

# EIA REF. NO.: DC29/0013/2018

## Draft Basic Assessment Report (DBAR)

PROPOSED KWA JUSTICE FOODS AGRI-PROJECT, NONOTI  
ABATTOIR, KWADUKUZA MUNICIPALITY, ILEMBE DISTRICT

[AUGUST 2018]



**KWA JUSTICE**

**PREMIUM  
LIVESTOCK**

*Organic...as nature intended!*

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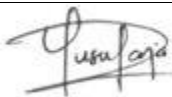
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## DRAFT BASIC ASSESSMENT REPORT

For the Proposed Kwa Justice Agri-Project, Nonoti Abattoir within the KwaDukuza  
 Municipality, iLembe District

**EIA Reference Number: DC29/0013/2018**

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Author	EAP	Roschel Maharaj		23 July 2018
Reviewed by	Project Manager	Fatima Peer		24 July 2018
Approved by	Reviewer	Yusuf Raja		06 August 2018

## Executive Summary

1World Consultants (Pty) Ltd have been appointed by Arup (Pty) Ltd, to undertake the required Basic Assessment Process for the proposed Kwa Justice Foods Agri-Project which proposes the construction of an abattoir and associated processing plant on a greenfields site located on the P107 road to Nonoti, approximately 8km north of Stanger.

The proposed project will entail the construction of an abattoir, meat processing and warehousing facility, and associated supporting infrastructure. The total development footprint of the proposed Agri-project will be approximately 1 hectare (10,000m<sup>2</sup>). The following has been proposed within the property:

- State of the art abattoir buildings which includes:
  - A lairage/ pre-abattoir holding facility;
  - High throughput abattoir;
  - Meat processing and production facility;
  - Parking, workshop, security and ancillaries
- Open yards

The area is currently zoned as agricultural; however, the applicant is in the process of applying for special consent for food processing. The proposed site is located within 100m of a wetland but maintains a 15m buffer between the wetland and development footprint. The proposed development will entail the excavation for foundations and the clearing of vegetation which has a low conservation status, as confirmed by the specialist. Kwa Justice Foods (Pty) Ltd will be tapping into the local municipality utilities infrastructure. KwaDukuza Municipality will provide the proposed development with water and electricity connection.

The site has historically been used for agricultural activities, mainly sugarcane. The adjacent land uses include a motor scrap dealer to the south and a proposed religious site to the east. The study area falls within the Indian Ocean Coastal Belt Bioregion and the KwaZulu-Natal Coastal Belt Grassland vegetation type. This habitat is classified as having a high conservation value and is considered Endangered. However, due to the extensive sugar cane production within and surrounding the site, this site is unlikely to assist in supporting biodiversity communities and contributing towards the KwaDukuza Local Municipality's conservation targets. As a result, the study site is classified as having a low vegetation conservation value.

The abattoir triggers the need for a Basic Assessment Report. The impacts associated with the proposed development are focused on both the construction and operational phases. Additionally, impacts on Biodiversity and Heritage aspects were also deliberated and this report now provides all required information to advise on the applied environmental authorisation from EDTEA. Some key impacts were:

- General Construction Activities
- Clearance of Site
- Loss of Biodiversity
- Increased Traffic Frequency on Road Infrastructure
- Dust
- Stockpiling of Topsoil Cleared Vegetation
- Erosion
- Installation and Use of Ablution Facilities
- Cleaning of Vehicles, Equipment and Construction Areas
- Storage and Handling of Hazardous Chemicals
- Generation of Hazardous Waste
- Production of General Waste and Building Rubble

- Storage, Mixing and Disposal of Cement and Concrete
- Fire Risk
- Generation of Noise from Construction Vehicles and Machinery
- Visual Impacts
- Use of Resources such as Electricity, Water, Oil, Grease, Fuel and Construction Material
- Community health and safety
- Worker health and safety
- Disturbance on Heritage Resources
- Socio Economic Impacts

Specialist studies were conducted to aid in a thorough investigation of the impacts and included:

- A **Wetland Assessment** by The Biodiversity Company to determine the impact the proposed development will have on watercourses;
- A **Geotechnical Study** by Geo-Caluza Consulting Engineers (Pty) Ltd
- A **Vegetation Survey** by Malachite Specialist Services (Pty) Ltd to determine vegetation composition and potential impact the proposed development may have on vegetation communities;
- A **Desktop Heritage Impact Assessment** by JLB Consulting to ensure that no items of cultural or historical value would be impacted on by the construction.
- A **Storm Water Management Plan** by J Singh Consulting Civil and Structural Engineers.

A wetland delineation field survey was undertaken to accurately delineate the boundaries of the wetland and river riparian environments within the 500m buffer surrounding the site. Buffer zones are exclusion areas which function as protection to the wetland from developmental or land use changes. A total of four (4) wetland systems were identified and delineated within the 500m buffer surrounding the site. HGM's 1, 2, 3 and 4 were identified as indicated in the specialist report. A 15m buffer around the HGM units have been specified by the specialist and maintained by the development.

Mitigation measures to minimise or eliminate impacts were identified by the specialists and EAP and were utilised towards the preparation of the Environmental Management Plan (EMP). The EMP must be read in conjunction with this BAR and is essential towards the protection of the environmental elements whilst establishing the abattoir.

A Public Participation Process (PPP) to review the BAR and EMP involved consultation with the relevant authorities, the landowners affected along the way, community leaders and other identified Interested and Affected Parties (I&APs). Newspaper advertisements were published to inform the general public of the Basic Assessment Process. An advertisement was published in English on 29 August 2018 in the Xpress Times newspaper. Site notices were erected at the site on 28 August 2018. A public meeting was not requested or held prior to the distribution of the Draft BAR.

This BAR has been prepared in Accordance with the EIA Regulations, 2017 and follows the requirements for a BAR in Appendix 1 of GNR 326.

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*Double sided printing saves paper!*

**BASIC ASSESSMENT REPORT (REF NO. DC29/0013/2018)**

## 1. INTRODUCTION

1World Consultants (Pty) Ltd have been appointed by Arup (Pty) Ltd, on behalf of the applicant, Kwa Justice Foods (Pty) Ltd, to undertake the required environmental services for the proposed construction of an abattoir and associated processing plant on a greenfields site located on the P107 road to Nonoti, approximately 8km north of Stanger.

**Table 1: Project Specifications**

Applicant	
Project Applicant	Mr. M. S. Moolla
Trading Name	Kwa Justice Foods (Pty) Ltd
Contact Person	Mr. P. E. Williams
Landowner	
Landowner Details	Mr. R. Devprasad Mrs. M. Devprasad
Project Details	
Ward	Ward 3
District Municipality	iLembe District Municipality
Local Municipality	KwaDukuza Local Municipality
Property Description	Farm Lot 36A, No. 2618, Portion 18
Property Extent	10,2001 Hectares
Proposed Development Footprint	1 Hectare
Development Specifications	<ul style="list-style-type: none"> <li>• State of the art abattoir buildings which include:               <ul style="list-style-type: none"> <li>○ A lairage / pre-abattoir holding facility</li> <li>○ High throughput abattoir</li> <li>○ Meat processing &amp; production facility</li> <li>○ Parking, workshop, security and ancillaries</li> </ul> </li> <li>• Open yards</li> <li>• Water and electricity services will be via municipal connection</li> </ul>

### 1.1. Terms of Reference

As per GNR 327 and 324 of the EIA Regulations, 2017, a Basic Assessment (BA) Process has been undertaken. All the environmental outcomes, impacts and residual risks of the proposed Listed Activity being applied for have been noted in this BA Report and assessed accordingly by the Environmental Assessment Practitioner (EAP). The requirements of the BA Process have been followed as per Appendix 1 of GNR 326 (2017) and are consequently adhered to in this report.

It must be noted that the Listed Activities in terms of GNR 327 of the 2017 EIA Regulations are applicable to this proposed project and will trigger activities in both the construction and operational phase. This BA Report focuses on the potential impacts that may arise during the construction and operational phases and provides recommended mitigation measures.

Ultimately, the outcome of a BA Process must be to provide the Competent Authority, the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA), with sufficient information to provide an informed decision



on the Application, in terms of Environmental Authorisation (EA), to avoid or mitigate any detrimental impacts that the activity may inflict on the receiving environment.

## **1.2. Pre-application Meeting**

A pre-application meeting was held on 15/03/2017 with officials from EDTEA; Arup (Pty) Ltd; Kwa-Justice Foods (Pty) Ltd; iLembe District Municipality; and KwaDukuza Municipality in attendance. The purpose of the meeting was to discuss the proposed project, the listed activities and the EIA process as well as the process that will be followed with this application.

Following the pre-application meeting, a wetland specialist was appointed to ensure that all legislative and permitting requirements are met. Based on these findings, the project plans have since been amended. For example, the positioning of the facility has now changed in keeping with the proposed wetland buffer; and an on-site recycling facility has now been proposed as opposed to the effluent purification tanks discussed at the meeting. This process has therefore resulted in a better outcome in terms of design, location and process for the facility.

Therefore, a second pre-application meeting was held on 24/01/2018 to discuss the proposed new plans and seek advice from the Competent Authority, EDTEA. This basic assessment report discusses the proposed new plans as the preferred alternative.

Refer to Appendix A for minutes of the pre-application meeting.

## **1.3. Project Approach**

The overall approach to this Basic Assessment Report included the following activities:

- Apply for Environmental Authorisation to the Department regarding the proposed construction and running of an abattoir and associated processing plant on a greenfields site located on the P107 road to Nonoti approximately 8km north of Stanger.
- Provide a detailed analysis of the proposed development, the area where it will take place, and identify potential impacts that may arise from its subsequent development.
- Ensure compliance in terms of the EIA Regulations and provide the Department with sufficient information to take a decision regarding the development.

## **1.4. Landowner Consent Form**

The project applicant is Mr. M. S. Moolla for Kwa Justice Foods (Pty) Ltd. The land is owned by Mr. and Mrs. Devprasad. Therefore, a landowner consent form was signed by Mr. and Mrs. Devprasad giving consent to Mr. Moolla to undertake the activities described within this BAR.

The Landowner Consent form and the deed of transfer can be reviewed under Appendix A.

## **1.5. Environmental Screening Report**

An Environmental Screening Report was compiled by Arup (Pty) Ltd on 2 February 2017 for the proposed Agri-Project. The purpose of the screening report is to provide an initial indication of the likely opportunities and constraints as well as the potential environmental impacts likely to arise from the proposed development. The environmental screening process is a best practice approach to integrated environmental management.

A site visit was undertaken by Arup (Pty) Ltd; the applicant and EDTEA officials on 16 November 2016. At this point, it was agreed that further refinement of activities must be undertaken prior to re-engaging with EDTEA. The screening report formed the basis of engagement with EDTEA during the pre-application meeting.

The Environmental Screening Report can be reviewed under Appendix A.

Following the development of the new proposal, a site visit was undertaken once again with 1World Consultants (Pty) Ltd; and officials of Kwa Justice Foods (Pty) Ltd on 11 December 2017.

## 2. BASIC ASSESSMENT REPORT

### 2.1. Environmental Assessment Practitioner

Business name of EAP: **1World Consultants (Pty) Ltd**  
 Physical address: **181 Winchester Drive, Reservoir Hills, 4091**  
 Postal address: **P.O. Box 2311, Westville,**  
 Postal code: **3630** Cell: **082 640 4900**  
 Telephone: **031 262 8327** Fax: **086 726 3619**  
 E-mail: [fatima@1wc.co.za](mailto:fatima@1wc.co.za)

**Table 2: Names and Expertise of Representatives of the EAP**

Name and Title	Qualifications and Affiliations	Role	Experience at Environmental Assessments
Fatima Peer	B.Sc (Hons) Pr. Sci. Nat., IAIAsa	Senior EAP	7 years
Adila Gafoor	B.Soc. Sci. (Geog) IAIAsa	EAP	3 years
Bryan Paul	B.Sc IAIAsa	Biodiversity Officer	2.5 years
Roschel Maharaj	B.Sc IAIAsa	Junior EAP	2.5 years
Yusuf Raja	B.Sc., IAIAsa	Project Manager/ Senior EAP	14 years

A company profile, Project Experience and CV's for 1World Consultants (Pty) Ltd is provided in Appendix B.

**Table 3: Names and Expertise of Specialists**

Name of specialist	Education qualifications	Field of expertise	Section/s contributed to in this basic assessment report	Title of specialist report/s as attached in Appendix E
Gugu Ndlela	B.Sc. (Hons) Geology	Geotechnical Specialist	Geotechnical Investigation (Section 12)	Geotechnical Investigation Report for the Proposed Kwa Justice Foods Abattoir Located within KwaDukuza Local Municipality, in KwaDukuza, in the Northern KwaZulu-Natal Province of South Africa

Jean Beater	MA (Heritage Studies)  MSc (Environmental Management)	Heritage Specialist	Desktop Heritage Assessment (Section 12)	Proposed Abattoir and Associated Processing Plant, P107 Road to Nonoti, I Lembe District Municipality KwaZulu-Natal
Ronel Niemann Rowena Harrison Dr. Craig Widdows	BSc Hon (Env. Sci) MSc Soil Science PhD Ecology	Vegetation Specialist	Vegetation Assessment (Section 12)	Vegetation Survey: Proposed Nonoti Infrastructure Development within the KwaDukuza Local Municipality, KwaZulu-Natal
Ndumiso Dlamini  Andrew Husted	BSc Hon (Botany) Pr Sci Nat	Wetland Ecologist	Wetland Assessment (Section 12)	Wetland Assessment for the Proposed Kwa Justice Foods Agri-Project
Sanrika Ramcharan  Nitesh Jithoo	Pr Tech Eng	Stormwater Engineer	Stormwater Management Plan	Stormwater Management Plan: Proposed New Abattoir for Kwa Justice Foods (Pty) Ltd Nonoti, Stanger

## 2.2. Objectives of the Basic Assessment Process

According to the EIA Regulations (2017), Appendix 1 of GNR 326:

*“The objective of the basic assessment process is to, through a consultative process—*

- (a) *determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;*
- (b) *identify the alternatives considered, including the activity, location, and technology alternatives;*
- (c) *describe the need and desirability of the proposed alternatives;*
- (d) *through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine—*
  - (i) *the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and*
  - (ii) *the degree to which these impacts—*
    - (aa) *can be reversed;*
    - (bb) *may cause irreplaceable loss of resources; and*
    - (cc) *can be avoided, managed or mitigated; and*

- (e) *through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—*
- (i) *identify and motivate a preferred site, activity and technology alternative;*
  - (ii) *identify suitable measures to avoid, manage or mitigate identified impacts; and*
  - (iii) *identify residual risks that need to be managed and monitored”*

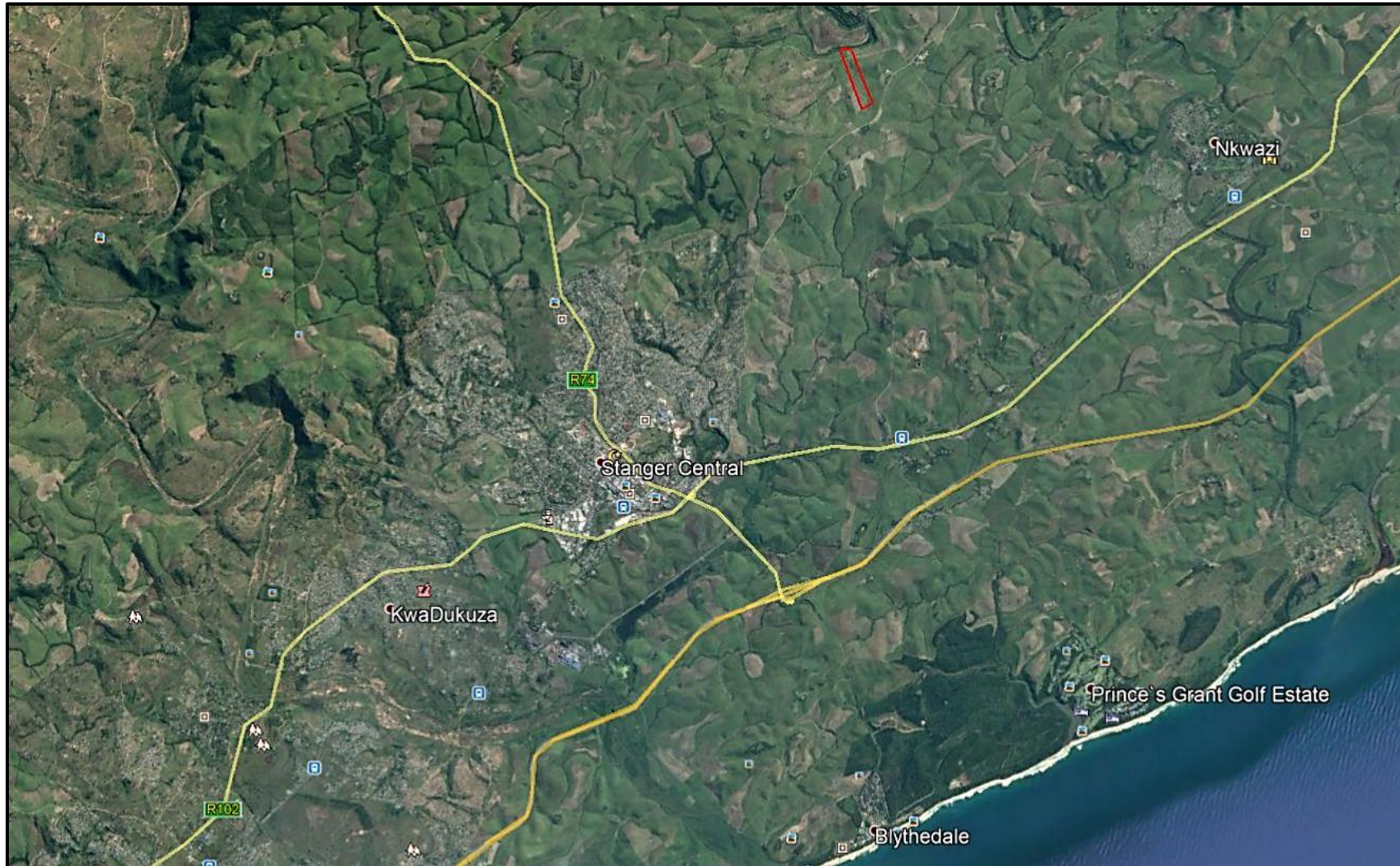
### 3. LOCATION OF THE ACTIVITY

The site for the proposed abattoir has historically been used for agricultural activities, mainly sugarcane. The adjacent land uses include a motor scrap dealer to the south, and a proposed religious site to the east. The site details are outlined in Table 4 below.

**Table 4: Site Details**

	<i>Proposed Kwa Justice Agri-Project</i>
Property Description	Farm Lot 36A, No. 2618, Portion 18
Landowner	Mr. & Mrs. Devprasad
Consent Received to Conduct Proposed Activity	Yes
Current Property Zoning	Agricultural
SG Number	NOFU00000000261800000
Property Size	10,2001 Hectares
Development Footprint	Approximately 1 Ha
GPS Coordinates	29°16'47.82"S 31°18'30.12"E

The greater iLembe District and the site area is depicted in Figures 1 and 2 respectively.



*Figure 1: Greater iLembe District and Proposed Site Location (Red)*



*Figure 2: Proposed Site Area*

## 4. PROPOSED ACTIVITY

The proposed development project will be centered around an abattoir and a meat processing facility. The project will also include several other supporting structures.

### 4.1. Project Description

The proposed project will entail the construction of an abattoir, meat processing and warehousing facility, and associated supporting infrastructure. The total development footprint of the proposed Agri-project will be approximately 1 hectare (10 000m<sup>2</sup>). The following has been proposed within the property:

- State of the art abattoir buildings which includes:
  - A lairage/ pre-abattoir holding facility;
  - High throughput abattoir;
  - Meat processing and production facility;
  - Parking, workshop, security and ancillaries
- Open yards for holding of livestock

The Abattoir specifications of the proposed facility are as follows:

#### Abattoir Buildings:

A lairage/ pre-abattoir holding facility	:	±1700m <sup>2</sup>
High through-put abattoir	:	±1000m <sup>2</sup>
Meat processing and production facility	:	±1000m <sup>2</sup>
Parking, workshop, security, security and ancillaries	:	±300m <sup>2</sup>

**Approximate Developmental Footprint** : **4000m<sup>2</sup>**

#### Yard Space:

Open yards	:	±6000m <sup>2</sup>
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**Total Developmental Footprint** : **10 000m<sup>2</sup> (1 Ha)**

Additionally, a rain water harvesting system will be implemented as an option to reduce municipal demand. The entire water system will consist of three stages as follows:

- Stage 1 - Clean Hot and Cold-Water System
- Stage 2 - Rainwater Harvest and Waste Water Recover
- Stage 3 - Effluent Water Treatment Facility Filtration and Chemical Dosage

Sewage lines from the abattoir and meat processing facility as well as ablution facilities will connect to the sewage treatment and sewage tanks. This will be discussed further in section 4.2. to follow.

The area is currently zoned as agricultural; however, the applicant is in the process of applying for special consent for food processing. The proposed site is located within 100m of a wetland but falls outside the 15m buffer of the wetland and not



within 32m of any watercourse. The Proposed development will entail the excavation for foundations and the clearing of vegetation with a low conservation status, as confirmed by the specialist.

Kwa Justice Foods (Pty) Ltd will be tapping into the local municipality utilities infrastructure. KwaDukuza Municipality will provide the proposed development with water and electricity connection. It should be noted that there will be no commercial raising of livestock on the property.

The use of rooftop solar energy is also being considered for the proposed facility. Given the very hot and sunny weather experienced on the east coast, it makes good economic sense to embrace this as a responsible green option.

## 4.2. Proposed Plans

The proposed plans have been informed by the developer as follows:

- The abattoir will process cattle, sheep and goats. The number of cattle processed per day will be between 0 – 50 units, while for sheep and goats the number of units processed per day will be between 0 - 300. This is in line with the abattoir license and these numbers cannot be exceeded.
- A waste storage facility for trimmings with a volume less than 80 cubic meters.
- Potential rooftop photovoltaic which will be less than 10MW and cover an area less than 1Ha.
- Off stream storage of water which totals to approximately 750 cubic meters (i.e. the recycling unit).
- 500kVA generator with associated 1100-liter diesel tank.
- More than 90-95% of the inputs are converted to usable products. A very small portion of domestic waste from the offices and canteen will be disposed at the iLembe District Municipality Sewer Works.

