system to handle and treat the sewage on site is proposed for the development. The system must be designed and constructed to the SANS 10400 P standards. The effluent in L/day, from the number of workers will need to be calculated and the septic tank designed accordingly by a suitably qualified engineer. It should be noted that the septic tank and soakaway system will be located outside of the 32m wetland buffer. All practical measures should be implemented to mitigate any potential spillage of either potable water, grey water or sewage. Effluent from the wastewater treatment plant should not be used for irrigation purposes.

4.1.2 Slurry Disposal (Piggery Effluent)

A Technical Engineering Report was prepared by the KZN Department of Agriculture and Rural Development for the waste disposal system for the proposed Phiwos Piggery and is attached as **Appendix O**. It should be noted that the process for the slurry disposal will be according to Figure 4.1 which is illustrated below.

The effluent from the sow units will be transported via the connection lines/pipes into the Primary Slurry Tank which has a capacity of 50m³ and will be lined with a heavy-duty black plastic to prevent percolation of effluent into the soil. Once the effluent in the tank reaches a 50% capacity, it will then flow via a stainless-steel pipe which will be sieved separating the liquid from the solids. The liquids will be stored in a separate tank which will undergo evaporation. The solids will then flow into a skip container for storage which will thereafter be dried and placed into sacks for the collection by Inkonjane Farm as indicated above.

Figure 4.1: Technical Sketch of Slurry



4.1.3 Water Supply

The Ugu District Municipality is the Water Services Authority and is therefore responsible for providing water services to the area. The existing municipal standpipe located on the northern boundary of the project area, will be used to supply water to the proposed piggery development. Water from the standpipe will be collected and stored in an onsite reservoir (Jojo Tank 5000l).

4.1.4 Access Road

Access will be obtained via an existing single local track connecting the main road to the proposed development site. The track will have a width of 3m.

4.1.5 Stormwater Management

Rainwater will be captured from the piggery roofs into jojo tanks, thus encouraging rainwater harvesting. The clean stormwater from the piggery (e.g. roofs, road surfaces) would drain to natural drainage lines and contours and be dispersed over grassed, flat areas. Energy dissipating measures with regards to stormwater outflow points would be installed where necessary to prevent soil erosion. All drainage would be controlled to ensure that runoff from the project area does not culminate in off-site pollution, flooding or result in any damage to properties downstream. Stormwater will also not reach the slurry pit area, as can be seen from Figure 4.1 the slurry pit area will be raised.

5 IMPACT ASSESSMENT

5.1 INTRODUCTION

The impact assessment aims at identifying potential environmental impacts (both positive and negative impacts) and evaluating these impacts in terms of its significance. This assessment is provided in the form of a systematic analysis framework to evaluate the nature, extent, duration, intensity, probability and significance of the various impacts are considered both without and with mitigation and management measures.

5.2 IMPACT ASSESSMENT CRITERIA

The assessment of the potential impacts of the envisaged development is undertaken in accordance with the broad criteria required by the integrated environmental management procedure and includes the following:

5.2.1 Nature of impact

A brief description of the type of impact the proposed development will have on the affected environment.

5.2.2 Extent/Scale

The physical extent of the impact.

i. Footprint

The impacted area extends only as far as the actual footprint of the activity.

ii. Site

The impact will affect the entire or substantial portion of the site/property.

iii. Local

The impact could affect the area including neighbouring properties and transport routes.

- iv. Regional
Impact could be widespread with regional implication.
- v. National
Impact could have a widespread national level implication.

5.2.3 Duration

The duration of the impact.

- i. Short term
The impact is quickly reversible within a period of one year, or limited to the construction phase.
- ii. Medium term
The impact will have a medium term lifespan (project lifespan 1 – 10 years).
- iii. Long term
The impact will have a long term lifespan (project lifespan > 10 years).
- iv. Permanent
The impact will be permanent beyond the lifespan of the development

5.2.4 Intensity

These criteria evaluate intensity of the impact and are rated as follows:

- i. Minor
The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.
- ii. Low
The activity will have a low impact on the affected environment
- iii. Medium
The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way.
- iv. High

The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

v. Very high

The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.