The figures presented below diagrammatically explain the land usage and show the buildings that will be constructed on site.

### The Receiving/ Weighing, Animal Yard Area (Stock Yard)

The buildings constructed in and around the animal yard area will house the security and receiving offices as well as the restrooms. Receiving bays, chutes and animal yards will be located at this site as well. There is a legal requirement to hold animals for 48 hours prior to slaughter and the animal yard area and lairage serves this purpose.

**Total development area = 6000m<sup>2</sup>**

Refer to figure 3 below.

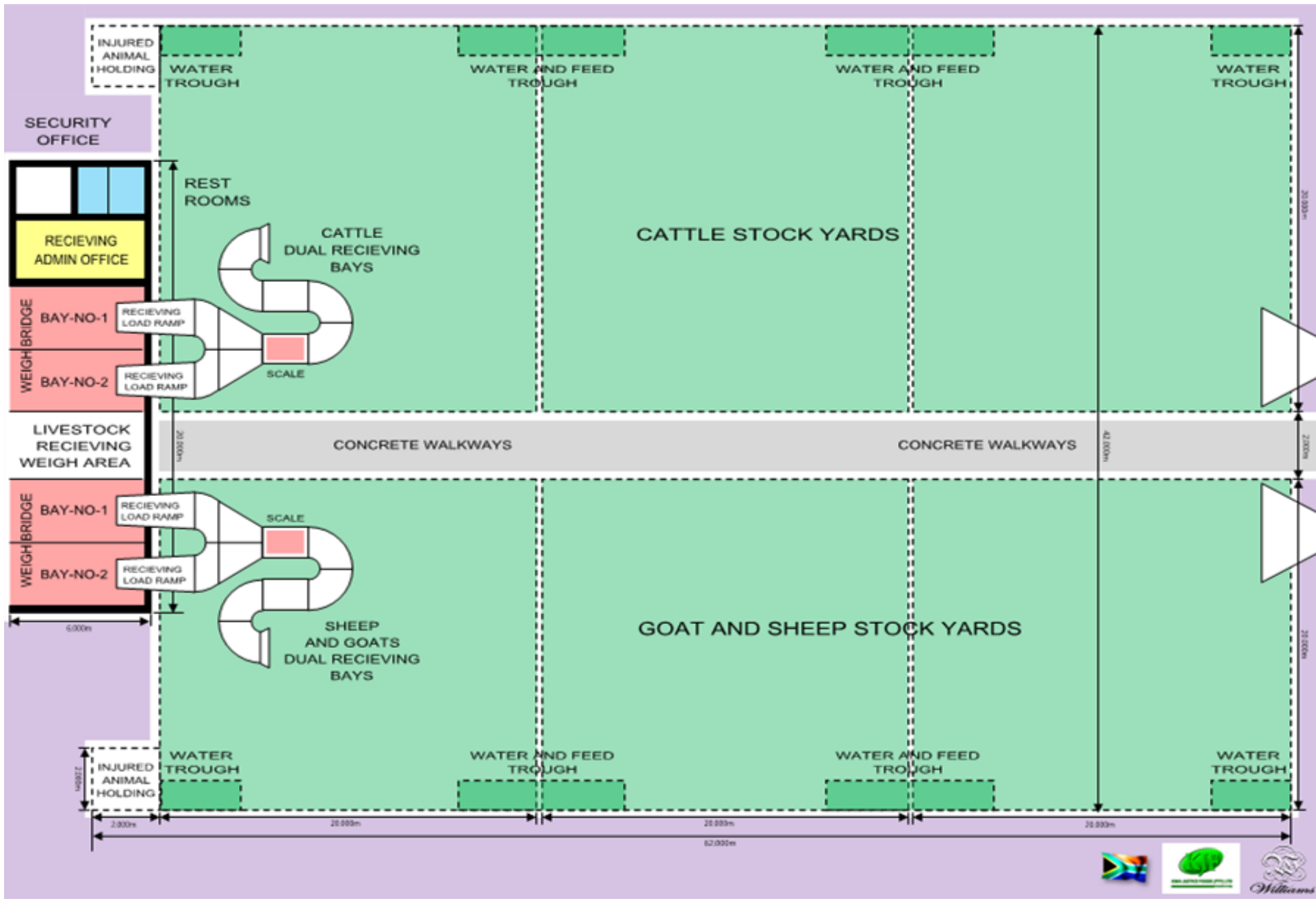


Figure 3: The Receiving/ Weighing, Animal Yard Area (Stock Yard)

**The Lairage or Pre-Abattoir Holding Facility**

The lairage or the pre-abattoir holding facility site is fully roofed and ventilated. The lairage will hold between 0-50 units of cattle per day, while for sheep and goats the lairage will hold a maximum of 300 per day.

**Total development area = 1700m<sup>2</sup>**

Refer to figure 4 below.

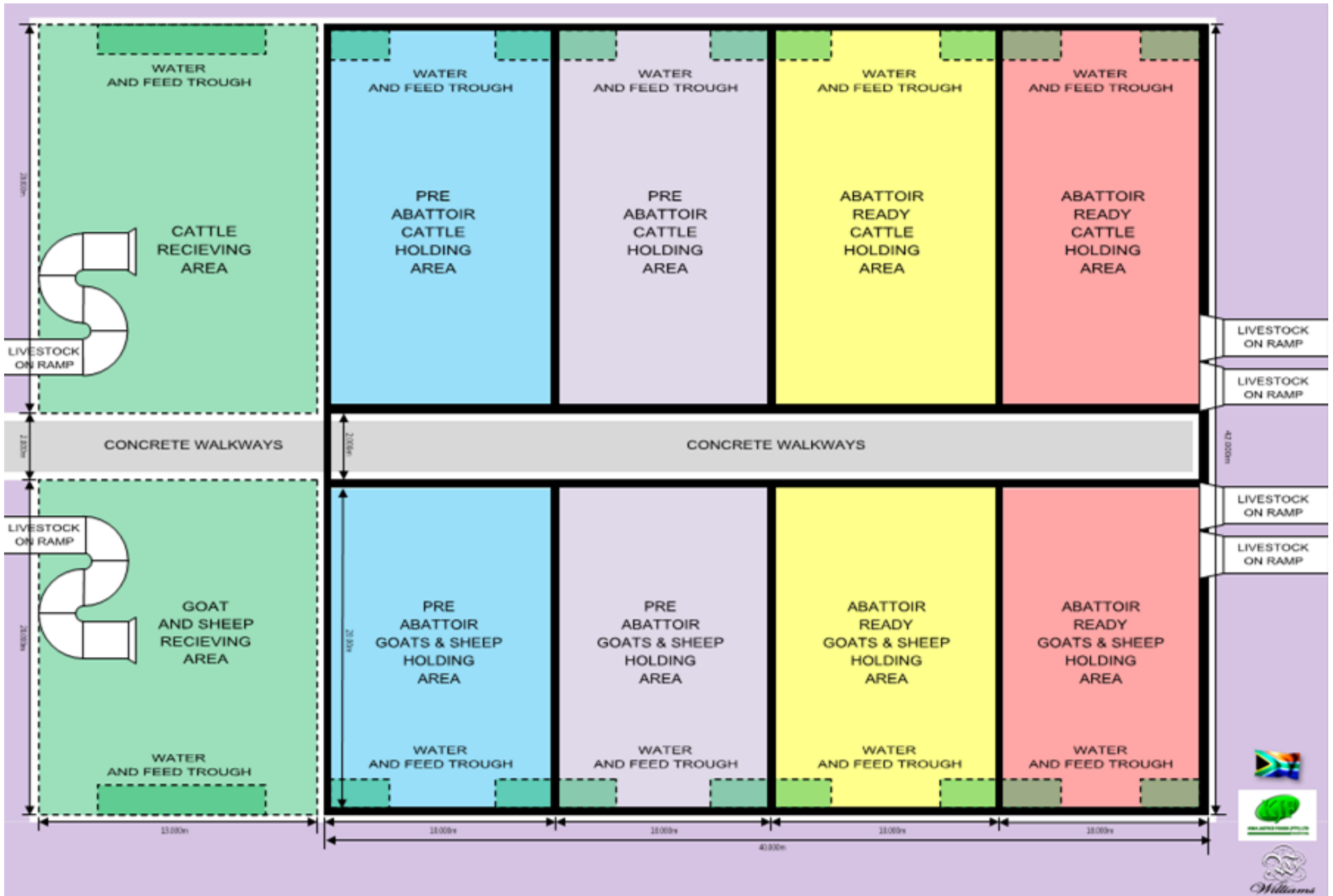


Figure 4: The Lairage or Pre-Abattoir Holding Facility

**The High Through-Put Abattoir Facility**

The high through-put facility is a climate-controlled facility which is fully roofed.

**Total development area = 1000m<sup>2</sup>**

Refer to figure 5 below.

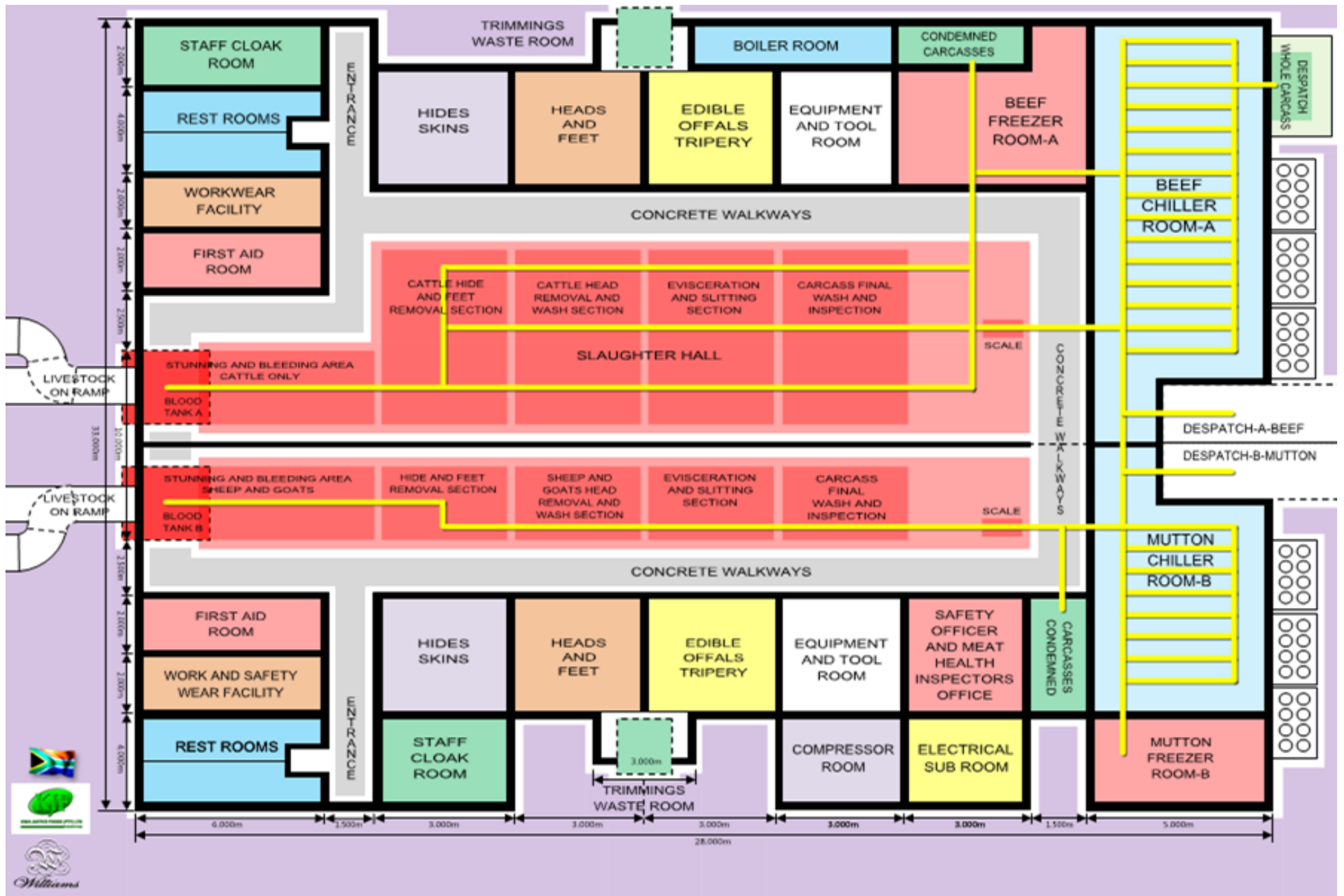


Figure 5: The High Through-Put Abattoir Facility

**The Meat Processing/ Production, Warehouse and Dispatch Facility**

The meat processing and production area is described in figure 6. The warehousing and dispatch facilities will be housed here as well.

**Total development area = 1000m<sup>2</sup>**

Refer to figure 6 below.

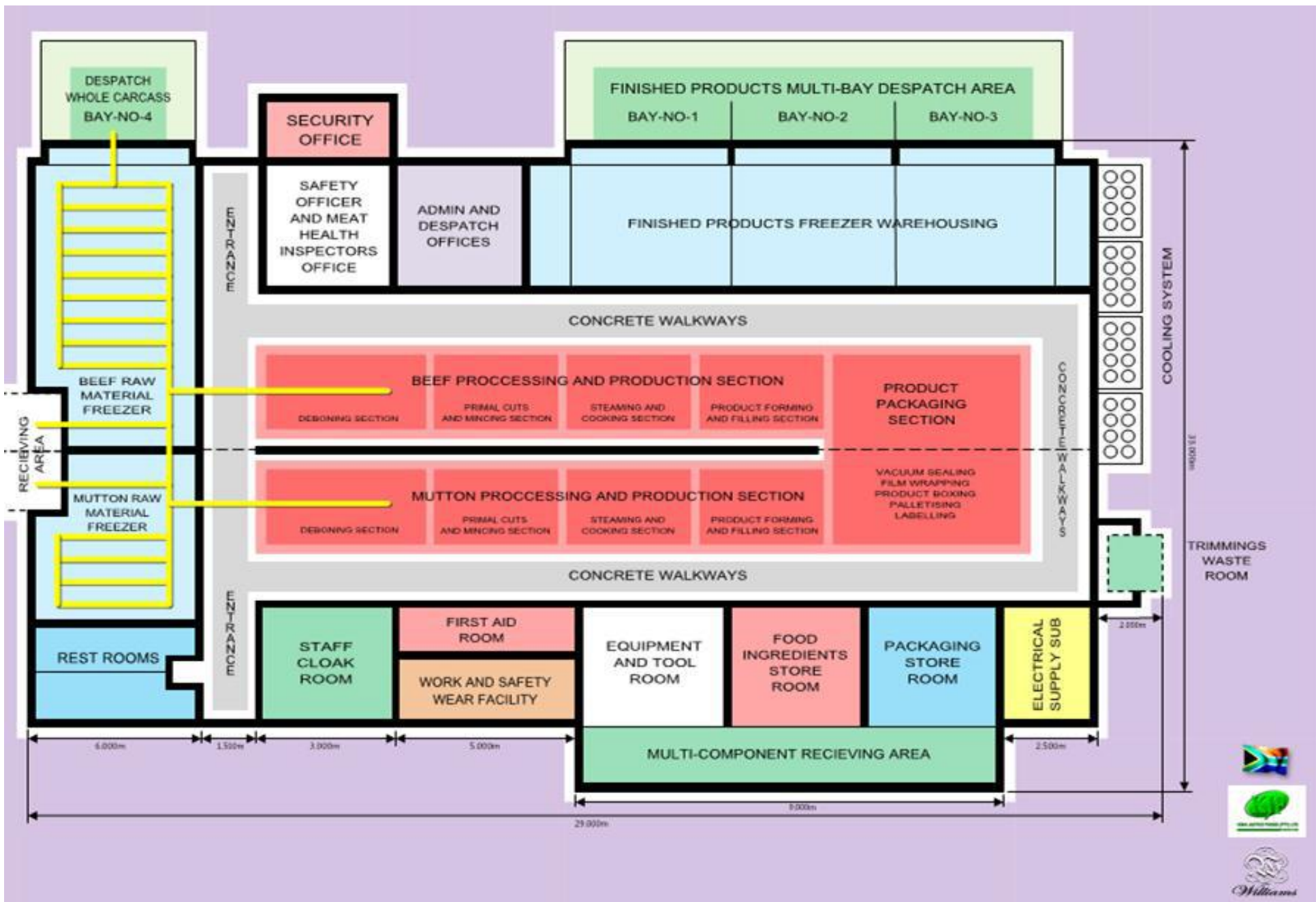


Figure 6: The Meat Processing/ Production, Warehouse and Dispatch Facility



**Offices, Sub-Stations, Workshop and Parking Area**

The office, reception area and parking area will be approximately 81 m<sup>2</sup>.

The electrical sub-station is approximately 9m<sup>2</sup>.

The general workshop is approximately 9m<sup>2</sup>.

The security office is approximately 13.5m<sup>2</sup>.

**Total development area = 300m<sup>2</sup>**

Refer to figure 7 below.



Figure 7: Offices, Sub-Station, Workshop and Parking Area of the Facility

The proposed abattoir facility and associated infrastructure will be laid on a “step-platform” method:

- The treatment facility will be situated on the first platform;
- The lairage will follow on the second platform; and
- The Abattoir facility will be situated on the third platform.

Platforms have been designed taking into account both the natural slopes/ gradient and survey of the property as well as to limit the amount of material imported or exported to and from site. Platforms limit the amount of civil earthworks required and allow for compartmentalising the different areas. In addition, the lairage is positioned lower than that of the abattoir. It is best practice for animals to enter the abattoir on an incline for safety reasons. Furthermore, as per the regulations, animals are required to be held in the lairage for 48 hours prior to slaughter to allow for acclimatization and ensure better product quality.

Figure 8 below is an illustration of the end product of the facility.

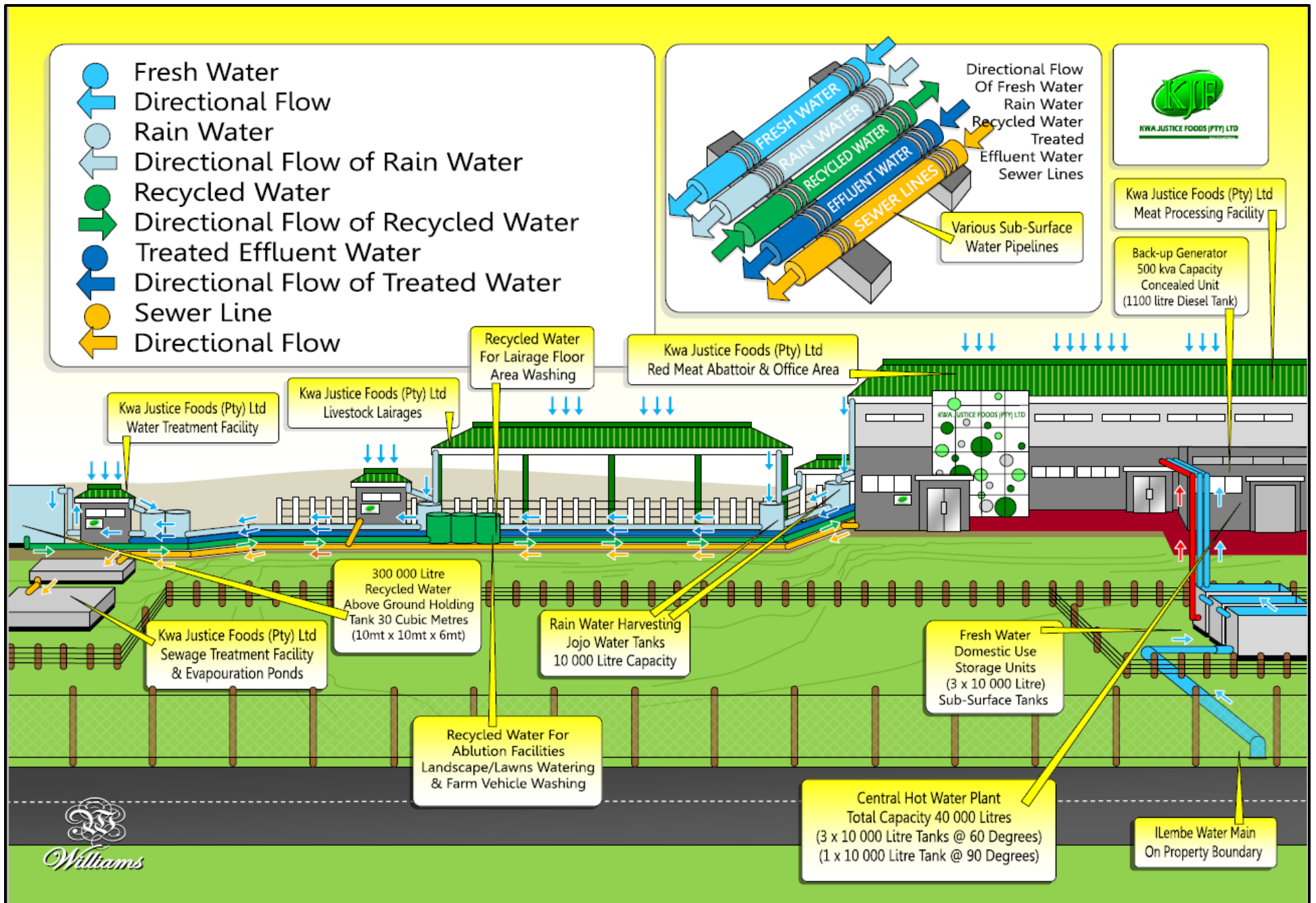


Figure 8: Proposed Design of the Facility

Additionally, rain water harvesting is an option to reduce municipal demand.

The entire water system will consist of three stages as follows:

**Stage 1: Clean Hot and Cold-Water System**

A clean water supply from the iLembe Water Main located on the property boundary has been confirmed by the Municipality. Water will be stored in bulk storage tanks above ground to provide storage for up to three (3) days if no other supply is available. Fresh cold water for domestic use will be stored in 3 x 10 000 litre tanks. The firefighting water will be constantly maintained at reserve levels. Water for fire-fighting has been included in the overall design and volume calculations for the storage tanks. The central hot water plant is located in the plant room within the abattoir facility. The plant room will hold 4 tanks with a total capacity of 40 000 litres (i.e. 3 x 10 000 litre at 60 degrees and 1 x 10 000 litre at 90 degrees).

Refer to figure 9 below.

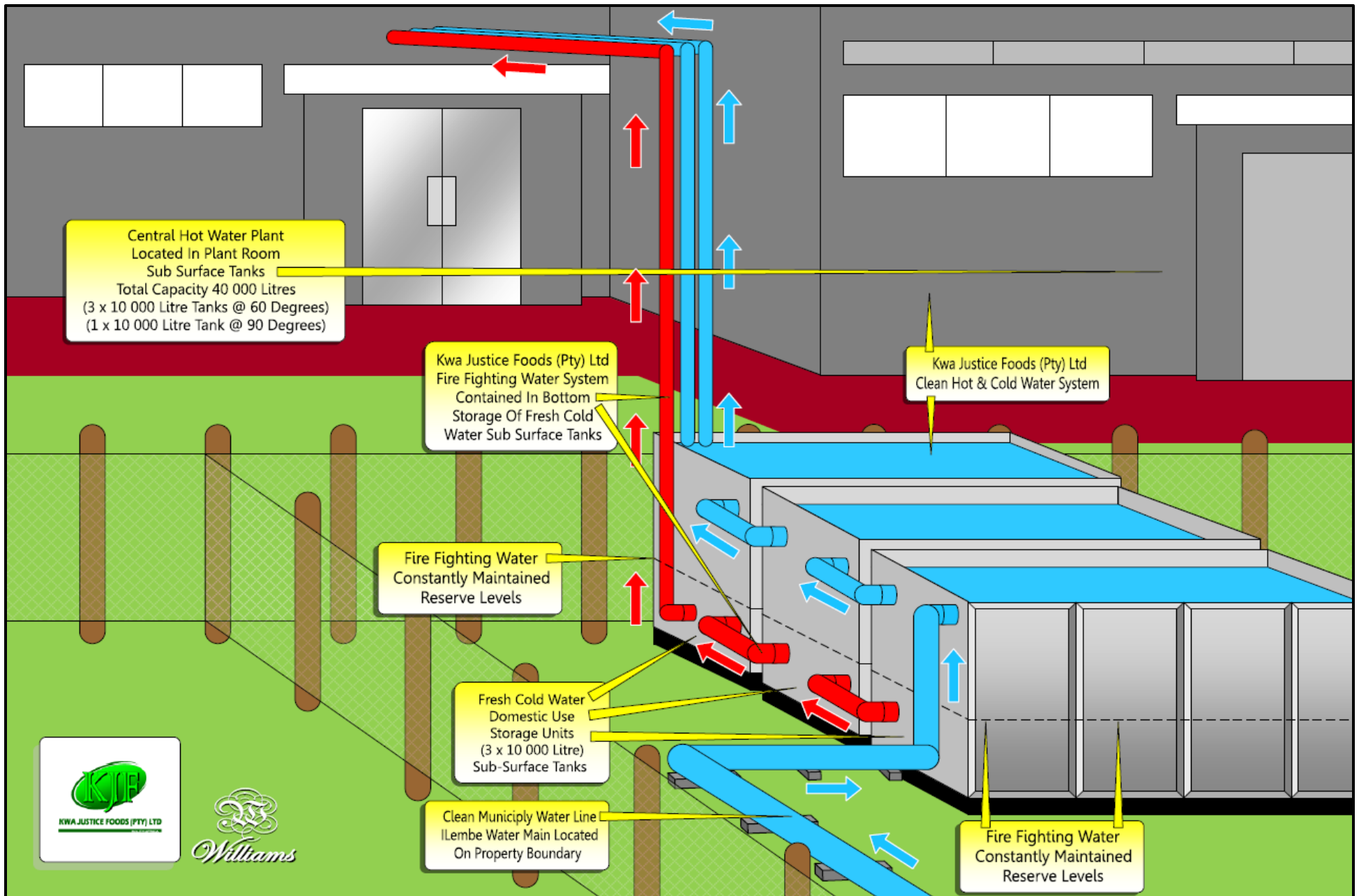


Figure 9: Clean Hot and Cold-Water System for Fire Fighting and Domestic Use Respectively

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**Stage 2: Rainwater Harvest and Waste Water Recover**

The intention of this component is to potentially harvest rainwater for dilution into the water system stage (stage 3). Stage 2 is the collection of roof water via drain filters and stored into 3 x 10 000 litre storage tanks (Jo-Jo tanks) above ground. Stored water will be pumped through sand filter unit directly into harvest water line or to waste water harvest storage tank for dilution to reduce chemical content.

**Stage 3: Effluent Water Treatment Facility Filtration and Chemical Dosage**

Waste water from within the abattoir and factory will independently flow from all internal drain points to an external manhole for chemical treatment before entering the filtration point. 85%-90% of abattoir water can be reused after treatment. Only 10%-15% of fresh water from municipal supply will be required.

The chemical used will be M-BAC. M-BAC is a combination of "Live" bacteria and enzymes that rapidly penetrate, digest and liquifies fats, oils, greases, celluloses, protein and starch. Note M-BAL is pathogen free. This product is commonly used at most abattoir's and chicken farms. The dosage rate for maximum quantities of blood/ water/ fat mixture is 4 litres of liquid product into the drain, 4 times a day by hand or via peristaltic pump connected to a timer. This product can also be considered "Natures Helper" by reducing the Biochemical and Chemical Oxygen Demand.

The next stage of flow from these external manhole is into Geo Filtration Bags ("Debag Containers") that are suspended on rail with a capacity of 1000 litre per cycle. The Debag is an engineered sludge dewatering container, specially engineered to effectively retain fine pollutant solids whilst allowing dissipation of liquids. The result is a well dewatered pollutant with solids captured within the container, which is designed to facilitate easy handling and assist the disposal process.

The debag units will be suspended above a concrete trough with an outlet drain which will flow into a surface ground reservoir (i.e. purifier/ Chemical Dosage Plant) with a capacity of 300 000 litres. This holding tank will be connected to a plant room adjacent to it, for filtration and water treatment.

The water from the treatment plant room will be pumped for storage into 3 x 10 000 litres surface tanks. A booster pump will pump this treated water into a separate piped system. This treated water will be used externally for ablution toilet flush, external wash of animals, washing of the yard, etc. It is important to note that for health and safety reasons, the harvest water will be for external use only. Thus, reducing the risk of any contamination of carcasses or processed products.

Refer to figure 10 below.

#### **N.B. Engineered Sludge Dewatering Container (DeeBag)**

The DeeBag is a sludge dewatering container specially engineered to effectively retain fine pollutant solids whilst allowing dissipation of liquids. The result is a well dewatered pollutant with solids captured within the container, which is designed to facilitate easy handling and assist the disposal process. Filtrates discharged from the container during the dewatering process can be collected and treated in a normal way and discharged directly into waterways.

DeeBags are suitable to be installed at existing facilities. The total sludge volume can be effectively reduced and subsequently lower the overall disposal costs. Deebags are suitable for handling mining slurry wastes and a variety of agricultural, municipal and civil engineering sludges that are required to be dewatered before transporting to a treatment or disposal facility.

Benefits include:

- Rapid discharge of high quality filtrate
- Excellent solid retention
- Made from high strength and durable material
- Easy handling at site
- Cost effective, versatile and practical solution
- Environmentally sustainable
- Recyclable systems



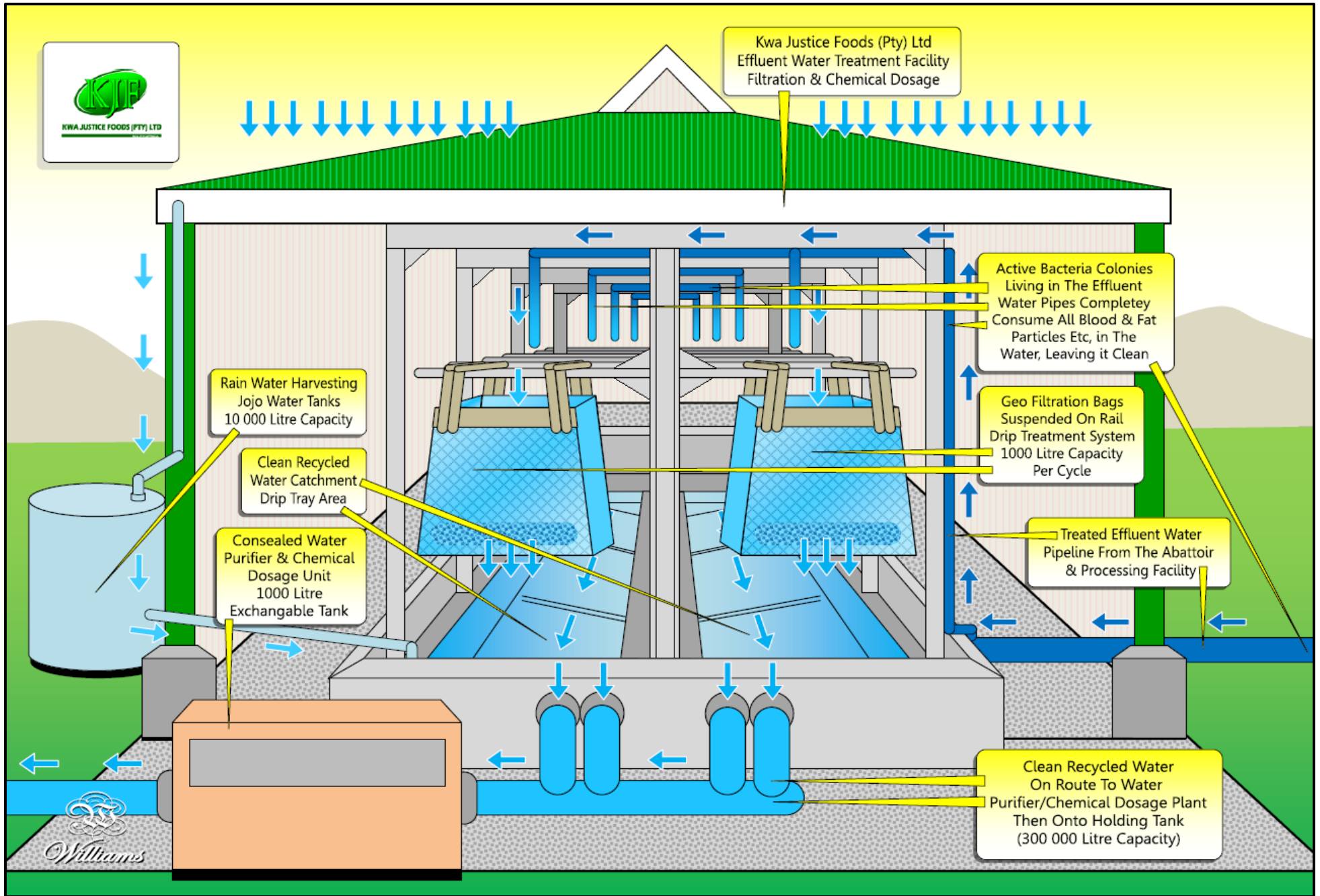


Figure 10: Integrated Effluent Water Treatment Facility, Filtration and Chemical Dosage

### **Sewage Treatment and Sewage Tanks**

Sewage lines from the abattoir and meat processing facility as well as ablution facilities will connect to the sewage treatment and sewage tanks. The sewage tanks are steel framed tanks with a capacity of 80 000 litres. The sewage tanks comprise of live digestive bacteria colonies that will deconstruct and erode sewage material, etc. The treated sewage waste and water desludging by outsourced service provider will be taken to Local KwaDukuza Municipality Treatment Works. The remains of the treated sewage water (85%) will effectively be consumed by the naturally occurring evaporation process.

There is currently no municipal infrastructure on site. A municipal line will be brought up to the boundary of the site by KwaDukuza Municipality. It is the developer's duty to connect infrastructure on site to the municipal line.

The Department of Water and Sanitation (DW&S) has requested to have sewage temporarily stored above-ground. Therefore, the design of the sewage tanks has taken DWS comments into account.

Refer to figure 11 below.

Figures 8 to 11 below can be reviewed under Appendix C in A3. Included under Appendix C is also artist impression of the facility.

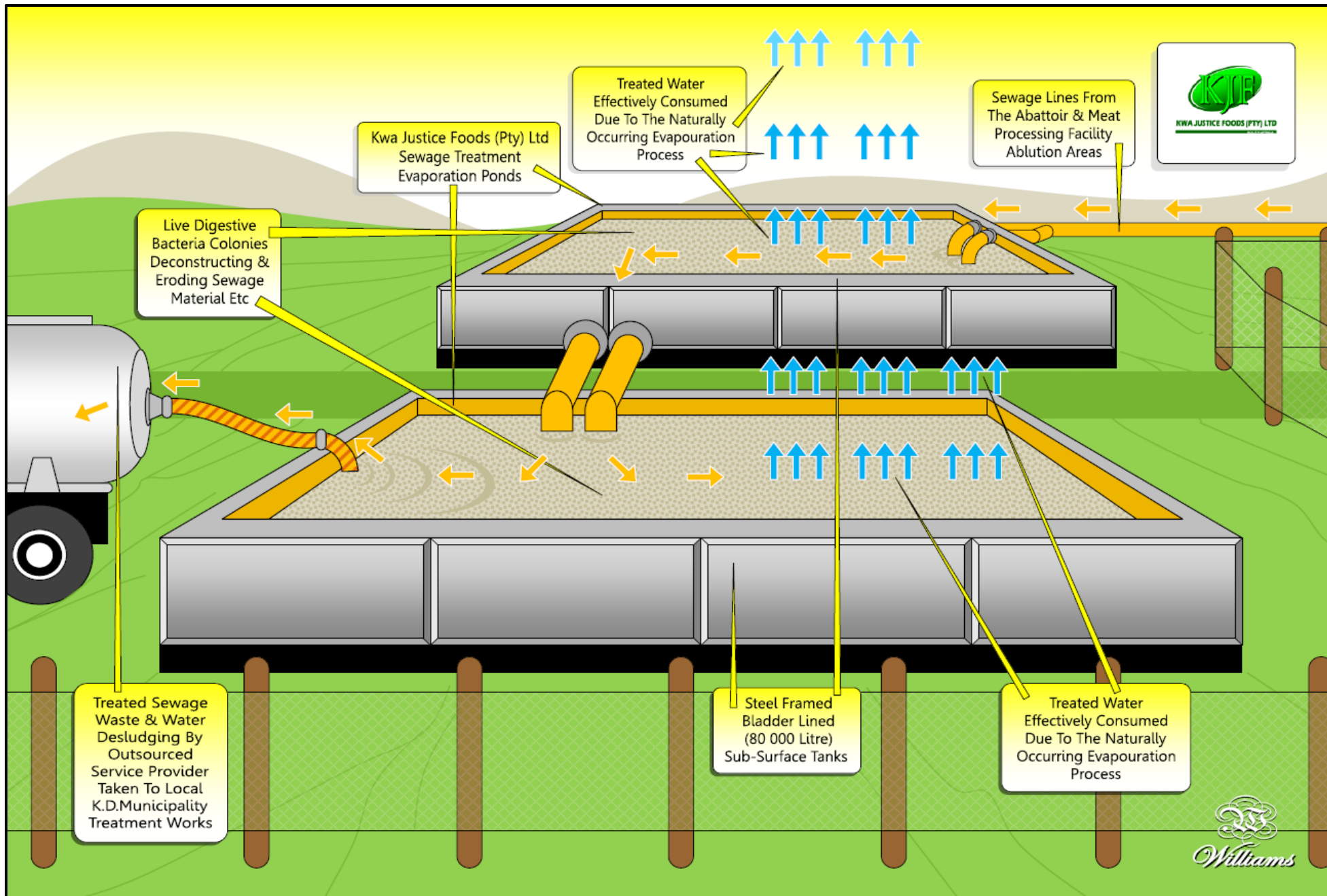


Figure 11: Integrated Sewage Treatment Tanks

**Security:**

The project intends to secure the property by installing 2 levels of control. A boundary fence along the perimeter of the property and a second more secure fence around the 1 Ha abattoir operations. A standard low impact agricultural fence will be erected to mark the boundary of the farm at Nonoti (i.e. 10, 2001 Ha), thus ensuring the safety of all livestock on site. The use of wooden treated poles and standard fencing wire will be used throughout the property. Farm gates will be included at various strategic points for controlled access to site. This particular type of standard agricultural fencing installation will not require any form of earthworks, excavation, plat-forming, etc. Given the design of the standard fencing, thoroughfare of small field animals will be unhindered. The fencing also ensures that rain water or any surface water has a clear flow path offering no resistance whatsoever.

Refer to figure 12 below for a sketch of the perimeter fence.

The sketch of the perimeter fence with the accompanying letter can be reviewed under Appendix C.

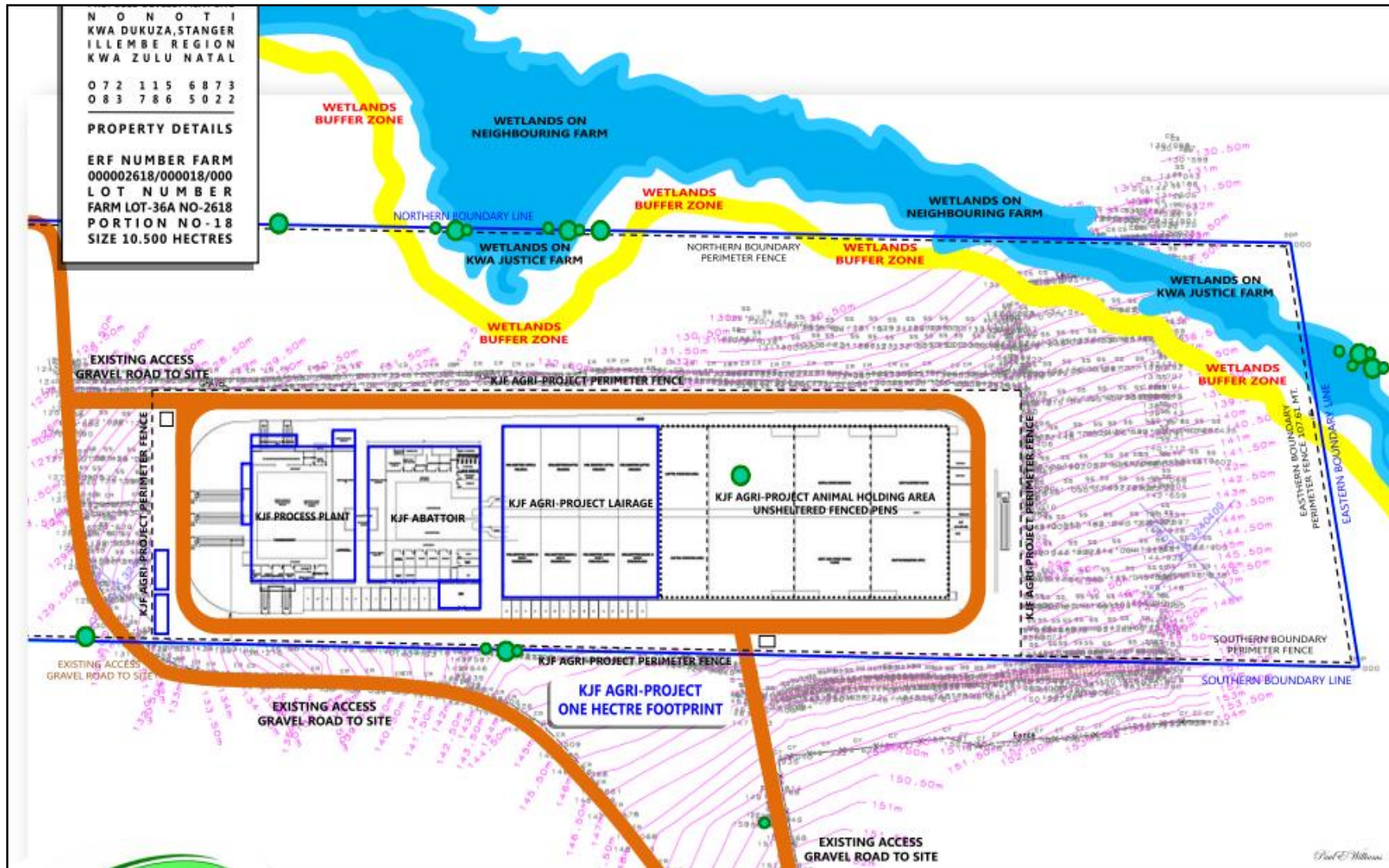


Figure 12: Sketch of Perimeter Fence.

Table 5 below provides a summary of the preferred alternative.