5.2.5 Probability

This describes the likelihood of the impacts actually occurring.

i. Improbable

The possibility of the impact occurring is highly improbable (less than 5% of impact occurring).

ii. Low

The possibility of the impact occurring is very low, due either to the circumstances, design or experience (between 5% to 20% of impact occurring).

iii. Medium

There is a possibility that the impact will occur to the extent that provision must be made therefore (between 20% to 80% of impact occurring).

iv. High

There is a high possibility that the impact will occur to the extent that provision must be made therefore (between 80% to 95% of impact occurring).

v. Definite

The impact will definitely take place regardless of any prevention plans, and there can only be relied on migratory actions or contingency plans to contain the effect (between 95% to 100% of impact occurring).

5.2.5.1 Determination of significance

Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the extent, duration, intensity and probability of the impacts.

i. No significance

The impact is not substantial and does not require any mitigatory action.

ii. Low

The impact is of little importance, but may require limited mitigation.

iii. Medium

The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.

iv. High

The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation and management is essential.

The following assessment scale is used to determine the significance of the identified potential impacts on the environment.

Significance = (probability + duration + scale) x intensity

Probability: 1 – 5

Extent: 1 – 5

Duration: 1 – 4

Intensity: 1 – 10

Significance rating criteria

>75	High environmental significance
50 – 75	Medium environmental significance
<50	Low environmental significance

5.2.5.2 Abbreviations for tables listed below:

WOM: Without Mitigation

WM: With Mitigation

O: Operational

C: Construction



5.2.6 Assessment of Potential Impacts

5.2.6.1 Physical and landscape characteristics

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Impact of development on natural drainage patterns, caused by surface clearance and associated decrease of vegetation cover.	C/O	Negative	Local	Short	Medium	High	Medium	1. Areas to be developed be specifically demarcated so that during the construction phase and operational phase, only the demarcated areas be impacted upon.	Low

5.2.6.2 Ecological characteristics

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Potential increase in and spread of exotic invader species	C	Negative	Local	Short	Medium	Medium	Medium	1. An alien vegetation management plan for the site is required, especially in areas that are cleared of vegetation and left exposed. 2. Upon completion of construction any exposed areas must be re-vegetated with local indigenous plants to prevent IAP encroachment.	Low
2. Impact on surrounding vegetation during construction (e.g. collection of firewood, veld fires, etc.)	C	Negative	Local	Short	Medium	Low	High	1. No harvesting of firewood from the site or from the areas adjacent to it. 2. Under no circumstances are the staff allowed to start a fire.	Low



Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
3. Indirect loss and erosion of wetland.	C/O	Negative	Site	Long	High	Medium	High	<ol style="list-style-type: none"> 1. The boundary of the wetland buffer that encroach into the proposed development footprint must be made visible to those making use of the proposed development. 2. Signs erected along the indicated buffer zone must warn individuals against unwanted anthropogenic activities, including dumping, construction and laydown yards during the operational phase. 3. All wetland areas should be demarcated as sensitive areas, and no construction activity, laydown yards, camps or dumping of construction material are to be permitted within the sensitive zones. 4. Construction vehicles and machinery must make use of existing access routes as much as possible, before adjacent areas are considered for access. 	Low
4. Removal of sensitive grassland vegetation surrounding the site.	C	Negative	Site	Short	Medium	Medium	High	<ol style="list-style-type: none"> 1. Areas to be developed should be demarcated so that during the construction phase and operational phase, only the demarcated areas be impacted upon. 2. All work areas, offices, and access roads must be clearly demarcated from surrounding sensitive areas. 3. All areas outside of the demarcated areas should be declared a 'no-go' area during all the project phases and all efforts must be made to prevent access to this area from construction workers and machinery. 4. These must be designated as 'open-spaces' during the operational phase. 5. All dumping of waste material into the environment must be prevented. Solid waste is to be disposed legally off-site in the relevant waste disposal manner. 	Low