**Table 5: Summary of the preferred alternative**

<b>Preferred Alternative</b>
<b>Project details</b>
The development extent is 10,2001 Hectares. The development footprint is 1 Hectare.
The abattoir facility is re-positioned and now falls outside of identified sensitive areas. A 15m buffer around the wetlands will be constantly maintained.
The applicant is going to have one entry and exit from the facility and it will be located away from sensitive areas. The driveway is on the opposite side of the facility in relation to the wetland.
<b>Number of Animals to be Processed</b>
The abattoir will process cattle, sheep and goats. The number of cattle processed per day will be between 0 – 50 units, while for sheep and goats the number of units processed per day will be between 0 - 300. This is in line with the abattoir license and these numbers cannot be exceeded.
<b>Number of Animals Concentrated on Site</b>
100 Animals will be housed in the lairage or pre-abattoir facility at any given time. Exact numbers will vary on any particular day.
There is a requirement for animals to be stored in the lairage for 48 hours prior to slaughter. This is to climatise and distress the animals as this affects the quality of meat produced.
<b>KwaDukuza Municipality Services Connection</b>
<b>Electricity:</b>
Electricity is currently on site and will be supplemented by the use of a generator, with the potential to use solar panels for power needs.
<b>Sewage:</b>
Sewage lines from the abattoir and meat processing facility as well as ablution facilities will connect to the sewage treatment and sewage tanks. The sewage tanks are steel framed tanks with a capacity of 80 000 litres. The sewage tanks comprise of live digestive bacteria colonies that will deconstruct and erode sewage material, etc. The treated sewage waste and water desludging by outsourced service provider will be taken to Local KwaDukuza Municipality Treatment Works. The remains of the treated sewage water (85%) will effectively be consumed by the naturally occurring evaporation process.
Water will be stored in bulk storage tanks above ground to provide storage for up to three (3) days if no other supply is available. Fresh cold water for domestic use will be stored in 3 x 10 000 litre tanks. The firefighting water system is contained at the bottom storage of the fresh cold-water tanks.
<b>Handling and Management of Waste</b>
Animal hides to be collected by the Animal Waste Rendering Plant (AVI)
Animal horns to be collected by the Animal Waste Rendering Plant (AVI)
Animal bones to be collected by the Animal Waste Rendering Plant (AVI)
Animal offals to be collected by the Animal Waste Rendering Plant (AVI)
There will be no incinerator on site. Condemned carcasses, rumen and trimmings will be collected by the Animal Waste Rendering Plant (AVI). All other solid waste such as packaging and wrapping materials, containers and cans, paper and plastic, etc. will be managed by the local KwaDukuza Municipal services.
All animal blood derived from the processing operations at the abattoir will be collected and taken away by AVI rendering

plant.

Rain water harvesting system and recycling unit will be implemented on site. Treated water will be re-used to reduce municipal demand. No irrigation will be taking place on site.

### Service Level Agreements (SLA's)

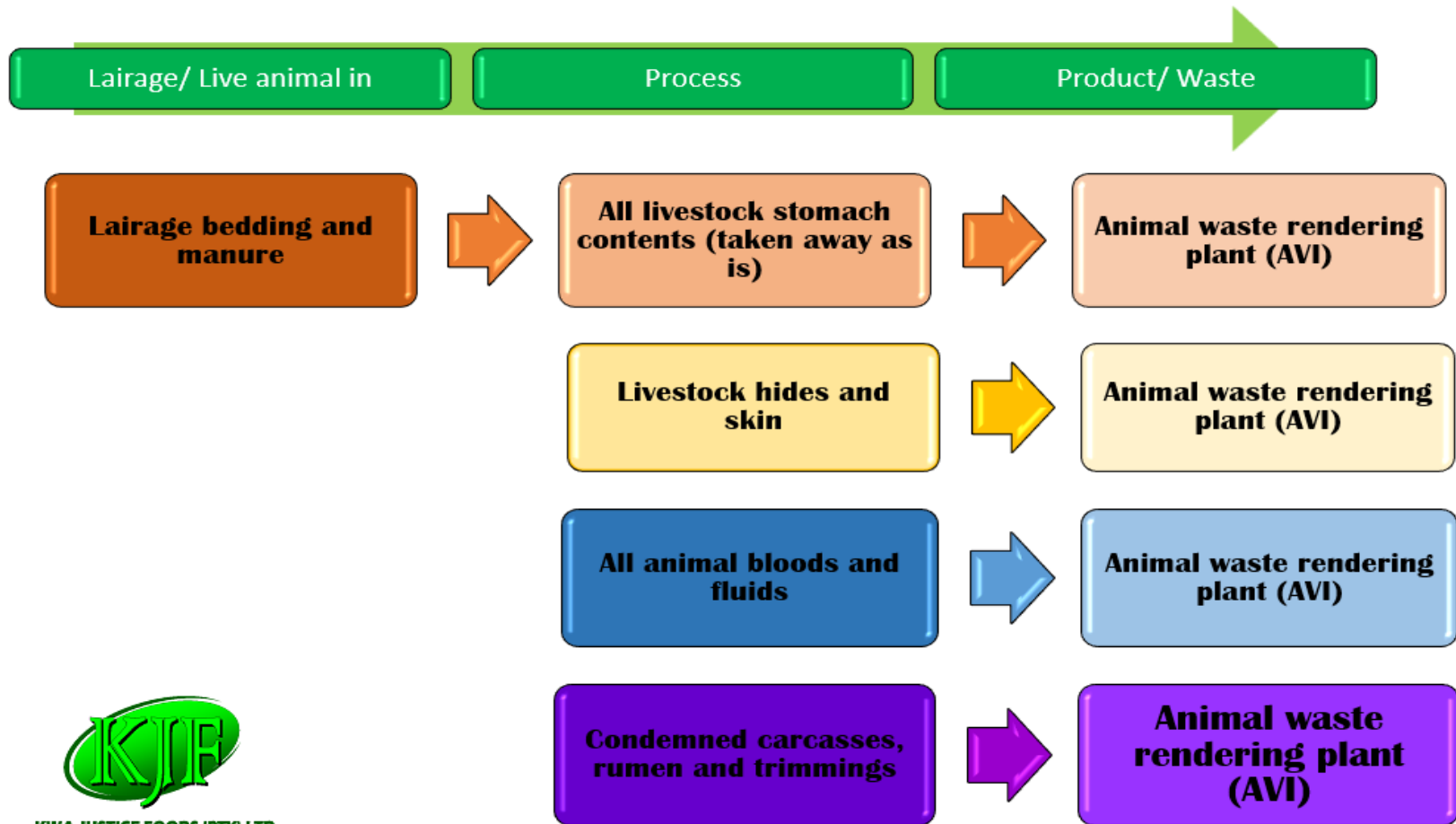
The following Service Level Agreements were obtained for the functioning of the proposed abattoir:

1. Avi-Products  
As a rendering plant, Avi-Products, are willing to receive all condemned waste that will be generated from the abattoir. Avi-Products are licensed to receive Bovine (beef); Pork; Sheep; Chicken; and Blood. Avi-Products are able to process 27 tons of waste per 24-hour shifts, with chiller capacity of 40 tons at their facility.
2. Vacuflo Logistics Desludging  
Vacuflo is an accredited company that is authorized to remove and dispose 8KL loads of sewer to iLembe District Municipality sewer works.
3. KwaDukuza Municipality – Business Unit: Community Services and Public Amenities  
Correspondence received from the KwaDukuza Municipality confirms that the municipality has no objection to the abattoir. The development site is zoned as “Agriculture 1” and it should be placed on record that the use of an “Abattoir” and its ancillary uses are permitted and submitted on submission of the Special Consent Application. The developer will be required to submit a development application.
4. KwaDukuza Municipality – Business Unit: Electrical Engineering Services  
KwaDukuza Municipality confirms that the electricity capacity of 500kVA may be made available to the proposed site once the developer appoints a registered Electrical Contractor who would then need to submit a commencement form/ application to the Electrical Engineering Business Unit.
5. iLembe District Municipality  
Bulk services confirmation from iLembe District Municipality has been received and dated 08 August 2017. iLembe District confirms that bulk water to meet the demands of the project is available. However, the developer will be required to provide for the link between the bulk main and the development.
6. Dolphin Coast Landfill Management (Pty) Ltd  
Vacuflo Logistics is the company that is authorized to remove sludge. As a precautionary measure a second SLA will be obtained from DCLM for the removal of sludge.

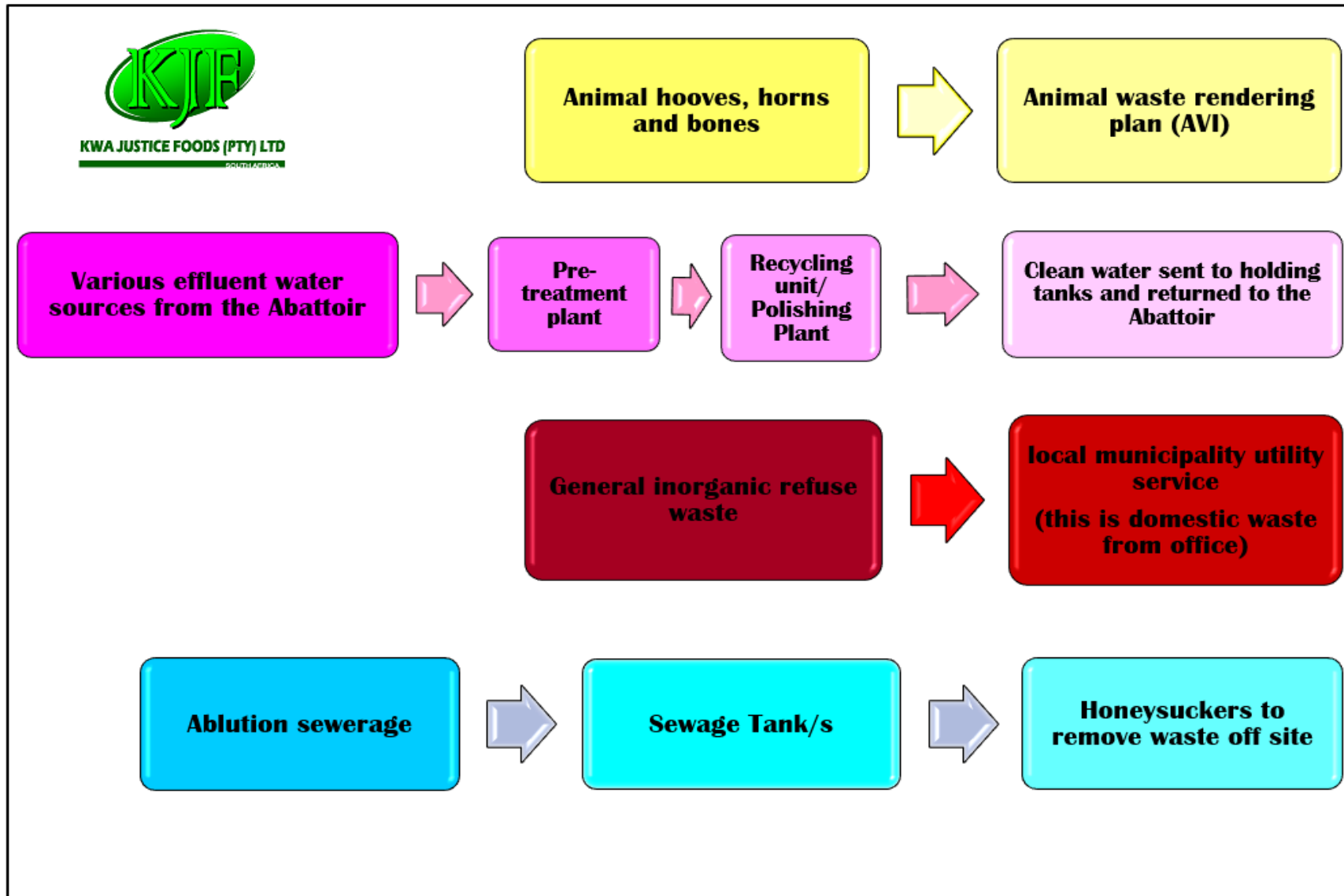
The SLA's can be reviewed under Appendix C. The road map below summarises the manner in which waste will be handled.

The primary containment for sewage are the sewage tanks which are designed large enough to hold sewage for a few weeks. The sewage tanks are 80 000ℓ each, thus, holding larger volumes of sewage over a longer time period. The bunded area serves as a secondary sewage containment. The sewage tanks will be housed within a bunded area situated on the services platform.

**KWA JUSTICE FOODS (PTY) LTD – WASTE MANAGEMENT ROADMAP RED MEAT HIGH THROUGH – PUT ABATTOIR – NONOTI, ILLEMBE REGION, KZN**







## 5. LEGISLATION AND GUIDELINES APPLICABLE

### 5.1. Applicable Listed Activities

An Environmental screening report was compiled in February 2017. It must be noted that during the time of the environmental screening, the latest EIA Regulations (2014) were referenced to identify the possible environmental triggers. The EIA Regulations (2014) were then amended and put into effect, in April 2017. Therefore, Table 6 below will outline environmental triggers as identified in EIA Regulations, 2017.

In terms of the Environmental Impact Assessment (EIA) Regulations (2017), promulgated in terms of the National Environmental Management Act, 1998 (NEMA), certain Listed Activities are specified for which either a Basic Assessment (GNR 327 and 324 of 2017) or full Scoping and EIA (GNR 325 of 2017) is required. The following Listed Activity in Government Notice (GN) R327 (Listing Notice 1) of 2017 are triggered, requiring a Basic Assessment (BA) Process for the proposed Kwa Justice Foods Agri-Project.

**Table 6: Relevant Activities from EIA Regulations 2017**

EIA Regulations 2017			
Regulation Year	Listed Activity NEMA	Description of Activity	Applicability to the Project
2017	LN 1, Activity 3 (ii)	The development and related operation of facilities or infrastructure for the slaughter of animals with a—  (ii) product throughput of reptiles, game and red meat exceeding 6 units per day.	The abattoir will process between 0-50 units of cattle per day and between 0-300 sheep/ goats per day, i.e. red meat.
2017	LN 1, Activity 8	The development and related operation of hatcheries or agri-industrial facilities outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.	The definition of “agri-industrial” ‘means an undertaking involving the beneficiation of agricultural produce’. The abattoir is considered an agri-industrial facility due to the processing of meat into meat related products which will in essence be the beneficiation of agricultural produce.
2017	LN 1, Activity 12 (ii) (c)	The development of— (ii) infrastructure or structures with a physical footprint of 100 square metres or more;  where such development occurs— (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	The development will be more than 32m from any watercourse. A 15m buffer will be maintained around the wetland. A standard low impact agricultural fence will be erected to mark the boundary of the Nonoti farm. The agricultural fence is erected within the wetland areas; however, this particular type of fencing installation will not require any form of earthworks, excavation, plat-forming, etc. This fencing also ensures that rain water or any surface water has a clear flow path offering no resistance.

2017	LN 1, Activity 28 (ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:  (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.	The development site is a greenfield site. The development site is zoned as Agriculture. The total development footprint including open lairage will be approximately 1 hectare. However, an agricultural fence will be erected around the property boundary i.e. 10, 2001 Ha.
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Hence, a BA Process is required. An Application for Environmental Authorisation was lodged with KZN EDTEA. The acknowledgement of receipt of the application comprising the EIA Reference number was received and included for review under Appendix C Draft BAR.

## 5.2. Policy and Legislative Context

Table 7 provides a list of all applicable legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations.

**Table 7: Applicable Legislation, Policies and/or Guidelines**

<b>Title of Legislation, Policy or Guideline</b>	<b>Administering authority</b>	<b>Date</b>
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Department of Environmental Affairs	1998
Environmental Conservation Act (Act 73) – for potential environmental degradation.	Department of Environmental Affairs	1989
National Water Act (Act 36 of 1998) – for potential to cause pollution of water resources defined under the Act (Section 19).	Department of Water Affairs and Forestry	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) – for protection of agricultural resources and for control and removal of alien invasive plants.	National Department of Agriculture	1983
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of items of heritage importance.	Department of Arts and Culture (Amafa KwaZulu-Natal)	1999
EIA Regulations GNR 326 – for guidelines on the process to be followed and the format of the BAR.	Department of Economic Development, Tourism and Environmental Affairs	2017

Public Participation guideline in terms of NEMA EIA Regulations	Department of Economic Development, Tourism and Environmental Affairs	2017
National Climate Change Response Plan White Paper	Department of Environmental Affairs	2011
National Environmental Management: Waste Act	Department of Environmental Affairs	2008
National Environmental Management: Air Quality Act	Department of Environmental Affairs	2004

## 6. NEED AND DESIRABILITY

Based on a completed feasibility study in 2010 (details unknown) which focused on decisions taken regarding site selections, supply and demand of the local and international red meat market studies, operational models and shared research analysis on local livestock populations and producer trends including emerging black farmers and relevant stakeholders in KZN, the very necessary need for a modern high through-put red meat abattoir became vividly evident.

This business plan has been developed to represent the well-placed intentions of Kwa Justice Foods (Pty) Ltd to establish an accredited eco-friendly, modern, high through-put, red meat abattoir and meat processing facility within the iLembe District, KwaZulu-Natal. Since the two closest red meat abattoirs are based in Thornville, approximately 135 kilometers away from Stanger, and Eshowe, approximately 85 kilometers north of Stanger, the need for a regional abattoir came very highly recommended. These two rural, low through-put abattoirs are currently operating at near full capacity and further highlighting the growing demand for a high through-put abattoir. In addition to the above, the applicant currently has a livestock operation and over two decades of experience in the field. His knowledge of red meat supply and demand within the area has influenced his decision to embark on this project.

Given the ever increasing local and national consumer demand; the ever increasing national and regional population expansion; and a myriad of other valid supporting variables, establishing an Agri-project of this kind in KwaDukuza is long overdue. This Agri-project will bring with it sustainable economic development into the region, up to 90 employment opportunities, much needed slaughter and process facilities for emerging black livestock farmers within the iLembe District and the greater KwaZulu-Natal.

### Market Analysis: South African Consumer Trends

Red meat consumption in South Africa has expanded rapidly over the recent decades. South Africa consumes approximately 875,000 tons of beef per annum and while local production is increasing year on year, we still have a current deficit of 50,000 tons. As a result, local production needs to be complimented by the import of between 25,000 and 45,000 tons of beef, mainly from neighboring countries Botswana and Namibia.

Boneless frozen beef is the most prominent product being imported by South Africa, representing 64% of all imported beef products. Boneless frozen products are followed by fresh or chilled carcasses representing 12% and bone-in beef representing the 8% balance. However, South Africa maintains relatively high import tariffs for meat products for countries outside the Southern Africa Development Community (SADC) and the European Union. South Africa upholds a free trade agreement with SADC countries and the European Union.

Over the past two decades, steady economic growth and increased average household income in South Africa resulted in the rapid expansion of red meat consumption. During the period between 2003 and 2014 red meat consumption in South Africa

increased by 32% making available a wide range of opportunities for South African red meat producers to start profiting from. Following consultations with agricultural economists and academics, the Red Meat Produce's Organization (RPO) forecasts that there will be an increase of between 12% and 15% in the national red meat price by the end of this year, 2017. The overall view and informed opinions of all relevant authorities, economists, academics actively engaged in the red meat industry agree that strong growth in consumption across the board is guaranteed in the South African market for the foreseeable future.

The complete Needs and desirability report together with a market analysis can be reviewed under Appendix C.

## 7. CONSIDERATION OF ALTERNATIVES

Ideally, alternatives are considered to evaluate the proposed plans against the No-Go option. Alternatives to the project site selection; layout plans as well as alternatives to construction methodologies and/ or materials used for the development are evaluated. The potential impacts of the preferred alternative are then evaluated in section 10 below.

### 7.1. Motivation for the Preferred Site, Activity and Technology Alternative

The proposed development triggers Listing Notice 1, GNR 327, Activity 3 (ii); Activity 8; Activity 12 (ii) (c); Activity 28 (ii) of the EIA Regulations (2017). As per GNR 326 (2017), Appendix 1(2)(b) and 1(3)(g); alternatives for the proposed development to be identified and considered. Chapter 1 of the EIA Regulations provides an interpretation of the word "alternatives", which are options "in relation to a proposed activity, mean(ing) different means of meeting the general purpose and requirements of the activity, which may include alternatives to the-

- a) Property on which or location where the activity is proposed to be undertaken;*
  - b) Type of activity to be undertaken;*
  - c) Design or layout of the activity;*
  - d) Technology to be in the activity; or*
  - e) Operational aspects of the activity;*
- And includes the option of not implementing the activity."*

Based on the above, the following alternatives are presented for the proposed Kwa Justice Foods Agri Project:

### 7.2. Alternatives to Site Selection

It must be noted that the proposed development aims at utilising the property to its full economic potential, taking the natural as well as the socio-economic environment into consideration.

The preferred site alternative is a site that has been used historically for agricultural activities (mainly sugarcane). The site is found within a rural setting, with its adjacent land uses being a motor scrap dealer to the south and agricultural activities along the other boundaries. The site is currently not occupied by any existing buildings or development and therefore no demolition activities will be required.

The preferred site is classified into two vegetation micro-habitat communities namely sugar cane plantations and associated internal road reserves and wetlands/riparian vegetation associated with wetland systems within the study site. The Nonoti River located along the western boundary of the site, together with 2 drainage lines were noted as the only potential constraints of this site. This area has been recently classified as a modified environment, given to its high

alien invasive or pioneer species, long term anthropological disturbances and lack of floral richness throughout the entire site. Due to the transformed state of the preferred site alternative, it can be motivated as a prime choice for this development and will cause limited impacts to this site.

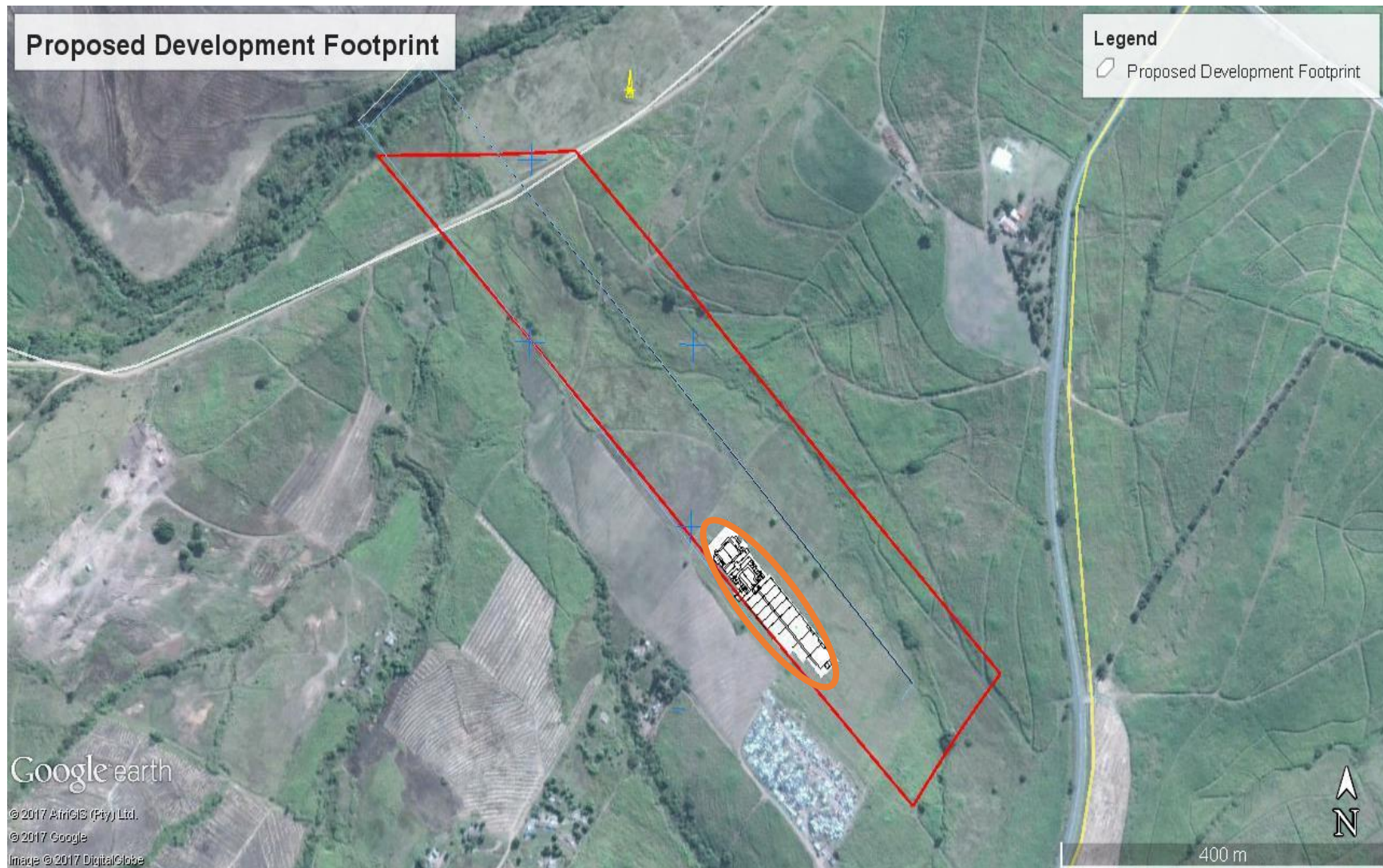
Since the applicant/ developer is in the process of taking ownership of the land, it is only feasible that the proposed development occurs within the boundaries of the property. The applicant has an existing operation about 8km from the site but this site was constrained and not suitable for the establishment of a facility of this scale. The existing Kwa Justice operation was therefore discarded as an alternative and only the site for which this application refers has been put forward.

Within the footprint of the site under consideration, positioning of the facility was investigated and alternatives explored taking into account topography, access, vehicle reticulation, process flows, civil earthworks, and environmental sensitivity. Adjustments were made following input from the specialists with the preferred development footprint indicated within Figure 13 below.

From a technology and process point of view various alternatives were considered. Plant and machinery was selected based on best economically available components and those which have low energy and water consumption ratings. Various suppliers were interviewed and visits to existing abattoirs undertaken to view the plant and machinery on offer. Sustainable design alternatives were investigated, and the facility is being future proofed to potentially accommodate photovoltaic panels. Roof sheeting alternatives were investigated, and a compatible roof sheeting system has been selected.

Various alternatives for dealing with condemned and other outputs from the process resulted in the selection of AVI as the preferred partner to remove all bloods, offal, and condemned carcasses to a rendering plant rather than to dispose via landfill.

Figure 13 below provides an indication of the location of the development as well as the proposed development footprint.



*Figure 13: Proposed Development Site and Development Footprint Circled in Orange*

## SITE PHOTOS



*Plate 1: Motor scrap dealer on adjacent land to the south*



*Plate 2: Sand mining taken place along access road*





*Plate 3: Access road*



*Plate 4: Greenfields*

## 7.3. Alternatives to Layouts and Designs

Two layout alternatives were generated by the architect, for the proposed facility. Both layouts fall well within the property's boundary. The overall footprint of 1 hectare and position of the buildings that constitute the facility remain unchanged for the two layouts, but their location within the property changes. Refer to Figures 14 and 15 below which describes the preferred alternative and alternative 1 respectively.

### 7.3.1. Preferred Alternative: Layout 1

As demonstrated in Figure 13 above the preferred alternative, layout 1, would be best suited for the development and allow for the construction of the facility to take place outside of any sensitive habitat and wetland areas. A wetland buffer of 15m has been recommended by the wetland specialist. The development footprint in layout 1 stays outside of the wetland buffer.

The following has been proposed as the preferred alternative:

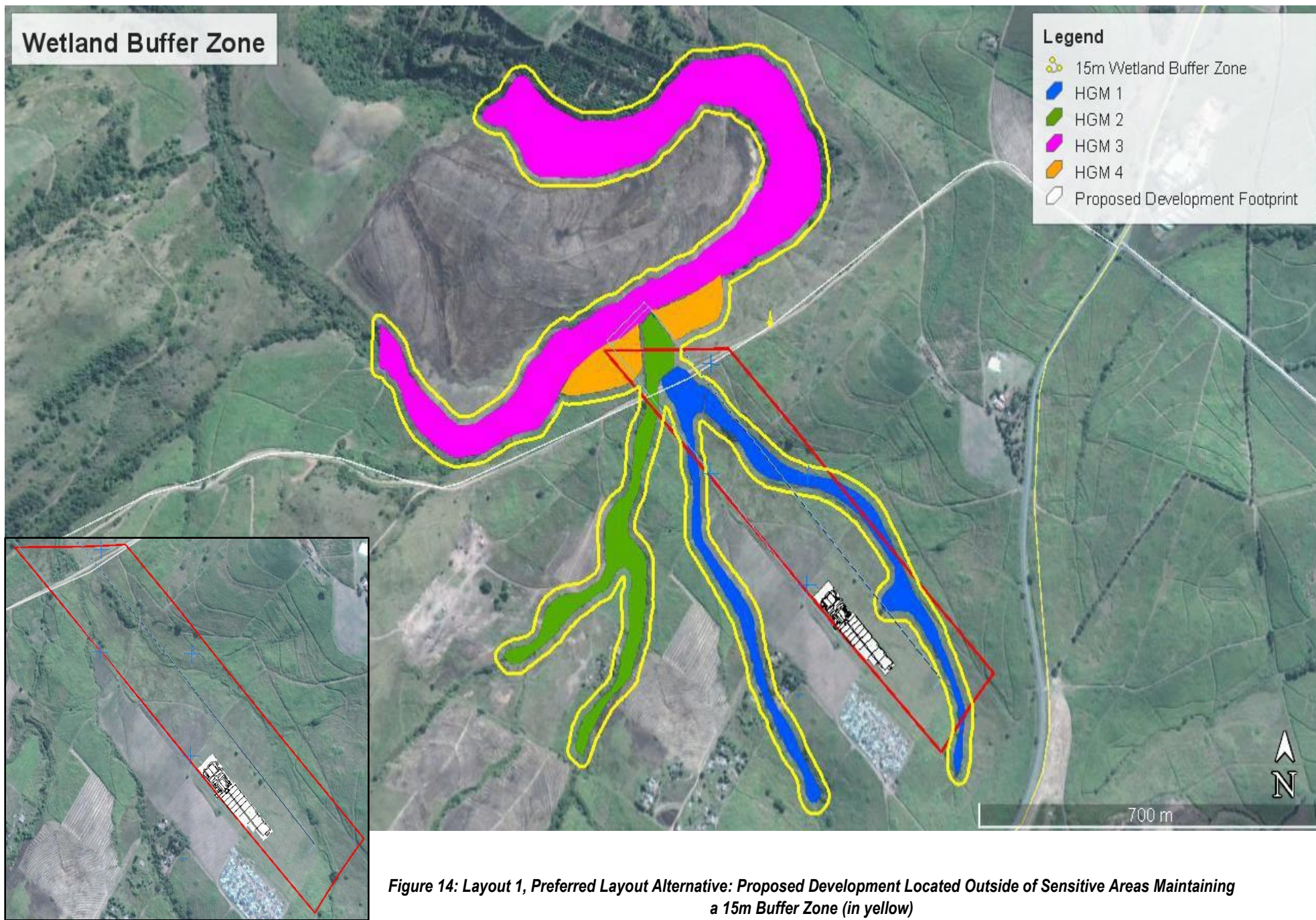
- State of the art abattoir buildings which includes:
  - A lairage/ pre-abattoir holding facility;
  - High throughput abattoir;
  - Meat processing and production facility;
  - Parking, workshop, security and ancillaries
- Open yards for holding of livestock

Additionally, a rain water harvesting system will be implemented as an option to reduce municipal demand. The entire water system will consist of three stages as follows:

- Stage 1 - Clean Hot and Cold-Water System
- Stage 2 - Rainwater Harvest and Waste Water Recover
- Stage 3 - Effluent Water Treatment Facility Filtration and Chemical Dosage

Sewage lines from the abattoir and meat processing facility as well as ablution facilities will connect to the sewage treatment and sewage tanks.

Section 4 above details the proposed plans for the Abattoir based on the preferred alternative.



### **7.3.2. Alternative 1: Layout 2**

Figure 15 below is an illustration of the proposed layout that was initially investigated (referred to as Alternative 1: Layout 2). Although the development footprint remains as 1Ha, alternative 1 falls within an area that is considered sensitive (wetland). This layout was found to be unsuitable as it would require the clearing of wetland vegetation and excavation within a watercourse of more than 10m<sup>3</sup>.

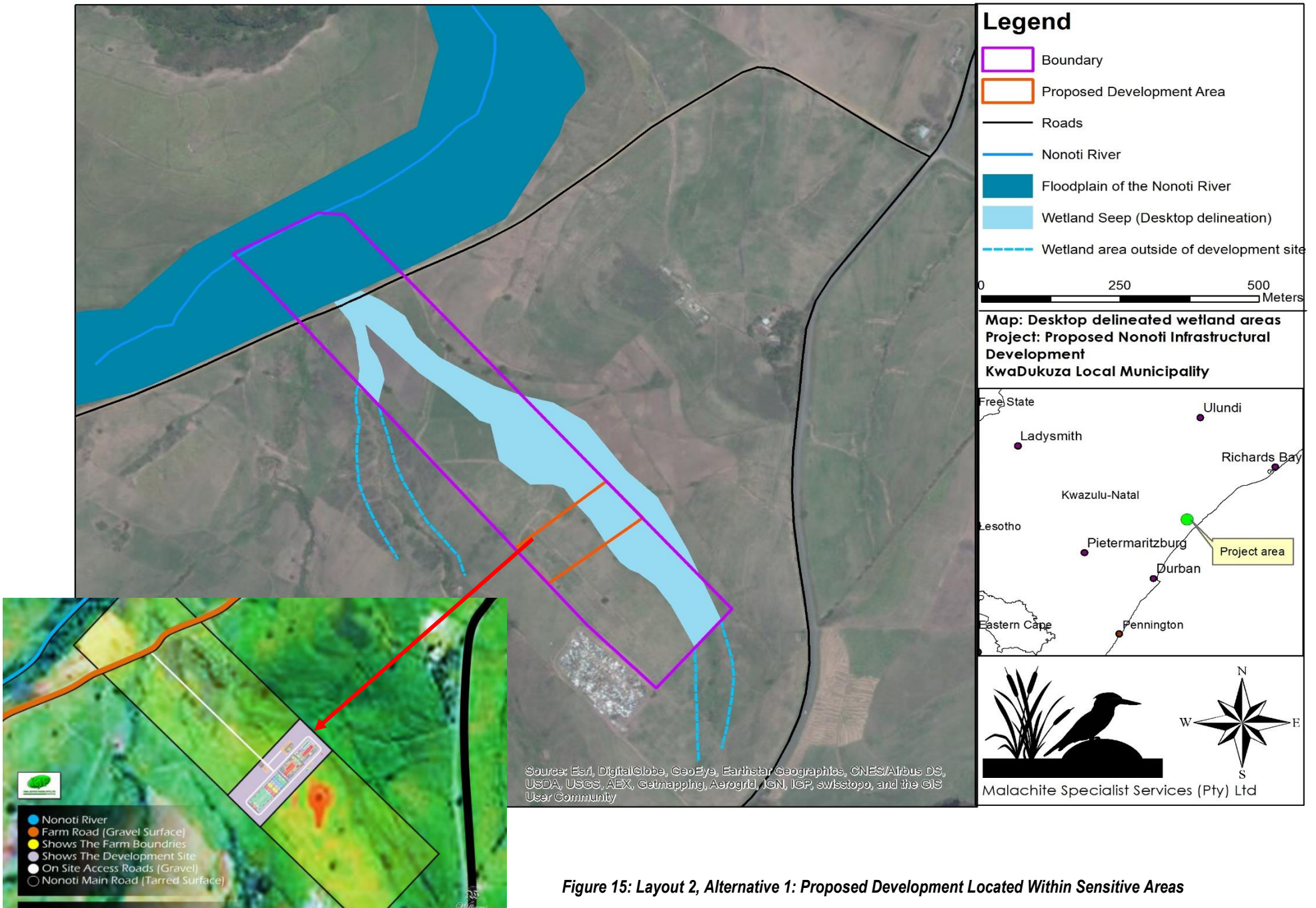


Figure 15: Layout 2, Alternative 1: Proposed Development Located Within Sensitive Areas

There is no municipal infrastructure on site. A clean water supply from the iLembe Water Main has been confirmed by the municipality. Alternative 1, (i.e. Layout 2) would comprise of:

- Clean water supply which will be brought to the client property boundary; however, it is the client's duty to make the connection from the property boundary to the facility;
- An above-ground bunded storage unit referred to as effluent tanks. Effluent tanks would be used for temporary storage which will be tanked away; and
- Conservancy tanks have been proposed for sewage. Conservancy tanks would be located above ground level. Honey suckers would then be used to remove sewage daily/ weekly. A Service Level Agreement has been obtained with Vacuflo Logistics to carry out such activities. A second Service Level Agreement will be obtained with DCLM (Dolphin Coast Landfill Management) as a precautionary measure.

**N.B. This alternative has excluded the use of a recycling unit and rain water harvesting system.**

Figure 15 below is a block layout drawing that was considered. The layout can be reviewed under Appendix C.



Table 8 below provides a summary of the Preferred Alternative and Alternative 1.

**Table 8: Summary of the Preferred Alternative and Alternative 1**

Preferred Alternative	Alternative 1
<b>Project details</b>	
The development extent is 10,2001 Hectares. The development footprint is 1 Hectare.	The development extent is 10, 2001 Hectares. The development footprint is 1 Hectare.
The abattoir facility is re-positioned and now falls outside of identified sensitive areas. A 15m buffer around the wetlands will be constantly maintained.	Drainage lines have been identified by the specialist. However, the facility appears to encroach sensitive areas.
The applicant is going to have one entry and exit from the facility and it will be located away from sensitive areas. The driveway is on the opposite side of the facility in relation to the wetland.	Four access points were considered. The applicant is going to have one entry and exit from the facility and it will be located away from any other watercourse.
As a rendering plant, Avi-Products, are willing to receive all condemned waste that will be generated from the abattoir. Vacuflor is an accredited company that is authorized to remove and dispose 8KL loads of sewer to iLembe District Municipality sewer works.	There is going to be little waste, less than 5%
<b>Number of Animals to be Processed</b>	
The abattoir will process cattle, sheep and goats. The number of cattle processed per day will be between 0 – 50 units, while for sheep and goats the number of units processed per day will be between 0 - 300. This is in line with the abattoir license and these numbers cannot be exceeded.	The abattoir will process cattle, sheep and goats. The number of cattle processed per day will be between 0 – 50 units, while for sheep and goats the number of units processed per day will be between 0 - 300. This is in line with the abattoir license and these numbers cannot be exceeded.
<b>Number of Animals Concentrated on Site</b>	
100 Animals will be housed in the lairage or pre-abattoir facility at any given time. Exact numbers will vary on any particular day.	100 Animals will be housed in the lairage or pre-abattoir facility at any given time. Exact numbers will vary on any particular day.
There is a requirement for animals to be stored in the lairage for 48 hours prior to slaughter. This is to climatise and distress the animals as this affects the quality of meat produced.	There is a requirement for animals to be stored in the lairage for 48 hours prior to slaughter. This is to climatise and distress the animals as this affects the quality of meat produced.
<b>KwaDukuza Municipality Services Connection</b>	
Electricity:  Electricity is currently on site and will be supplemented by the use of a generator, with the potential to use solar panels for power needs.	Electricity:  Electricity is currently on site and will be supplemented by the use of a generator, with the potential to use solar panels for power needs.
Sewage:  Sewage lines from the abattoir and meat processing facility as well as ablution facilities will connect to the sewage treatment and sewage tanks. The sewage tanks are steel framed tanks with a capacity of 80 000 litres. The sewage	Sewage:  Conservancy tanks have been proposed for sewage. Conservancy tanks would be located above ground level. Honey suckers would then be used to remove sewage daily/ weekly. A Service Level Agreement would have to be



tanks comprise of live digestive bacteria colonies that will deconstruct and erode sewage material, etc. The treated sewage waste and water desludging by outsourced service provider will be taken to Local KwaDukuza Municipality Treatment Works. The remains of the treated sewage water (85%) will effectively be consumed by the naturally occurring evaporation process.	obtained with DCLM (Dolphin Coast Landfill Management) to carry out such activities.
Water will be stored in bulk storage tanks above ground to provide storage for up to three (3) days if no other supply is available. Fresh cold water for domestic use will be stored in 3 x 10 000 litre tanks. The firefighting water system is contained at the bottom storage of the fresh cold-water tanks.	There will be some water storage on site
<b>Handling and Management of Waste</b>	
Animal hides to be collected by the Animal Waste Rendering Plant (AVI)	Animal hides will be taken away by local hide dealers like the Nguni Trading. This ensures daily upliftment of hides all year.
Animal horns to be collected by the Animal Waste Rendering Plant (AVI)	Animal horns are to be sold off to curio and art dealers.
Animal bones to be collected by the Animal Waste Rendering Plant (AVI)	All cattle, sheep and goat bones will be collected by the bone-meal factory located in the Northern Cape.
Animal offals to be collected by the Animal Waste Rendering Plant (AVI)	Animal offals are sold to the trade fresh and frozen.
There will be no incinerator on site. Condemned carcasses, rumen and trimmings will be collected by the Animal Waste Rendering Plant (AVI). All other solid waste such as packaging and wrapping materials, containers and cans, paper and plastic, etc. will be managed by the local KwaDukuza Municipal services.	All condemned carcasses will be managed via an onsite animal incinerator suitably sized to process sheep, goats and cattle. The on-site incinerator is equipped to handle most solid waste accrued. All other solid waste such as packaging and wrapping materials, containers and cans, paper and plastic, etc. will be managed by the local KwaDukuza Municipal services.
All animal blood derived from the processing operations at the abattoir will be collected and taken away by AVI rendering plant.	All animal blood derived from the processing operations at the abattoir will be stored in blood tanks. The bloods will consequently be filled into sealed vats/ drums and will thereafter be transported off site to the Dolphin Coast Landfill Management (DCLM) operations. DCLM is a company accredited in waste handling and management.
Rain water harvesting system and recycling unit will be implemented on site. Treated water will be re-used to reduce municipal demand. No irrigation will be taking place on site.	All effluent will be channelled into an outdoor V-type skim tank where it will receive treatment. All the water will be used to irrigate fields while the remaining sludge sediment will be vacuumed out and disposed off on a weekly basis by a honeysucker contracted from Vacuflo Logistics Desludging.

## 7.4. Preferred Technology Alternative

Eye Sizwe (Pty) Ltd, Mechanical Consulting Engineers, have been assisting the design team by providing all technical development related to the abattoir facility. Designs are based on green building standards and efficient energy systems. The project will be done in two phases:

Phase 1: Abattoir with bulk services facility

Phase 2: Meat processing factory

The following services apply:

### **Air-conditioning:**

Due to the nature of the building and its operation, only admin offices will utilise normal unitary air-conditioning. With a view to energy savings, AC units with inverter type compressors will be specified for a saving of  $\pm 60\%$  on running electricity costs.

The slaughter hall area will utilise a ducted AC system to maintain temperature 18°C to 20°C. This area will also be supplemented with an extract system for odour control. The ratio of extraction will be balanced with the fresh air input into the A/C system. Each of the hall area (Beef and Mutton) will be served by own independent AC system.

### **Specialised Air-conditioning:**

The processing and production area of the abattoir will be air-conditioned by a more specialised AC system to maintain an average temperature of 10°C. For this purpose, specialised blower coil evaporators will be utilised internally with outdoor condensers. These units will be specified with stainless steel casing, copper fins on copper coil tubes, for ensuring a longer life span of units. A minimum of 20% conditioned fresh air input into production areas will also be added.

### **Wall Structure of Specialised A/C Areas:**

Due to the low operating temperature, all internal walls and ceiling will be of an insulated panel type. Stainless steel cladding up to min of 1,5m high will be specified all along entrances and production walkways for easy washing and cleaning. Only division wall between beef and mutton, production can be plastered brick wall with stainless cladding. The different production and processing areas can also be stainless steel clad insulated wall panels.

### **Mechanical Ventilation:**

Artificial ventilation is based on National Building regulation SABS 0400. The mechanical ventilation provided will mainly be of the extraction type for cross flow ventilation and odour control. This will be confined to ablution areas, kitchen and laundry areas.

### **Abattoir – Phase 1:**

The abattoir has two separate chiller rooms and two separate freezer rooms, i.e. for Beef and mutton. The freezer room operating temperature will be -15°C to -20°C with average operating temperature at -18°C. The chiller room operating temperature will be 4°C to -2°C with average operating temp at 0°C. The walls and roof of chiller/ freezer room will be 100mm thick polyurethane injected insulated panels, clad with stainless steel for walls and chromodek for ceiling. All chiller/ freezer rooms will have overhead stainless meat rail system which starts at the stunning area up to the racking rails inside chiller/ freezer rooms, to dispatch area.

Inspection rooms for hide skins, head and feet and edible offals tripery. These rooms will be insulated cold room panel walls with a double-glazed window and cold room type access door. The holding temperature inside these rooms will be average 4°C,

hence a blower coil unit in each of these rooms. The condemned carcasses room will also be a cold room operating at 4°C for temporary holding before collection by AVI waste collection rendering plant.