5.2.6.3 Soil characteristics and geology

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Soil and waste material stockpiles that are left unattended during construction.	C	Negative	Site	Short	Medium	Medium	Low	<ol style="list-style-type: none"> 1. During construction activities, all rubble generated must be removed from the site. 2. The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm. 3. All removed soil and material must not be stockpiled within the wetland system. 4. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. 5. No dumping of construction material on site may take place. 6. All waste generated during construction must be adequately managed. Separation and recycling of different waste materials should be supported. 	Low
2. Soil pollution (cement powder, diesel, oil etc.) during construction.	C	Negative	Site	Short	Medium	Medium	Low	<ol style="list-style-type: none"> 1. All chemicals and toxicants to be used for the construction must be stored outside the channel system and in a bunded area. 2. All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site. 3. All waste generated on site during construction must be adequately managed. 	Low
3. Dust pollution due to exposure to loose soils.	C	Negative	Site	Short	Low	Medium	Medium	<ol style="list-style-type: none"> 1. Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated. 2. Soil should be exposed for the minimum time possible once cleared of vegetation to avoid prolonged exposure of soils to 	Low



								wind and water erosion. The latter will facilitate the succession of indigenous vegetation.	
4. Impact on building structures as well as cost implications due to soil/geotechnical characteristics, including collapsible soil, deep excavation and steep slopes.	C/O	Negative	Footprint	Permanent	High	Medium	High	1. A Detailed Geotechnical Report should be conducted prior to construction and all recommendations should be adhered to.	Low
5. Soil erosion during operational phase resulting from increased stormwater run-off and velocity	O	Negative	Local	Medium	Medium	Low	High	1. Mitigation measures will be incorporated into the Environmental Management Plan with regards to run-off and stormwater management.	Low

5.2.6.4 **Fauna**

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Impact on faunal activity on surrounding properties during construction (e.g. trapping of animals, construction vehicles, etc.).	C	Negative	Local	Short	Low	Low	Low	1. Any fauna found on site during the construction phase needs to be relocated to the private conservation area of the development without causing any damage or harm. 2. Any malicious damage to any fauna species present on site will be considered a punishable offence, and the appropriate measures will be followed.	Low

5.2.6.5 **Ground and surface water**

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Pollution of groundwater/ surface water during construction phase with	C	Negative	Local	Short	Medium	Medium	Medium	1. No disposal of sewage should occur on or near the site.	Low



typical construction related pollutants such as oil and diesel, and enterobacteria/viruses and plant nutrients if sanitation for construction workers is not properly managed.									<ol style="list-style-type: none"> 2. Chemical toilets must be provided by the contractor in accordance with DWS requirements. 3. Material from excavation shall only be spoiled or temporarily stockpiled on sites approved or designated by the Engineer in writing. 4. Machine maintenance and wording of the equipment to be done on an impermeable surface. 	
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5.2.6.6 Archaeological, historical and cultural significance

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Potential impact on currently undiscovered/ unknown archaeological or historical resources.	C	Negative	Site	Short	Minor	Low	Low	1. Should any archaeological artifacts be exposed during excavation, work on the area where the artifacts were found, shall cease immediately and the ECO and Amafa KZN Heritage should be notified as soon as possible.	Low

5.2.6.7 Socio-economic impacts

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Direct employment creation such as construction workers.	C	Positive	Local	Short	Minor	High	Medium	No mitigation required	Medium (Positive)
2. Indirect job creation (e.g. building suppliers) and induced job creation (broader local economy).	C/O	Positive	Local	Short	Minor	High	Medium	No mitigation required	Medium (positive)
3. Job creation during operation phase (domestic workers, maintenance, etc.).	O	Positive	Local	Long	Minor	Medium	Medium	No mitigation required	Medium (positive)



5.2.6.8 Safety and Security

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. The construction phase of the proposed development may result in an increased security risk to adjacent properties and the residents thereof.	C	Negative	Local	Short	Medium	Low	Medium	1. Staff should be informed that access to adjacent properties is strictly off-limits and that it will be deemed a serious offence (i.e. no fences should be jumped at any time and no gates are to be opened without permission from the relevant landowner).	Low
2. Similarly, construction activities on the proposed development may pose various risks to workers safety.	C	Negative	Local	Short	Medium	Medium	Medium	1. The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act, 1993 (Act No.85 of 1993) and the National Building Regulations.	Low