### **Freezer Warehousing Finished Products – Phase 2:**

The finished products will be stored at ±18°C, in freezer warehouse before dispatch. It will be recommended that this freezer area be divided into three separate freezer rooms to serve each loading bay separately. This way the freezing temperature will be maintained without extensive loss during loading, i.e. If one bay is open, then only one freezer room holding temperature is affected. Beef and mutton can also be stored separately. Three separate dispatch freezer rooms will also be of an advantage during maintenance service or breakdown.

### **Mechanical Central Hot Water Plant**

- Provision for central hot water plant will be installed for each building separately, i.e. Phase 1 for abattoir and plant space for future Phase 2.
- Each plant will consist of storage tanks, hot water heat pumps and circulating hot water pump through a ring main.
- The heat pumps used will generate hot water between 50°C to 60°C and will provide savings of ±70% on electricity when compared to normal electric boilers.
- Total hot water storage at 60°C for daily use 3 x 6,800 litre tank = 20,400 litres

There will be 3-Off heat pump units which have an output of 1330 L/hr which constantly heat and fill storage tanks during usage.

### **Wet Services - Domestic Hot and Cold Water:**

- Based on average production of 50 large carcasses per day the water storage design for abattoir and factory, is based on ±600 L/carcass/ Day cold water.
- Domestic use based on 50 staff members at 70 L/person will be 3500 L/Day.
- Minimum water storage for over 3 x day period will be:
  - Carcasses: 30,000 x 3 = 90,000 ℓ
  - Domestic: 3500 x 3 = 10,500 ℓ
  - Hot Water: 20,400 x 3 = 61,200 ℓ
  - Fire Storage = 50,000 ℓ
  - Total 211, 700 ℓ**

3-Off tanks with 120,000 ℓ storage each, 5m x 5m x 4m each (Total Storage = 300,000 ℓ)

- Domestic hot and cold water and water for firefighting will form part of mechanical services.
- Minimum fire storage requirement will be 50,000 ℓ.
- Firefighting equipment will be provided as per national building regulation as follows: -
  - Fire hydrants @ 1 per 1000m<sup>2</sup> floor area.
  - Fire Hose Reels @ 1 per 500m<sup>2</sup> floor area.
  - Fire extinguishers @ 1 per 250m<sup>2</sup> floor area.
- The storage tanks will be of the galvanized modular type and share common storage fire and domestic use.

To supplement the above water usage, grey water will be harvested from rain and waste water. Rain water harvesting will be discussed further below.

### **Booster Pumps – Central Plant for Phase 1 and 2:**

- Domestic cold-water system will be served by a set of variable speed booster pump set, consisting of the three pumps, operating as run and stand- by. Due to the variable speed, these pumps will maintain design flow pressure but operate only to meet flow demand, hence  $\pm 70\%$  power savings on running costs. These pumps will be housed in a plant room close to water storage tanks.
- Fire booster pumps set will consist of main and jockey pump set. These will be of the electric type coupled to back up power from generator. The fire booster pump will be coupled to a fire main line serving fire hydrants and fire hose reels only. This pump can also share same plant room as domestic booster pumps.

### **Generator – Central Plant:**

- The generator selected will be 500 KVA prime power.
- The generator will serve all emergency services, chillers, freezers, production line in factory, booster pumps and essential A.C systems.
- The generator design parameters will be in line with the latest E.U. emission regulations.
- The engine will be water cooled direct coupled to alternator and arranged for operation at 400/230 Volts, 50 Hertz @ 1500 Rpm.
- The generator will be supplied with a built-in day fuel tank of  $\pm 1100$  l and under full load should run for  $\pm 11$  hours.
- The generator will also be supplied with an automatic main fail control panel complete with a solid-state controller.

### **Laundry Equipment:**

- Laundry will be essential for washing of staff overalls mainly.
- The equipment will consist of industrial washing machine, tumble dryer and a press iron.
- Wash troughs will be recommended for pre-rinse of more heavily soiled clothing and boots.

### **Meat Processing Factory – Phase 2:**

- Air-conditioning to admin offices and ventilation to ablution and staff rooms.
- Specialised layout of controlled air-conditioning at  $10^{\circ}\text{C}$  to production areas, including layout of insulated wall and ceiling paneling and plant layout.
- Specialised canopy type extraction over cooking ovens for heat and odour extraction.
- Refrigeration plant and freezer rooms.

The complete Mechanical Design Report together with the related Annexures can be reviewed under Appendix C.

## 7.5. No-Go Alternative

The No-Go Alternative is the option of not undertaking the proposed Kwa Justice Foods Agri Project. There would be no limited negative environmental implications that may have resulted from the construction phase. Based on the current needs and desirability of the area, as well as the anticipated environmental impacts to be caused by the development and operation of this facility, a no-go alternative does not seem necessary. The No-Go Alternative also takes away the potential of increasing local employment and local business opportunities. This facility will stimulate positive economic benefits across the entire value chain.

## 8. ENVIRONMENTAL ATTRIBUTES

### 8.1. Study Area

The site has historically been used for agricultural activities, mainly sugarcane. The adjacent land uses include a motor scrap dealer to the south, and a proposed religious site to the east. The study area falls within the Indian Ocean Coastal Belt Bioregion and the KwaZulu-Natal Coastal Belt Grassland vegetation type. This habitat is classified as having a high conservation value and is considered Endangered. However, due to the extensive sugar cane production within and surrounding the site, this site is unlikely to assist in supporting biodiversity communities and contributing towards the KwaDukuza Local Municipality's conservation targets. As a result, the study site is classified as having a low vegetation conservation value.

### 8.2. Climate

The KwaDukuza area is characterised by a summer rainfall pattern with periodic rainfall events in the winter months. The mean annual precipitation is approximately 973mm. The wettest time of the year is February with an average of 127mm and the driest is July with 26mm. The seasonality of precipitation is the greatest influence of flow for rivers and drainage lines within the area. Rivers and drainage lines have a higher flow rate during the summer months. Temperatures do not vary considerably throughout the year with mean maximum temperatures ranging from 32°C in January to 06°C in July.

### 8.3. Vegetation structure and composition

The study area is located within the Indian Ocean Coast Belt Bioregion. The surrounding vegetation associated with the study area is of the KwaZulu-Natal Coastal Belt Grassland vegetation type. This vegetation type is characterised by highly dissecting, undulating coastal plains and is comprised mainly of a mosaic of sugar cane fields, timber plantations, thickets, coastal thornveld and secondary *Aristida* grasslands. This topography supports natural, species rich grasslands punctuated with low shrub species and rocky outcrops. This vegetation type is considered Endangered. It is predicted that more than 50% of this vegetation type has been transformed due to cultivation, urban expansion and the development of road networks.

The study area in general is located within an area that is dominated by sugar cane production, which has impacted the grassland habitats. As a result, the development site is largely devoid of natural vegetation structure. The agricultural development has resulted in the complete removal of indigenous vegetation and replaced with monoculture. Vegetation units surrounding the development were disturbed and the vegetation structure has been further impacted by road development. Grass species identified include *Melinis repens* and *Sporobolus pyramidalis*. These are resistant grass species that commonly colonise disturbed habitats which has been noted in areas surrounding road reserves and fringes of agricultural practices. Pioneer weedy species were noted within disturbed habitats including *Taraxacum officinale* (Common Dandelion) *Sonchus asper* subsp. *asper* (Spiny Sowthistle), *Plantago lanceolate* and *Hypochaeris* ssp. Alien invasive vegetation identified within the study site included *Mangifera indica*, *Solanum mauritianum*, *Lantana camara*, *Chromolaena odorata*, *Tagetes minuta*, *Bidens bipinnata*, *Melia azedarach* (Syringa) and *Schinus terebinthifolius* (Brazilian Pepper Tree).

Portions of the site are associated with tracts of natural vegetation and a higher species richness was noted within the northern boundary of the site (as opposed to the southern portion). Large portions of the site were largely devoid of trees and tree species were in most cases confined to drainage lines associated with the wetland areas.

## 8.4. Geology and topography

The study site is associated with the Natal Group Sandstones and is dominated by the Dwyka tillite, Ecca shale and Mapumulo gneiss. Soil forms supported by these geological features are most commonly shallow over the hard, older sandstone and deeper above younger rock formations. These include Glenrosa, Mispah and Oakleaf soils as well as compact clayey soils of the Katspruit form. Erosion is typically low to moderate. The main topographical unit within the proposed study area consists of moderately undulating coastal plains and ridgelines which are characteristic of the East Coast coastal plains.

## 8.5. Biodiversity

The biodiversity of a particular area is focused on the interaction between living and non-living organisms. The study site is situated in an area that has been classified as an area that is 100% transformed. This is due to the large-scale agricultural activities and anthropogenic pressures exerted on site. The Nonoti River system is situated to the north west of the site, and thus care must be taken during the construction phase and best practice methodology must be applied to all construction activities in order to mitigate impacts on biodiversity within the Nonoti catchment.

## 8.6. Watercourses and Wetlands

There were no FEPA wetlands identified within the project area and none identified within 500m of the project area. A wetland delineation assessment was conducted and two HGM types were identified with 500m from the project boundary. The findings are further discussed in Section 12 below.

## 8.7. Heritage

A Draft BAR has been submitted to AMAFA/ Heritage KwaZulu Natali, (hereafter referred to as 'AMAFA'), the provincial heritage conservation agency for KwaZulu-Natal. AMAFA was established as a statutory body in terms of the KZN Heritage Act of 1997, replaced by the KZN Heritage Act of 2008. The proposed development is approximately 1 Ha in size therefore the development triggers Section 38 (1) (c) (i) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999). The relevant section of the NHRA states that:

*“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—*

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

*(i) exceeding 5 000 m<sup>2</sup> (0.5 ha) in extent;*

*must notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

A desktop Heritage Assessment was conducted for the project. The findings are further discussed in Section 12 below. Unless stated by AMAFA, a full Heritage Impact Assessment (HIA) will not be undertaken for the proposed development.

## 9. PUBLIC PARTICIPATION

The Public Participation Process (PPP) is a requirement in terms of the 2017 EIA Regulations of the National Environmental Management Act, 1998 (Act 107 of 1998) and it forms an integral part of any EIA process. This section provides information pertaining to the PPP that was conducted by 1World Consultants during this Basic Assessment Process. The purpose of this process is to gather information from the community and relevant Stakeholders that could ultimately affect the decision-making process concerning the planning, construction and operational phases of the proposed Nonoti abattoir. The community and public have been identified as I&APs and have been given the opportunity to participate in this process. Their comments, whether positive or negative, will influence the decision of the Authorities and the developer's final actions.

### 9.1. Objectives of the PPP

The PPP has the following objectives:

- To inform I&APs as well as all Stakeholders of the proposed development;
- To provide an opportunity for I&APs and Stakeholders to raise concerns and make suggestions;
- To promote transparency and an understanding of the project and its consequences;
- To serve as a structure for liaison and communication with I&APs and Stakeholders.

Any conclusions agreed upon must be socially, financially and technically acceptable and feasible in order to meet the requirements of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), and the vision of the propose abattoir.

### 9.2. Public Participation Process Followed

The following PPP was conducted for the proposed Nonoti Abattoir:

#### 9.2.1. Written Notifications

Interested and Affected Parties (I&APs) were identified and notified of the Basic Assessment. A Background Information Document (BID) was prepared and distributed via email and/or Post on 27 November 2017. The BID provided information on the proposed development, the site and on the process to be followed by the EAP. A copy of the BID and the distribution list is provided in Appendix D.

#### 9.2.2. Newspaper Advertisement

A newspaper advertisement was published to inform the public of the BA Process. The advertisement was published in the predominant language of the project area, English, in the Xpress Times Newspaper, on 29 August 2018. A copy of the advertisement is provided in Appendix D.

#### 9.2.3. Site Notice Boards

Site notice boards were erected on the site and in close proximity to the development site on 28 August 2018. As per Chapter 6, Regulation 41(4)(a) of 2017, the size of the notice boards was approximately 60cm by 42cm (size A2). The notice boards have been provided in English with illustrations of the plan. A copy of the site notice board and pictures are provided in Appendix D of

this Draft BAR. The purpose of the notice board is to inform the community members of the proposed BA Application and the proposed development.

Details of the EAP were also provided to facilitate public participation.

#### **9.2.4. Public Meeting**

A meeting was held on 07 December 2016 with the Ward Councilor as well as community members and representatives of Kwa Justice Foods (Pty) Ltd. A presentation was done, and it was noted that no objections were raised. The letter from councilor as well as minutes of the meeting can be reviewed under Appendix D.

No additional public meetings were requested nor required following distribution of the BID, publication of the advertisement and erection of the site notice boards up to date of distribution of Draft BAR.

### **9.3. Issues Raised by the I&APs**

Copies of the Draft BAR will be circulated to the following I&APs for review and comment:

- KZN Department of Transport
- Ezemvelo KZN Wildlife
- Department of Water and Sanitation
- AMAFA Heritage
- KZN Corporate Governance and Traditional Affairs
- Ward Councilor GJ Van Whye - Ward 3
- KwaDukuza Local Municipality (Mbali Mpanza)
- iLembe District Municipality (Khulekani Mungwe/ Ravind Lawton)
- All private I&AP's
- Commission on Restitution of Land Rights
- KZN Department of Economic Development, Tourism and Environmental Affairs (Ms. Kashrina Maritz)
- Department of Health (head office + Health District Director for Ilembe - TBC)
- Department of Veterinary Health (TBC)

All registered I&APs were notified on the availability of the Draft BAR. All I&APs were reminded that in terms of the EIA Regulations (2017), GNR 326 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the Environmental Assessment Practitioner (1World Consultants (Pty) Ltd). Should no comment be received within the 30-day commenting period, it is to be assumed that the relevant State Department has no comment to provide.

Comments received on the BID and Draft BAR are summarised below. The full report is provided as the Comments and Responses Report in Appendix D.

#### **Issues / Comments Raised Following Review of the BID:**

1. Commission of Restitution of Land Rights



Dear Sir/Madam

**REQUEST INFORMATION ON PROPERTY: LAND CLAIM**

We acknowledge receipt of your enquiry received on 27 November 2017 and advise that our records indicate that no claim for restitution in terms of the provisions of the Restitution of Land Rights Act, 22 of 1994 (as amended) has been lodged in respect of the property described as **Farm Lot 36A, No. 2618, Portion 18**.

Whilst great care is taken to verify the accuracy of the information regarding all claims, the Regional Land Claims Commission will not be held responsible for any damage or loss suffered as a result of information furnished in this regard as there are claims lodged with the Commission which are not yet captured in our database as they are not yet published in the relevant government gazette.

Regards



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**MR N. MDLULI**  
**MANAGER: INFORMATION AND RECORDS MANAGEMENT**  
**DATE: 4 December 2017**

**Issues / Comments Raised Following Review of the Draft BAR:**

No comment has been received to date.

## 10. IMPACT ASSESSMENT

All activities that are related to the proposed construction and operation of the abattoir could have some impact on the environment were identified. These impacts can be of environmental, socio-economic or cultural in nature. Impacts are often not only confined within the direct scope of the proposed activity and can accumulate as a network of indirect impacts on the surrounding area. Different impacts are associated with the construction and operational phases of the proposed activity.

### 10.1. Methodology

EIA Regulation and GNR 326 (2017) prescribes the requirements and aims of environmental impact assessments. In terms of the regulations, the following objectives are specified:

- Determine the nature, significance, consequence, extent, duration and probability of impacts; and
- The degree to which these impacts:
  - Can be reversed,
  - May cause irreplaceable loss of resources, and
  - Can be avoided, managed or mitigated

The impacts of any development including the construction and operational phases are identified, using the following definitions:

Term	Description
<b>significant impact</b>	<i>an impact that may have a notable effect on one or more of the aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.</i>
<b>cumulative impact</b>	<i>In relation to an activity, means the past, present and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.</i>

The potential impacts are listed and assessed for significance. Significance is assessed by scoring each impact based on four variables viz. probability, severity, duration and spatial impact. The four variables, with their score criteria are detailed below:

#### Frequency/ Probability (FR)

(Frequency or likelihood of activities impacting on the environment)

- 1: Almost Never / impossible
- 2: Very seldom / highly unlikely
- 3: Infrequent / Seldom
- 4: Often / Regular
- 5: daily / Highly regular

#### Severity (SV)

(Degree of change to the baseline environment in terms of reversibility of impact; Sensitivity of receptor, duration of impact and threat to environment and health standards)

- 1: Insignificant / not harmful / totally reversible
- 2: Small / potentially harmful / reversible within 05 years
- 3: Significant / slightly harmful / needs specific mitigation to reverse in a time span of between 05 and 15 years
- 4: Great / harmful / irreversible
- 5: Disastrous / extremely harmful / totally irreversible and damaging

#### **Duration (DR)**

(Length of time over which activities will cause change to the environment)

- 1: One day to a month
- 2: One month to a year
- 3: One year to ten years
- 4: Life of project
- 5: Post closure

#### **Spatial Scope (SS)**

(Geographic overage)

- 1: Activity Specific
- 2: Site specific
- 3: Area
- 4: Regional
- 5: National

The impacts are also scored taking any mitigation into consideration. The impacts are scored and scaled for significance as follows:

- **Negligible** (scoring of 3 or less) – The impact is unimportant / indiscernible and hence insignificant – little or no mitigation adequately addresses the impact.
- **Low** (scoring of 4 to 9) – The impact is of little importance since it is easily and adequately mitigated.
- **Medium** (scoring of 10 to 15) – The impact is considerable and requires adequate mitigation to reduce potential damage to the environment.
- **High** (scoring of 16 or more) – the impact is adverse and may never be adequately mitigated. The impact has a high probability of causing cumulative effects of other less significant impacts. It may be considered to be a fatal flaw of the project and requires intense consideration.

## 10.2. Impacts Identified

The impacts of the construction and operational phases for the proposed Kwa Justice Foods Agri-Project situated in Nonoti, KwaDukuza are summarised in Table 9 and 10 below.

The duration of the construction phase is estimated to take 10 months.

**Table 9: Impacts Identified and Associated Mitigation Measures for the Construction Phase**

Nature of Impact	Impact Type	Frequency		Severity		Duration	Spatial Scope	Impact Score with Mitigation	Significance
		Unmitigated	Mitigated	Unmitigated	Mitigated				
<b>CONSTRUCTION PHASE OF THE PREFERRED ALTERNATIVE</b>									
General Construction Activities	Direct	5	2	4	3	3	3	11	Medium
Clearance of Site	Direct	4	2	4	2	3	2	9	Low
Loss of Biodiversity	Direct	3	2	3	2	3	2	9	Low
Increased Traffic Frequency on Road Infrastructure	Direct	3	2	2	1	3	3	9	Low
Dust	Direct	4	3	4	3	3	3	12	Medium
Stockpiling of Topsoil Cleared Vegetation	Direct	4	2	3	2	3	2	9	Low
Erosion	Direct	3	2	3	2	3	1	8	Low
Installation and Use of Ablution Facilities	Indirect	3	2	3	2	3	2	9	Low
Cleaning of Vehicles, Equipment and Construction Areas	Indirect	4	2	3	2	3	1	8	Low
Utilisation of Resources	Indirect	3	2	2	1	3	3	9	Low
Storage and Handling of Hazardous Chemicals	Direct	4	2	4	2	3	1	8	Low
Generation of General and Domestic Waste. Generation of waste such as blood and	Direct	4	2	4	2	3	1	8	Low

condemned material									
Production of General Waste and Building Rubble	Direct	4	3	3	2	3	2	10	Medium
Storage, Mixing and Disposal of Cement and Concrete	Direct	4	3	3	2	3	2	10	Medium
Fire Risk	Direct	3	2	2	1	2	2	7	Low
Generation of Noise from Construction Vehicles and Machinery	Direct	5	4	4	3	4	3	14	Medium
Visual Impacts	Direct	4	2	4	3	2	2	9	Low
Injury to Construction Workers	Direct	3	2	3	2	3	2	9	Low
Disturbance on Heritage Resources	Indirect	3	2	3	2	3	2	9	Low

**Table 10: Impacts identified and Associated Mitigation Measures for the Operational Phase**

Nature of Impact	Impact Type	Frequency		Severity		Duration	Spatial Scope	Impact Score with Mitigation	Significance
		Unmitigated	Mitigated	Unmitigated	Mitigated				
<b>OPERATIONAL PHASE OF THE PREFERRED ALTERNATIVE</b>									
Generation of dust	Indirect	3	2	2	1	4	2	9	Low
Generation of odours at the abattoir	Cumulative	5	4	4	3	4	2	13	Medium
Storm water management	Direct	3	2	3	2	2	3	9	Low
Increase in ambient noise level as a result of operating machinery and vehicles used during operation	Direct	3	2	3	2	4	2	10	Medium
Accidental spillage of hazardous chemicals or materials, such as fuel and chlorine	Indirect	3	2	3	2	2	1	7	Low

Generation of general and domestic waste. Generation of waste such as blood and condemned material.	Direct	3	2	3	2	2	2	8	Low
Water use	Indirect	4	3	3	2	1	1	7	Low
General sanitation onsite	Direct	3	2	2	1	1	2	6	Low
Treatment of abattoir wastewater	Direct	5	4	3	2	2	2	10	Medium
Slaughtering of cows and sheep at the abattoir	Direct	5	5	2	2	1	1	9	Low
Resource use during operation	Cumulative	4	3	3	2	1	2	8	Low

### 10.3. Significance of Impacts

**Construction Phase:**

Based on the outcome of the impact assessment matrix noted in Table 9 above, the overall significance of the impacts with mitigation measures for the construction phase, is noted to be **LOW/MEDIUM** i.e. the impact is reasonable but requires mitigation to reduce potential impacts to the environment.

**Operational Phase:**

Based on the outcome of the impact assessment matrix noted in Table 10 above, the overall significance of the impacts with mitigation measures for the operational phase, is noted to be **LOW/MEDIUM** i.e. the impact is reasonable but requires mitigation to reduce potential impacts to the environment.

## 10.4. Wetland Risk Assessment

The matrix assesses impacts in terms of consequence and likelihood as per the wetland assessment. The significance of the impacts is calculated according to Table 11 below.

**Table 11: Significance ratings matrix**

Rating	Class	Management Description
1 – 55	(L) Low Risk	Acceptable as is or consider requirement for mitigation. Impact to watercourses and resource quality small and easily mitigated. Wetlands may be excluded.
56 – 169	(M) Moderate Risk	Risk and impact on watercourses are notably and require mitigation measures on a higher level, which costs more and require specialist input. Wetlands are excluded.
170 – 300	(H) High Risk	Always involves wetlands. Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve.

The risks during the construction phase were determined to be low. The risks of the operational phase were determined to vary from low to moderate. The moderate risks were identified for the risks pertaining to the deterioration of the water quality of the wetland resources. The risks were determined to be low risks after mitigation measures were applied. The treatment of water was proposed as a mitigation for reduced water quality.

Tables 12 and 13 below represent the impact matrix for the proposed project.

**Table 12: DWS Risk Impact Matrix for the proposed project.**

Aspect	Flow Regime	Water Quality	Habitat	Biota	Severity	Spatial scale	Duration	Consequence
<b>Construction Phase</b>								
Alteration to flow volumes	2	2	2	2	2	1	2	5
Alteration of patterns of flows (increased flood peaks)	2	1	2	2	1,75	1	2	4,75
Increase in sediment inputs & turbidity	2	1	3	2	2	1	2	5
Inputs of toxic heavy metal contaminants	1	2	1	1	1,25	1	2	4,25
<b>Operational Phase</b>								
Alteration to flow volumes	2	1	2	3	2	1	4	7
Alteration of patterns of flows (increased flood peaks)	2	1	2	1	1,5	1	4	6,5
Increase in sediment inputs & turbidity	2	2	3	2	2,25	1	4	7,25
Increased nutrient inputs	1	2	2	2	1,75	2	4	7,75
Inputs of toxic organic contaminants	1	3	1	2	1,75	3	4	8,75
Alteration of acidity (pH)	1	2	1	2	1,5	2	4	7,5
Increased inputs of salts (salinization)	1	2	1	2	1,5	3	4	8,5
Pathogen inputs (i.e. disease-causing organisms)	1	3	1	2	1,75	3	4	8,75



**Table 13: DWS Risk Impact Matrix for the proposed project.**

Aspect	Frequency of activity	Frequency of impact	Legal Issues	Detection	Likelihood	Sig.	Without Mitigation	With Mitigation
<b>Construction Phase</b>								
Alteration to flow volumes	2	2	1	2	7	35	Low	Low
Alteration of patterns of flows (increased flood peaks)	2	2	1	1	6	28,5	Low	Low
Increase in sediment inputs & turbidity	2	2	1	2	7	35	Low	Low
Inputs of toxic heavy metal contaminants	2	2	1	2	7	29,75	Low	Low
<b>Operational Phase</b>								
Alteration to flow volumes	2	2	1	2	7	49	Low	Low
Alteration of patterns of flows (increased flood peaks)	2	2	1	2	7	45.5	Low	Low
Increase in sediment inputs & turbidity	2	2	1	2	7	50.75	Low	Low
Increased nutrient inputs	2	3	1	2	8	62	Moderate*	Low
Inputs of toxic organic contaminants	3	3	1	2	9	78.75	Moderate*	Low
Alteration of acidity (pH)	2	3	1	2	8	60	Moderate*	Low
Increased inputs of salts (salinization)	2	3	1	2	8	68	Moderate*	Low
Pathogen inputs (i.e. disease-causing organisms)	3	3	1	2	9	78.75	Moderate*	Low

## 11. MITIGATION MEASURES

Construction Phase
<p>Wetland – Clearing of areas for infrastructure; Excavations for foundations; construction of infrastructure; site stormwater management; establishment of access routes; operation of vehicles on site; stockpiling of soils; and laydown yards.</p> <p>The following must be applied to the wetland ecosystem – Abattoir mitigation measures</p> <ul style="list-style-type: none"> <li>• A large amount of water is used for hygiene reasons in animal processing operations, producing large amounts of wastewater that must be treated. The proposed closed water system must be implemented to limit the risk of contamination. No water will be discharged into the natural environment.</li> <li>• The primary and secondary wastewater treatment systems, as per design, must be implemented and maintained with regular monitoring.</li> <li>• The handling of effluent from the abattoir should be disposed of in a sustainable manner with the separation of different materials and use of suitable disposal facilities.</li> <li>• Grease and solid traps with suitable grease removal facilities should be installed upstream of major collection sumps.</li> <li>• Blood should not be dumped informally and the authorised service provider will ensure this, monitoring must be in place.</li> <li>• There should be a full examination of process by-products and wastes to identify options for waste minimisation. In some cases, substituting raw material may lead to changes in the process. Often, re-using or recycling by-products reduces waste production. Recovering valuable materials from waste streams can be economically and environmentally sensible.</li> <li>• Techniques and procedures to integrate all waste management options should be adopted wherever possible. A beneficial re-use strategy should be initiated after the waste management strategy.</li> <li>• Cleaner production and waste minimisation aims directly at the source of the waste generation and attempts to eliminate waste before it is produced, or to reduce the amount generated. Wastes should be disposed of only after all preventive and minimisation measures have been taken.</li> <li>• Using high pressure water hoses for washing waste must be incorporated to minimise the amount and therefore the cost of water used.</li> <li>• A recycling program should be implemented for all relevant materials, and awareness around this must be included in an induction program.</li> <li>• Disposal of carcasses must be arranged, and no carcass may enter the natural environment and watercourses.</li> <li>• Final flow from septic tanks should be discharged to a municipal sewer line and not to the natural environment; where there is no sewer line, an appropriate disposal plan will be required and implemented.</li> <li>• Condemned meat products that have been trimmed free of transmittable pathogens can be sold as animal food to zoos or similar.</li> <li>• Stormwater can become contaminated when it comes into contact with animal holding pens, sludge stockpiles and treated wastewater irrigation areas. This contaminated stormwater can have detrimental environmental effects on surrounding ecosystems and should be kept from making contact with such areas. Clean stormwater must be kept away from the contaminated areas and directed to the stormwater drainage system.</li> <li>• No livestock may be allowed from within the wetland area as they cause excessive erosion and bank collapse through trampling of vegetation and soils.</li> <li>• Livestock should be confined to designated areas.</li> </ul>

The following measures apply to the wetland ecosystems – General mitigation measures

- The recommended buffer zones should be strictly adhered to. Buffer areas must be visibly demarcated and managed as No-Go areas.
- The stormwater management design for the area must be evaluated to ensure that dirty water does not flow from the site to wetland areas.
- Construction areas should be demarcated, and wetland areas marked as “restricted” in order to prevent the unnecessary impact too and loss of these systems.
- Sediment trapping berms and temporary erosion control measures must be implemented during the construction phase.
- During the construction phase vehicles and machinery must make use of existing access routes, before adjacent areas are considered for access. Should access routes be required, these must be placed beyond wetland areas and buffer zones.
- Laydown yards, camps and storage areas must be beyond the water resource areas and associated buffers where applicable.
- During construction contractors used for the project must have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.
- 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”.
- Have action plans on site, and training for contractors and employees in the event of spills, leaks and other impacts to the aquatic systems.
- Temporary and permanent erosion control methods may include the use of on-site debris and felled trees which can be placed between the wetlands and working areas.
- 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.
- All the wetland areas in the project area must be rehabilitated and maintained.

General construction activities - Potential harm to the environment due to workers or contractors being unaware of how their activities may impact the environment or due to unauthorised access to the site.

- The contractor is to ensure that all employees, including sub-contractors and their employees, are required to attend on-site Environmental Awareness Training prior to commencing work on site.
- Follow-up Environmental Awareness Training may be required from time to time as new subcontractors or crews commence work or for specific activities that may potentially impact the environment, or if work is being undertaken in sensitive environments.
- The contractor is to maintain accurate records of any training undertaken.
- Training is to cover all aspects of the EMP, procedures to be followed, the sensitivity of the site and importance of adhering to “no-go” areas.
- The ECO shall monitor the contractor’s compliance with the requirement to provide sufficient environmental awareness training to all site staff.

- Environmental signage is to be displayed on the site including – “no smoking”, “fire hazards”, etc.
- Emergency numbers are to be clearly displayed.
- Access to fuel and other equipment stores is to be strictly controlled.

Clearance of site – Loss of degraded vegetation during site clearance and potential disturbance of natural vegetation on No-Go areas.

- Scouring, erosion or sedimentation of the wetland must be prevented.
- Acceptable construction, maintenance and operational practices are to be followed.
- Before any construction takes place the proposed area for the abattoir construction will be pegged out. All construction activities will be limited to these areas in order to reduce the footprint of the proposed activity and avoid impact on adjacent natural vegetation and animal life.
- Construction areas should be fenced off or demarcated prior to and during construction.
- Site clearing is to be limited to only the area necessary for carrying out the specified works.
- “No-go” areas prior to earthworks commencing and are to be protected for the duration of the construction phase.
- The contractor is to draw up a plan for submission to the ECO and the abattoir manager indicating the locations of construction infrastructure including the site-camp, paint or cement cleaning pits, toilets, site office, and “no-go” areas.
- All demarcation is to be regularly maintained.
- All sensitive environments or “no-go” areas are to be demarcated with danger-tape or temporary barrier fence.
- No unauthorised entry, stockpiling, dumping or storage of equipment in “no-go” areas, or outside the site boundary is permitted.
- All construction activities, plant, labour and materials are to be restricted within the site boundary.
- Should the only means of completing specified work be to enter “no-go” areas, authorisation must be provided in writing by the ECO.
- Demarcation is to remain in place for the duration of the work on site.
- Disturbed areas should be rehabilitated once the construction activities have ended.

Loss of Biodiversity – The area of biodiversity concern is the wetland area and immediate margins where there are indigenous trees.

- With the correct supervision and implementation, it should be possible to ensure that these areas remain undisturbed by the works.
- Disturbance and habitat loss must be kept to a minimum.
- All trenches must be clearly demarcated and barricaded on site at all times.
- Care must be taken to keep soils stabilised when removing vegetation during construction and as part of alien plant eradication and strict on-site soil erosion measure must be implemented.
- Topsoil must be stockpiled for eventual return during top soil back-filling and rehabilitation. These must be weed free and must not stand for a prolonged period of time.
- Sub-soil and topsoil must be stored separately onsite.
- Trenches must have one sloped side to allow animals which fall in to get out.
- Trenches must be checked daily while open for animals which may be unable to get out.
- Any animals found must be returned uninjured to suitable safe habitat.
- Hunting and trapping of any animals by staff must be prevented. This includes reptiles which must be handled by a professional.
- A pre-construction walk-through must be implemented by the ECO. This will be used to identify any species of

conservation importance that may have occupied the site after the compilation of this report.

- Should any species be found that are protected, either provincially or Nationally, the correct permit should be applied for in advance and the conditions of those permits should be followed to prevent or offset impacts during construction.
- The ECO must supply the Contractor with list a list of problematic alien invasive plant species that are likely to occupy the site during construction.
- Regular Environmental Toolbox Talks must be implemented by the Contractor on site
- Noise levels including vibrations caused by drilling must be kept to a minimum to prevent animals abandoning nearby habitats.

Increased traffic frequency on road infrastructure - Potential wear of access roads, potential accidents on access roads, potential unpermitted transport of materials and potential loss of materials being transported on the access roads.

- Ensure that all construction vehicles using adjoining roads are roadworthy.
- All loads are to be securely fastened when being transported.
- All speed limits and other traffic regulations on the public roadways must be adhered to.
- Construction vehicles and personnel must adhere to business hours. This may be relaxed to accommodate abnormal vehicles so they may not hinder daily life and/or regular traffic.
- Construction vehicles to use predetermined and agreed routes to and from site.
- Pointsmen to guide traffic for entry and exit of construction vehicles must be used where required.
- Safety measures such as appropriate pavements, speed humps, signage boards for construction site and vehicles and for workmen will be implemented to slow down traffic within the development.
- Construction phase must be as short as possible. Reliable building contractors must be employed to avoid delays.
- The site must be watered regularly to minimise dust. Vegetation must be removed as and when required only.
- Vehicles must park on demarcated site only.

Dust - Construction activities and vehicles travelling to and from the site will result to the generation of dust as a result of cleared vegetation and from the increase in vehicle frequency.

- All areas impacted by construction shall be regularly maintained including roads and pavements.
- Dusty roads on dry windy days must be watered to prevent excessive dust generation.
- Speed bumps or traffic speed signs need to be erected to reduce speeding onsite, which could result in the generation of dust.
- Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for 'cleaner' exhaust emissions.

Stockpiling of topsoil and cleared vegetation - Potential loss of valuable topsoil due to inadequate stockpiling practices; potential loss of indigenous vegetation; potential erosion of cleared areas.

- Before any construction takes place the proposed area for construction will be pegged out. All construction activities will be limited to these areas.
- Topsoil is to be stockpiled in discrete areas and retained for future landscaping efforts.
- Topsoil stockpiles shall not exceed 2m in height and shall be protected from wind, erosion and runoff by covering with a suitable fabric approved by the ECO. Once earthworks are complete, disturbed areas are to be re-vegetated or rehabilitated.
- Cleared indigenous vegetation can be stockpiled separately for possible reuse in later rehabilitation or landscaping, or as a brush pack for erosion prevention.
- Stockpiles of vegetation are only to be located in areas approved by the ECO and may not exceed 2m in height.

Methods of stacking must take cognizance of the possible creation of a fire hazard.

- No burning of stockpiled vegetation is permitted.
- The contractor is to ensure that all reasonable measures are taken to limit erosion and sedimentation from construction activities. Erosion protection measures include the use of sand bags and/or berms.
- Any sub-soil or rocks removed should also be stockpiled separately and be used during the rehabilitation.
- Once the construction activities have been completed, the remaining disturbed area must be top soiled, sloped and re-vegetated as soon as possible using suitable grass species. This re-vegetation will assist in reducing the potential of erosion. If sterilization of the topsoil during stockpiling has occurred inorganic fertilizers will be used to supplement the soils before seeding of the area takes place. Compacted soil should be ripped to ensure effective re-vegetation.

Erosion – Risk of erosion is greatest in areas with steep side slopes. These are generally located towards the middle of the alignment.

- Minimise the extent of disturbance in high risk areas. This is probably best achieved through hand excavation and backfilling of trenches. Otherwise strict control and use of the smallest machines possible should occur.
- Ensure that work progresses, and trenches are backfilled rapidly. The opening of small sections of trench at any one time should help to ensure that this occurs.
- Ensure that work occurs during dry periods and that appropriate erosion protection (sand bags, berms, etc.) is used to protect the works during wet periods.
- Soil management and rehabilitation is also important in order to ensure that vegetative cover establishes over the backfilled trench/ disturbed areas as rapidly as possible.

Installation and use of ablution facilities - Potential unsanitary conditions on site, potential surface- and ground- water contamination and potential soil contamination.

- Sufficient ablution facilities shall be provided – minimum of 1 toilet per 20 workers.
- Toilets should have properly closing doors and supplied with toilet paper.
- The location of toilets must be approved by the ECO prior to site establishment, but shall be located within 100m of any work front and 50m from the edge of a wetland.
- Chemical toilets are to be serviced weekly. The contractor is to ensure that no spillage occurs and that the contents are removed from site according to approved methods.
- Chemical toilets are to be emptied prior to temporary site closure for a period longer than 4 days.
- Clean storm water must be kept away from areas where it could be contaminated and must be directed to the storm water drainage system.

The cleaning of vehicles, equipment and construction areas - Potential soil, surface water and ground water contamination due to contaminated wash water.

- No washing of vehicles or equipment is permitted on site.
- Cleaning of equipment is to take place within designated areas.
- A dedicated cleaning area is to be demarcated to facilitate washing of all cement and painting equipment.
- No wastewater may be disposed on site, onto the soil or into any water body.
- Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site.
- Clean stormwater must be kept away from areas where it could be contaminated and must be directed to the stormwater drainage system.

Utilisation of resources such as electricity, water, oil, grease, fuel and construction materials - Potential wastage of valuable resources due to inefficient or redundant usage. Potential wastage of water and depletion of water resource as a result of poor

management.

- Regular maintenance and inspection of equipment, such as water pipes, to prevent leaks.
- Regular site inspection by supervisors.
- Proper environmental training and awareness.
- Leaking water taps and hosepipes are to be repaired immediately.
- Running water taps and hosepipes are not to be left unattended.
- Unused water standpipes are to be buried to prevent damage and resultant water leaks.
- Taps are to be attached to secured supports and used in preference to standpipes with no valve mechanism to open and close water supply. All hose and tap connections are to be fitted with correct and appropriate plumbing fittings.

Storage and handling of hazardous chemicals, including fuel - Potential hazardous chemical spills, resulting from incorrect management of resources, can cause soil, surface water and groundwater pollution.

- Proper handling, storage and disposal of hazardous chemicals. All fuels and flammable materials are to be handled safely, stored safely and clearly labelled.
- Flammable materials are to comply with standard fire safety regulations.
- Drip trays must be used to collect spillage from equipment, vehicles and plant. These should be emptied regularly into secondary containers.
- Fuels and flammable materials are to be handled in a safety conscious manner.
- If refueling on site or from drums, the ground must be protected, and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.
- All fuels and flammable materials are to be stored safely and clearly labeled.
- Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed on fuel stores and tanks.
- All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids.
- Fuel and flammable materials are to be kept under lock and key at all times and are to be stored at a central, easily accessible location.
- Storage areas for fuels and flammable materials are to comply with standard fire safety regulations.
- Adequate fire-fighting equipment shall be available close at hand and no smoking is permitted within the vicinity of storage areas.
- All personnel handling fuels and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).

Generation of general and domestic waste. Generation of waste such as blood and condemned material - The potential pollution of soil, surface water and ground water due to hazardous waste spills.

- All blood and condemned material will be taken off-site by AVI to a rendering plant.
- Equipment and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site.
- Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants.
- Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. Oil and diesel spills are considered hazardous. Disposal of such contaminants should be done appropriately.
- Appropriate equipment to deal with fire or pollution incidents is to be readily available on site. This includes fire

<p>extinguishers, spill kits for hydrocarbon spills, drip trays for plant or machinery leaks, drums or containers for contaminated water and drip trays for minor hydrocarbon spills.</p> <ul style="list-style-type: none"> <li>• Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site.</li> </ul>
<p>Production of general waste and building rubble - Soil, surface water and ground water contamination due to general waste generated.</p> <ul style="list-style-type: none"> <li>• Refuse skips can be used but also need to be covered with shade cloth to ensure the containment of waste.</li> <li>• Refuse bins shall be provided for domestic waste (lunch litter) and placed in designated eating areas and any other areas where deemed necessary to control littering.</li> <li>• Refuse bins are not to overflow and are to be emptied regularly. No littering is permitted on site.</li> <li>• Building rubble is to be kept separate from other construction waste. Rubble is to be kept clean of brick ties, plastics, papers and cement bags at all times.</li> <li>• Rubble stockpiles and refuse structures shall be positioned to permit easy access by removal trucks.</li> <li>• Accumulation of large stockpiles of rubble and waste is not permitted. Waste is to be removed at regular intervals at a minimum frequency of once a week.</li> <li>• All waste is to be disposed of at approved landfill sites, no burning or burying is permitted.</li> <li>• The contractor shall delegate a specific waste management job description to an individual or team if directed by the ECO.</li> </ul>
<p>The storage, mixing and disposal of cement and concrete - Potential water and/or soil pollution due to incorrect management of concrete and cement.</p> <ul style="list-style-type: none"> <li>• No mixing of concrete or cement directly on the ground is permitted. The mixing of concrete will only be done on a mixing try or on impermeable sheeting.</li> <li>• Ready-mix trucks are not permitted to clean chutes on site. Cleaning into foundations or a dedicated cleaning pit is permitted.</li> <li>• Bricklayers and plasterers are to minimise any cement spill or runoff in their work area and are to ensure that the work area is cleaned of all cement spillage at the end of each workday.</li> <li>• Both used and unused cement bags are to be stored in weatherproof containers so as not to be affected by rain or runoff.</li> <li>• Contaminated soil resulting from concrete or cement spills, including residue produced by the washing of cavities, is to be removed immediately after the spillage has occurred and placed on the appropriate rubble stockpile.</li> <li>• Runoff from the washing out of wall cavities is to be contained against the building by excavations of berms around the foundations.</li> <li>• Clean stormwater must be kept away from areas where it could be contaminated and must be directed to the stormwater drainage system.</li> </ul>
<p>Fire risk - Potential disturbance of natural vegetation surrounding the proposed site as a result of runaway veldt fires caused by workers or contractors.</p> <ul style="list-style-type: none"> <li>• Basic fire-fighting equipment is to be placed at strategic locations on site (e.g. at the site office, flammable material store and watchman's container).</li> <li>• Equipment is to be maintained in good working order to the satisfaction of local fire authorities.</li> <li>• No open fires are permitted. A dedicated braai facility may be permitted in an area approved by the ECO, if the campsite is in close proximity to firefighting equipment. At no time is a braai fire to be left unattended.</li> <li>• Smoking is prohibited near places where any readily combustible or flammable materials are present. Notices are to be</li> </ul>



prominently displayed prohibiting smoking in such areas.

- Welding, flame cutting and other hot work is only to be undertaken in places where the necessary safety precautions are in place (i.e. not near potential sources of combustion and with a fire extinguisher immediately accessible).
- All flammable materials are to be stored in a suitable, lockable storage area.
- Combustible materials may not accumulate on the construction site.
- Cooking is to be restricted to bottled gas facilities in designated areas approved by the ECO. This facility is to be supervised and strictly controlled.
- Fire extinguishers must be readily available.

Generation of noise from construction vehicles and machinery - Potential disturbance or nuisance to neighbours as a result of the increase in ambient noise from construction vehicles and machinery.

- The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).
- Personnel must be trained in etiquette regarding noise and trespassing, as well as in health issues and occupational safety.
- Regular maintenance of vehicles and equipment.
- All plant and machinery are to be fitted with adequate silencers.
- Working hours should be restricted to daylight hours.
- Working procedures should be structured so as to avoid the unnecessary generation of noise.
- No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site.
- No loud music is allowed on site and workers must always be aware of disturbance to neighbours.
- If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the abattoir manager.
- No noisy work is to be conducted over the weekends or on religious public holidays.
- Route construction related traffic along roadways that will cause least disturbance.
- A registered contractor providing a project schedule must be employed. Penalties for extending the timeline could be enforced to try and minimise the period of impact.