5.2.6.9 Engineering Services

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
1. Capacity of road network to handle additional traffic generated from the proposed development.	C/O	Negative	Local	Short	Medium	Medium	Medium	1. It must be ensured that a backlog of traffic does not develop at access points during peak hours, through the implementation of an efficient and effective access control system.	Low
2. Possibility of increased number of road accidents due to increased traffic volumes.	C/O	Negative	Local	Long	Low	Medium	Low	1. Employ people to help alert oncoming traffic and regulate the traffic during construction hours so that residents and visitors know about the construction taking place. 2. The transportation of infrastructure should be limited and equipment should be stored on site, thus mitigating the number of trips.	Low
3. The area will be covered with impermeable surfaces (pavings and roofs), leading to an increase in stormwater volume and intensification of stormwater peak flow.	C/O	Negative	Local	Permanent	Medium	Medium	Medium	1. Mitigation measures will be incorporated into the Environmental Management Plan with regards to run-off and stormwater management.	Low



4.	Pollution from septic tank	O	Negative	Local	Short	Medium	Medium	Medium	<ol style="list-style-type: none"> Sludge must be removed from the septic tanks before sludge levels build up to the extent that solids are carried over. An emergency protocol must be put in place to rapidly remove effluent should any accidental spillage occur during the routine removal of effluent from the tanks. 	Low
5.	Increased soil erosion due to increased quantity and flood peak intensity of stormwater flow, most significantly at stormwater outlets.	C/O	Negative	Site	Long	Medium	Medium	Medium	<ol style="list-style-type: none"> Mitigation measures will be incorporated into the Environmental Management Plan with regards to run-off and stormwater management. 	Low
6.	Impacts of slurry tank (overflow and subsurface flow)	O	Negative	Site	Long	High	Medium	High	<ol style="list-style-type: none"> Slurry pits should be regularly inspected to ensure there are no leaks or overflow of effluent. Sufficient emergency overflow area should be available to ensure storage capacity during heavy rainfall events. 	Low

5.2.6.10 Potential Environmental Impacts

Nature	Phase	Type	Extent	Duration	Intensity	Probability	WOM	Mitigation	WM
<ol style="list-style-type: none"> Increase in air pollution (dust) during construction (e.g. construction vehicles, excavation, earthworks, burning of waste products etc.). Some phases of construction may cause odours that are detectable over some distance (e.g. burning of plastic containers and bags). Impact on the ambient air quality due to vehicle tailpipe emissions from increased traffic volumes. 	C/O	Negative	Local	Short	Medium	High	Medium	<ol style="list-style-type: none"> Air filters on all mechanized equipment must be properly designed and maintained. Onsite burning of waste is not permitted. A dust suppression programme should be implemented on the gravel road surfaces of the existing access roads by means of periodic water sprinkling. All industrial activities are subject to operating within the conditions of national legislation, including the National Environmental Management: Air Quality Act No. 39 of 2004. 	Low
<ol style="list-style-type: none"> Increase in ambient noise level affecting surrounding properties during construction. 	C/O	Negative	Local	Short	Low	High	Medium	<ol style="list-style-type: none"> Silencers on diesel-powered equipment must be properly designed and maintained. Construction activities should be limited to normal office hours. 	Low



								<ol style="list-style-type: none"> 3. Adjacent landowners should be notified of extremely noisy activities at least 24 hours prior to such activities commencing. 4. Construction should take place between 07:00-17:00. Mondays to Fridays. 	
5. Odours associated with the piggery	O	Negative	Local	Long	Medium	High	Low	<ol style="list-style-type: none"> 1. Ensure that excrement, carcasses, feed, and other operational waste and hazardous materials are appropriately and effectively contained and disposed of. 2. The piggery units must be kept clean and well ventilated since bad odours build up when there is poor or inadequate ventilation. 3. Excessive build-up of effluent within piggery is to be avoided by frequent cleaning of effluent from the units into the slurry pit. 	Low
6. Visual impact of development on landscape ("sense of place").	C/O	Negative/Positive	Local	Long	Medium	Low	Low	<ol style="list-style-type: none"> 1. Ensure that the Architectural design is sympathetic to the surrounding areas. 2. All construction material must be stored in one place out of the direct eyesight of pedestrians. 	Low
7. Impact of lighting on surrounding properties, including light trespass and over-illumination. Apart from being a visual impact, over-illumination is also a waste of energy.	C/O	Negative	Local	Long	Medium	Medium	Low	<ol style="list-style-type: none"> 1. Avoid shiny metals in structures. If possible shiny metal structures should be screened to prevent glare. 2. Night-time light sources must be directed away from residential areas. 3. Incorporate measures for visual screening in the Environmental Management Plan (EMP). 4. Avoid construction activities outside of normal working hours. 	Low

5.2.7 Cumulative Impacts

- Vehicles transporting material to and from the site will potentially increase traffic volume along the main road and potentially add to the noise and dust level to the community. Potential increase in traffic may also occur during the construction phase of the development, however, this is however of a temporal duration and impact. Increase in vehicular traffic during the operation phase will also not be significant as this will occur during the transportation of pigs, and this will not occur daily.
- Wastewater management should be properly planned, designed and installed to ensure that the piggery waste is effectively removed from the housing units. Poor waste management may contribute to factor that lead to odour.
- The proposed development has the potential to impact the socio-economic status of the local community through job creation, skills development and pork production for the local market. This impact will not be mitigated as mitigation will not improve the local socio-economic situation.

5.3 ENVIRONMENTAL IMPACT STATEMENT AND SUMMARY ON NEED AND DESIRABILITY

5.3.1 Environmental Impact Statement

The major environmental impacts, which are likely to result from this development, may be assessed according to the potential impacts on the receiving environment. The proposed development entails the removal of vegetation, and although the onsite vegetation is considered to have a low sensitivity, measures must be taken to ensure that development takes place only within the demarcated areas and no development should take place outside this area.

The wetlands and the associated 15m wetland buffers that are on site should be clearly demarcated as no-go areas. Without effective implementation of the mitigation measures, the proposed development may pose a risk to the wetland systems including surface and groundwater. The

pollution of wetlands, surface and groundwater could occur through effluent runoff, if not managed appropriately. Short term negative impacts that may arise during construction is that of noise and dust pollution as well as possible surface water contamination should there be any leakages or spillages close to the watercourse.

During the operation phase, the necessary mitigation measures must be implemented to prevent any overflow and sub-surface flow of effluent from the slurry tank. It will also be important to keep the stormwater runoff separate from the pipelines that will be transporting effluent.

Whilst these impacts can be rated as moderate especially on the surrounding vegetation and wetlands within the site, they can be reduced to an acceptable level provided that the mitigation measures as proposed in this BAR, Wetland Report and EMPr (**Appendix B**) are effectively implemented. Table 5.1 below considers both the advantages and disadvantages of the proposed development:

Table 5.1: Advantages and Disadvantages of the proposed development

Advantages	Disadvantages
Direct job creation during the construction phase.	Potential impact on wetland system if mitigation measures are not adhered to.
Contributes to the local economy.	
Permanent employment opportunities during the operational phase of the development (admin, maintenance, cleaners etc.).	
Transfer of skills during the construction and operational phases of development.	
Removal of alien invasive Eucalyptus tree species.	
The protection of the demarcated wetland area and associated buffer.	

5.3.2 Need and Desirability

The proposed development will enable optimal development of the property, thereby reducing any security risks, illegal dumping and occupancy. Furthermore, as per the Biodiversity Assessment, the site is covered with Eucalyptus thicket which is classified as a category 1b invasive species according

to NEMBA and is required to be removed and destroyed. Therefore, the proposed development will ensure removal of the alien invasive trees which will benefit the surrounding natural environment and contribute positively to the flow of watercourses that are in close proximity to the site. It should also be noted that the Applicant intends on removing any Eucalyptus trees that are within the 32 m watercourse buffer that falls within the project area and replace them with fruit and nut trees.

The site falls within an area demarcated as Agriculture, as such the proposed piggery development will constitute toward agricultural development within the area. In turn, this will boost the local economy. Further to this, the proposed development will assist in improving the lives of the local community through job creation during the construction phase as well as the operational phase.

Table 5.2 below was adapted from the 2014 BAR Template of the Department of Environmental Affairs. This table was inserted to motivate for the need and desirability of the proposed development.

Table 5.2: Need and Desirability

1. Is the activity permitted in terms of the property's existing land use rights?	YES	
2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)	YES	
The proposed development addresses a spatial principle, namely the Principal of Economic Potential. The proposed development will assist in contributing to the local economy and as well as improve the standard of living of the community by providing employment opportunities.		
(b) Urban edge / Edge of Built environment for the area	NO	
The site does not fall within the urban edge.		
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	
According to the Umzumbe Local Municipality IDP, agriculture is a fundamental pillar of the local economy, as such proposed development is aligned with the Municipal IDP as it will contribute to the agricultural sector.		

(d) Approved Structure Plan of the Municipality	Will be obtained on receipt of Environmental Approval	
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		NO
Umzumbe Local Municipality does not have an EMF in place.		
(f) Any other Plans (e.g. Guide Plan)	NO	
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	
Please see above (2c).		
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)?	YES	
Through implementation of the proposed project, local community member can improve their living standards through the employment opportunities that will be created.		
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	YES	
The site is currently vacant and will need to be provided with associated infrastructure and services. The proposed development can be adequately serviced by the existing infrastructure and planned infrastructure. The development will make use of water from the existing municipal standpipe and a septic tank and soakaway system is proposed to be constructed to manage onsite effluent.		
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?	NO	
The proposed development is not provided for in the infrastructure planning of the municipality as it is a small development of local importance and will use existing infrastructure (water connection & provide own sanitation)		
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	
Although this project draws from no specific objectives of the NDP of South Africa, the proposed piggery would however contribute to the country's collective objective of promoting sustainable food security.		


<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	<p>YES</p>	
<p>The land for the proposed development is vacant. All environmentally sensitive areas are demarcated and is included into the site layout plan.</p>		
<p>9. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>YES</p>	
<p>All the environmentally sensitive areas will be demarcated and effective mitigation measures will be implemented should any negative impacts occurs, as such the positive impacts of the proposed piggery development will outweigh the negative impacts.</p>		
<p>10. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>YES</p>	
<p>There are several agricultural activities</p>		
<p>11. Will any person's rights be negatively affected by the proposed activity/ies?</p>		<p>NO</p>
<p>This development will not infringe on any person's rights, as the proposed development will entail the construction of a piggery which will provide economic opportunities to the local community.</p>		
<p>12. What will the benefits be to society in general and to the local communities?</p>		
<ul style="list-style-type: none"> • Access to municipal services such as water and sanitation. • Job creation during the construction phase. • Employment opportunities and skills transfer during the operational phase. • Prevent further illegal occupation of the land which will affect the surrounding communities • Prevention of illegal dumping • Prevention of informal settlements • Removal of alien invasive Eucalyptus tree species 		

6 PUBLIC PARTICIPATION

6.1 REQUIREMENTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS OF 2014

Table 6.1 below outlines the requirements for the public participation process set out in Section 41 of the Environmental Impact Assessment Regulations as well as the actions taken by the Environmental Assessment Practitioners (EAP).

Table 6.1: Public Participation Process

2014 EIA requirements	Action taken by EAP
<p>a. Fixing a notice board at a place conspicuous to the public at the boundary or on the fence or along the corridor of</p> <p>i. the site where the activity to which the application relates is or is to be undertaken; and</p> <p>ii. any alternative site;</p>	<p>Notice boards in isiZulu were placed on the site and in close proximity to the site to ensure that it is visible. The photos below illustrate the notice boards erected on site. (See Appendix P1 for a copy of Site Notice Boards).</p> 

	
<p>b. Giving written notice, in any of the manners provided for in Section 47D of the Act, to –</p> <p>i. the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site</p>	<p>A Background Information Document (BID) and notification letter was compiled for the proposed project and distributed to the people living adjacent to the site. The BID included some project background details of the Independent Environmental Assessment Practitioner as well as the process to be followed during the EIA Process. An invitation to become involved in the project and to register as a</p>

<p>where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;</p> <p>ii. owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;</p> <p>iii. the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represents the community in the area;</p> <p>iv. the municipality which has jurisdiction in the area;</p> <p>v. any organ of state having jurisdiction in respect of any aspect of the activity; and</p> <p>vi. any other party as required by the competent authority.</p>	<p>stakeholder was also included in the Background Information Document (see Appendix P2).</p> <p>A Receipt of Acknowledgement for the Notification letter from adjacent households/landowners is attached as Appendix P3.</p> <p>A copy of the BID was submitted to the:</p> <ul style="list-style-type: none"> • KZN AMAFA • DOT <p>A copy of the Draft BAR was submitted to the following:</p> <ul style="list-style-type: none"> • DEDTEA • DWS • DARD • Ugu District Municipality • Umzumbe Local Municipality • eZemvelo KZN Wildlife • Ward Councillor 15 <p>Copies of the receipt of acknowledgement is attached as Appendix P4.</p>
<p>c. Placing an advertisement in –</p> <p>i. one local newspaper; or</p> <p>ii. any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations; and</p>	<p>An advert was placed in the Isolezwe in isiZulu on the 23rd October 2020 (See Appendix P5 for Advert).</p>

6.1.1 Comments received from the Departments and Stakeholders

The comments received from the Department and stakeholders regarding the Draft Basic Assessment Report is included in the form of a Comments and Response Report and is attached as **Appendix A**.

6.1.2 Register of interested and affected parties

According to the Environmental Impact Assessment Regulations of 2014, a register of interested and affected parties must be kept during the EIA process. A copy of the register of interested and affected parties is included as **Appendix P6**.

7 SUMMARY RECOMMENDATIONS OF EAP

7.1 SPECIALIST OPINION

7.1.1 WETLAND AND ECOLOGICAL SPECIALIST

It is the specialist's opinion that the proposed development should be moved out of the wetland's 15m buffer zone to avoid impacts, mitigating high and moderate significance ratings. This will ensure "Low" significance ratings (post-mitigation), which renders the proposed development applicable to a General Authorisation. If the latter is feasible, no additional on-site rehabilitation will be required post construction. If the proposed development cannot be moved out of the proposed buffer, some "Moderate" final significance ratings (post-mitigation) are expected. In this case, a Water Use License with the condition of an offset strategy will need to be applied for. This will include on-site rehabilitation on a hectare equivalent basis.

7.1.2 GEOTECHNICAL ENGINEER

It is recommended that an agricultural engineer and/or civil engineer be consulted in order to adequately design the required agricultural waste disposal ponds. As per the restrictions of the SANS 10400 P drainage requirements, no industrial and/or agricultural waste is to be permitted to drain into a soakaway on this site.

7.2 RECOMMENDATIONS

- The relevant Guideline Manual for the Management of Abattoirs and Other Waste of Animal Origin needs to be considered and implemented if any slaughtering process is planned.
- An alien invasive vegetation management plan needs to be implemented.

- A Stormwater and Erosion Management Plan must be implemented. This must include an attenuation structure to prevent the contamination of the adjacent watercourse
- A General Authorisation may be required for the proposed development.
- It is recommended that an agricultural engineer and/or civil engineer be consulted in order to adequately design the required agricultural waste disposal ponds. As per the restrictions of the SANS 10400 P drainage requirements, no industrial and/or agricultural waste is to be permitted to drain into a soakaway on this site.

7.3 OPINION OF EAP

It is the opinion of the Environmental Assessment Practitioner that the project can be supported on condition that the Mitigation and Management measures described in Section 5 of the Basic Assessment Report and the Environmental Management Programme (**Appendix B**) be strictly adhered to as well as provided that sensitive planning, design and good environmental management be carried out by the proponent during construction.

A variety of mitigation measures have been identified that will serve to mitigate the scale, intensity, duration or significance of the impacts which have a medium to high significance rating. These include guidelines to be applied during the construction phase. The proposed mitigatory measures, if implemented, will reduce the significance of the majority of the identified impacts to "low", and allow for the proposed project to precede with minimal effect to the environment, local community and surrounding land use practices. The recommendations made within the Wetland Report, Biodiversity Report and Geotechnical Report conducted for the proposed project must also be adhered to so as to ensure that the proposed project imposes as minimal an impact as possible.