Visual impacts – an untidy site is visually unappealing. The site is located below road level. There aren't many, if any, sensitive receptors close by for visual impact to be considered high significance. However, the following must be noted during the construction phase:

- The site must be well maintained and neat.
- The contractor must adhere to project schedule in order to minimise the length of the construction period.
- Inspections of the site by an Environmental Control Officer are required.
- Upon completion of the repair and maintenance activities undertaken during the operational phase, the site must be well maintained and neat.

Injury to construction workers – Occupational safety, security and health for construction workers and the general public. Although construction will be undertaken by a qualified contractor, the following must be noted:

- Nearby residents should be made aware of the works.
- Trenches should not be left open and unmarked.
- Appropriate barricades and signs should be used where necessary.
- All relevant Health and Safety legislation as required in South Africa should be strictly adhered to. This includes the

Occupational Health and Safety Act.

- Implementation of safety measures and work procedures.
- The engineer shall have the right to order the immediate removal from the site of any plant which he may deem to be unsatisfactory for the proper execution of the work.
- Fire safety measures must be included in the design of the facility. Fire safety equipment must be provided on site during construction.
- First aid kits are required on site as well as an incident records file.
- Construction related vehicles must adhere to speed limits of the surrounding roads and a limit of 20km/hr on site.
- Safety gear including hard hats and safety shoes must be provided and worn at all times while on site.
- Emergency numbers must be clearly visible on site.
- Trespassing and/or utilising the site as a thorough fare is prohibited by unauthorised persons.
- Contractor staff are prohibited from trespassing over the site boundaries.
- Interaction with objecting parties at the site must be well documented. A complaints register must be readily available on site. Interaction with external parties must be courteous.

Disturbance on Heritage Resources – Resources of heritage significance such as grave sites and buildings older than 60 years of age must be maintained during construction as per AMAFA, the heritage agency.

- For any chance finds, such as archaeological sites, graves, etc., all work must cease in the area affected and the Contractor must immediately inform the Project Manager or Environmental Control Officer (ECO). A registered heritage specialist must be called to site for inspection. The relevant heritage resource agency (AMAFA) must also be informed about the finding.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Written permission (permits) must be obtained from AMAFA if heritage resources, including graves, are to be removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area to be protected by a 3m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Should any remains be found on site that could potentially be human remains, the South African Police Service as well as AMAFA must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.
- If there are chance finds of fossils during construction, work in the area of the find must be stopped and a palaeontologist must be called to the site in order to assess the fossils and rescue them if necessary (with an AMAFA permit). The fossils must then be housed in a suitable, recognized institute.

Socio Economic Impacts – Job creation and possible economic benefit to construction material suppliers in the area.

- Community members, leaders and taxi associations must be notified as soon as possible by posting notice boards with illustrations on site.
- Local people must be employed where possible.
- Traditional leaders and/or ward councilors must be involved in the public participation and they will aid in appeasing the community.

Operational Phase
<p>Generation of dust - Accumulation of dust. However, the site will be hardened and paved.</p> <ul style="list-style-type: none"> <li>• Livestock to be on grassed areas.</li> <li>• The access road will be upgraded; therefore, generation of dust will be minimal.</li> <li>• A water bowser can be used onsite to water down dusty roads on dry windy days should it be necessary.</li> <li>• Speed bumps or traffic speed signs need to be erected to reduce speeding onsite that could result in the generation of dust.</li> </ul>
<p>Generation of odours at the abattoir – Potential social impact due to nuisance caused by odours generated. Odours from operations and environmental contamination of the surrounding environment from organic waste and blood.</p> <ul style="list-style-type: none"> <li>• Airtight bags and bins should be used.</li> <li>• Good housekeeping should be maintained.</li> <li>• All waste needs to be removed frequently.</li> <li>• Waste will be removed by the municipality and taken to KDM waste water treatment facility once every week.</li> <li>• Blood and waste water will drain into the recycling unit and the remains such as carcasses, will be taken by Av-Products.</li> <li>• Establish appropriate emergency procedures for accidental contamination of the surroundings. Waste recycling has been incorporated into the facility's operations and should be maintained regularly. Designate a secured, access restricted, sign posted room for the storage of potentially hazardous substances such as herbicides, pesticides dips and medications.</li> </ul>
<p>Storm water management - Potential pollution, siltation and erosion.</p> <ul style="list-style-type: none"> <li>• All reasonable measures should be taken to ensure-           <ul style="list-style-type: none"> <li>○ The stability of the wetland is not detrimentally affected;</li> <li>○ Scouring, erosion or sedimentation of the wetland is prevented.</li> </ul> </li> <li>• Clean storm water must be kept away from areas where it could be contaminated and must be directed to a storm water drainage system.</li> <li>• Storm water measures will be inspected on a regular basis in order to ensure that the structures are functional and not causing soil erosion.</li> <li>• The storm water drainage system must be maintained and not contaminated by other waste sources. Storm water must be kept separate from the wastewater treatment system.</li> <li>• Placing of erosion prevention structures or vegetation to reduce water velocity at concentration points within the drainage system.</li> </ul>
<p>Increase in ambient noise level as a result of operating machinery (e.g. conveyors) and vehicles used during operation - Potential noise pollution, potential nuisance due to noise, potential disturbance of feeding or breeding animals.</p> <ul style="list-style-type: none"> <li>• Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment.</li> <li>• Make sure that the workers on site stick to the prescribed working hours.</li> <li>• Maintain a dB reading of less than 50dB at the site boundary.</li> <li>• Keep equipment in good repair and attend to loose or rattling covers, worn bearings and broken equipment.</li> </ul>
<p>Accidental spillage of hazardous chemicals or materials, such as fuel and chlorine - Potential soil surface water and/or ground water contamination.</p>

- Proper storage of chemicals in a lockable, well ventilated building.
- Storage areas for hazardous chemicals are to comply with standard fire safety regulations.
- Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals.
- Adequate fire-fighting equipment shall be available close at hand and no smoking is permitted within the vicinity of storage areas.
- Chemicals are to be properly labeled and handled in a safety conscious manner.
- All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).
- Limited access to the storage areas.
- Bunded walls to retain possible spillages.
- The removal of only the daily-required amount of chemicals to be used.
- If refueling on site or from drums, the ground must be protected, and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.
- Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis.
- Spill kits should be readily available.

Generation of general and domestic waste - Potential pollution of soil, surface water and/or groundwater by waste generated onsite.

- The Service Manager should ensure that waste containers are provided for the collection of general waste at various points on the premises.
- Installation of sufficient waste bins and skips where necessary.
- All containers shall be kept in a clean and hygienic manner.
- Storage containers shall be stored in a manner that prevents the harboring of pests.
- Training of staff in proper hygiene.
- Frequent (weekly) collection of waste in bins.
- Disposal of waste at the municipal landfill site.

Generation of hazardous waste, such as blood and condemned material - Potential pollution of soil, surface water and/or groundwater by hazardous waste generated onsite.

- Material destined for the rendering plant are to be sealed.
- Proper storage of manure, condemned material and unwanted material destined for the rendering plant or other disposal method away from surface water bodies and boreholes.
- Condemned material must be placed in locked bins and sent to a licensed rendering plant.
- Blood will be taken to a licensed rendering plant i.e. AVI. Care must be taken to avoid spillages. Any spills must be cleaned immediately.
- Soil and faecal matter must be collected and stored in rendering plant containers and sent to a licensed rendering plant.
- Pipes transporting abattoir wastewater must be checked for leaks and regularly maintained.

Water use - Potential wastage and/or pollution of water.

- Contaminated water should be efficiently treated and re-used where possible.

<ul style="list-style-type: none"> <li>• Clean storm water must be kept away from areas where it could be contaminated and must be directed to the storm water drainage system.</li> <li>• All chemical storage areas must be situated on impermeable concrete floors with bunding capable of containing 100% of any spillage.</li> <li>• Treated abattoir wastewater should be re-used at the abattoir as far as possible and as permitted by the salinity levels of the water.</li> <li>• Leaking taps and hose pipes are to be repaired immediately.</li> <li>• Running water taps and hosepipes are not to be left unattended.</li> </ul>
<p>General sanitation onsite - Potential surface and/or ground water contamination.</p> <ul style="list-style-type: none"> <li>• Ablution facilities should be maintained to prevent or minimise blockage and leakages.</li> <li>• Sewerage systems should be kept separate from storm water system.</li> <li>• Awareness of the importance of proper hygiene should be created among employees.</li> <li>• Toilets should have properly closing doors and supplied with toilet paper.</li> </ul>
<p>Treatment of abattoir wastewater - Potential pollution of surface and ground water resources as well as natural pans.</p> <ul style="list-style-type: none"> <li>• Anaerobic tanks must be designed to have long enough retention periods so that a satisfactory level of breakdown can occur.</li> <li>• The treatment works must be designed carefully so that overloading does not occur.</li> <li>• No water will be used for irrigation or general agricultural purposes.</li> </ul>
<p>Slaughtering of cows and sheep at the abattoir - Potential outbreak of disease or the occurrence of infected cows and sheep. Visitors and/or staff entering the abattoir can introduce diseases.</p> <ul style="list-style-type: none"> <li>• Proper management of hazardous waste produced (blood, feathers, carcasses and other condemned material).</li> <li>• Installation of footbaths with disinfectant at all the entrances to the abattoir.</li> <li>• Access control to and from the premises and access to the premises only by prior arrangement.</li> <li>• Monitoring and auditing of processes by a contracted veterinarian or state vet. Third party audits will be conducted to maintain certification such as South African National Halaal Authority (SANHA) and Department of Health to ensure additional levels of control in terms of compliance monitoring.</li> <li>• A representative from the Department of Agriculture will be stationed at the facility to monitor the slaughtering process.</li> <li>• Crates and modules must be washed with a sanitizer solution before they are re-loaded onto trucks. Trucks must also be washed before crates and modules are re-loaded.</li> </ul>
<p>Resource use during operation - Potential wastage of valuable resources due to inefficient or redundant use.</p> <ul style="list-style-type: none"> <li>• Regular maintenance and inspection of equipment, such as hose pipes, to prevent leaks.</li> <li>• Regular site inspection by supervisors.</li> <li>• Proper environmental training and awareness.</li> <li>• Monitoring of resource consumption.</li> <li>• Implementation of technologies which can reduce resource consumption.</li> </ul>
<p>Socio-economic Impacts – Additional employment opportunities</p> <ul style="list-style-type: none"> <li>• Increased opportunities during the operation phase of the abattoir. The project will employ a total of 40 people for the operation phase.</li> </ul>

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## 12. SUMMARY OF SPECIALIST STUDY FINDINGS AND IMPACTS

### 12.1. Wetland Assessment

The Biodiversity Company has conducted a wetland assessment for the Justice Foods (Pty) Ltd project located near KwaDukuza, in KwaZulu-Natal. The assessment was conducted in order to meet the environmental authorisation and permitting requirements for a Basic Assessment and to determine if Section 21 (c) and (i) water uses will be triggered by the proposed project. A single dry season survey was conducted in July 2017.

The aim of the assessment is to provide information to guide the construction and operation of the proposed development with respect to the current state of the wetland systems in the area of study. As part of the assessment, the following objective specifics were considered:

- The delineation and assessment of wetlands within 500m of the project area;
- Evaluate the extent of site-related effects in terms of selected ecological indicators;
- A risk assessment for the proposed development; and
- The prescription of mitigation measures and recommendations for identified risks.

The wetland survey included assessing all the wetland indicators as well as assessing the Present Ecological Score (PES) or health of the wetland, the wetland's ability to provide goods and services (Eco-Services) and the Ecological Importance and Sensitivity (EIS) of the wetlands. **Two HGM (Hydrogeomorphic) types** were identified within the 500m project assessment boundaries, namely:

- Channelled Valley Bottom (HGM1, HGM 2 and HGM 3); and
- Seep (HGM 4).

Four (4) HGM units were identified as follows:

**HGM 1 – Channelled Valley Bottom:** HGM 1 drains from the south east to the north west along the north-eastern border of the project area. Large portions of the wetland have been modified by sugar cane fields, significantly impacting on the wetland. The dominant wetland species was *Phragmites australis*.

**HGM 2 – Channelled Valley Bottom:** HGM 2 drained from the west into the project areas and is connected to HGM 1 and form a tributary into the Nonoti River (HGM 3). Large portions of the wetland were overgrown by sugar cane. The dominant wetland plant was *Phragmites australis*.

**HGM 3 – Channelled Valley Bottom:** HGM 3 is located within 500m of the project area and is associated with Nonoti River. The wetland area had been modified by the adjacent sugar cane plantations and road development. The dominant wetland plant was *Phragmites australis*.

**HGM 4 – Hillslope Seep:** The hillslope seep wetlands drain from the south to the north, adjacent to the Nonoti River. The seep has been altered by the agricultural practices within the local area. The wetland species present were *Stiburus alopecuroides* and *Imperata cylindrica*.

Figure 16 and 17 below indicates the wetlands identified for the project and HGM units associated with the project respectively.

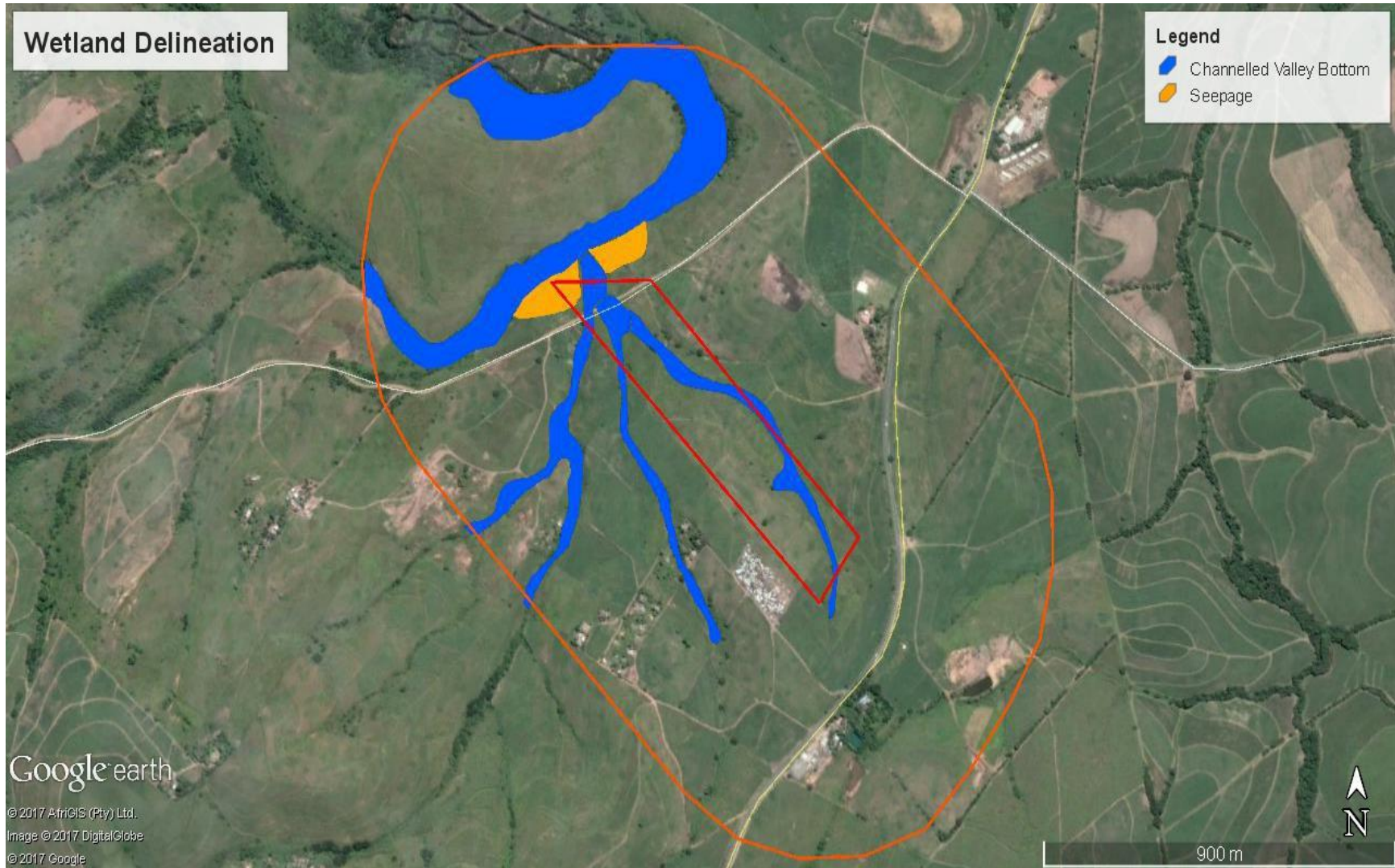
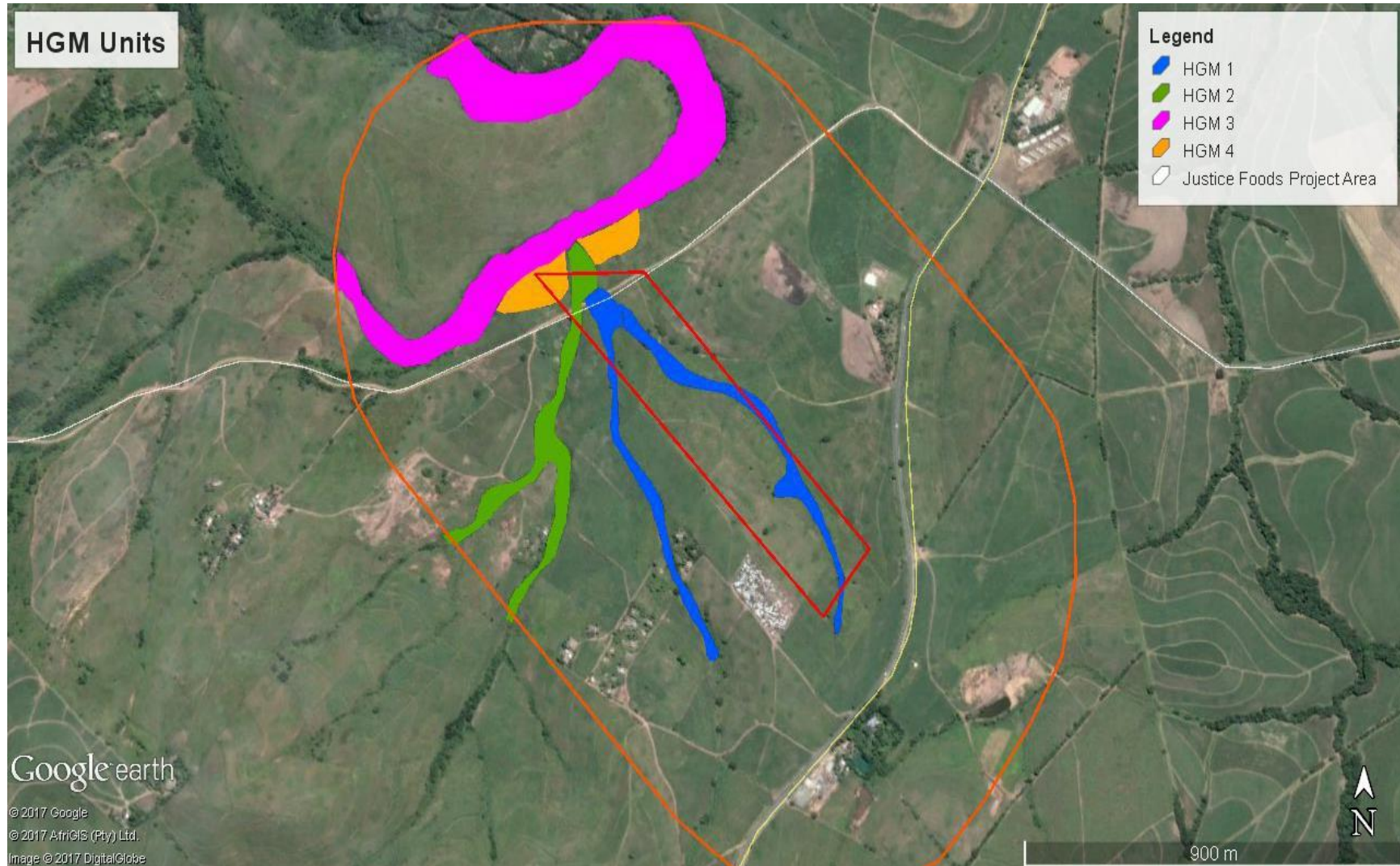


Figure 16: The wetland delineation for the project



*Figure 17: The HGM units associated with the project*



**Wetland Present Ecological Status (PES)**

The PES results indicate that HGM 1, HGM 2 and HGM 4 were rated to be Largely Modified (D), while HGM 3 was rated as Moderately Modified (C).

**Ecological Importance and Sensitivity (EIS)**

The EIS assessment was applied to the HGM units in order to assess the levels of sensitivity and ecological importance of the wetland: -

- The EIS assessment showed HGM 1, HGM 2 and HGM 3 were rated as Moderate (C), with HGM 4 being rated as Low (D).
- The Hydrological Importance was rated as Moderate (C) for HGM 1, 2 and 3. HGM 4 was rated as having a Low (D) importance.
- The Direct Human Benefit were rated as Moderated (C) for HGM 2 and 3. HGM 1 and HGM 4 were rated as Low (D).

**Buffer Zones**

The “worst-case” scenario was selected for the assessment so as to determine the most suitable buffer for the area. The highest risk posed by the project during the construction phase is that of “increased sediment inputs and turbidity” and “the inputs of toxic contaminants”. During the operational phase, the highest risk posed by the project is that of “alteration of flows”. The pre-mitigation buffer requirement is as follows:

**Table 14: Pre-mitigation buffer requirements**

Required buffer before mitigation measures have been applied	
Construction Phase	17 m
Operational Phase	22 m

Assuming that all prescribed recommendations and mitigation measures are implemented, some very high risks will be reduced to moderate risk and some moderate risks will be reduced to low risks. Thus, reducing the post mitigation buffer to 15m as per table 15 below:

**Table 15: Post-mitigation buffer requirements**

Required buffer before mitigation measures have been applied	
Construction Phase	15 m
Operational Phase	15 m

Figure 18 below presents the post-mitigation buffer requirement of 15m.

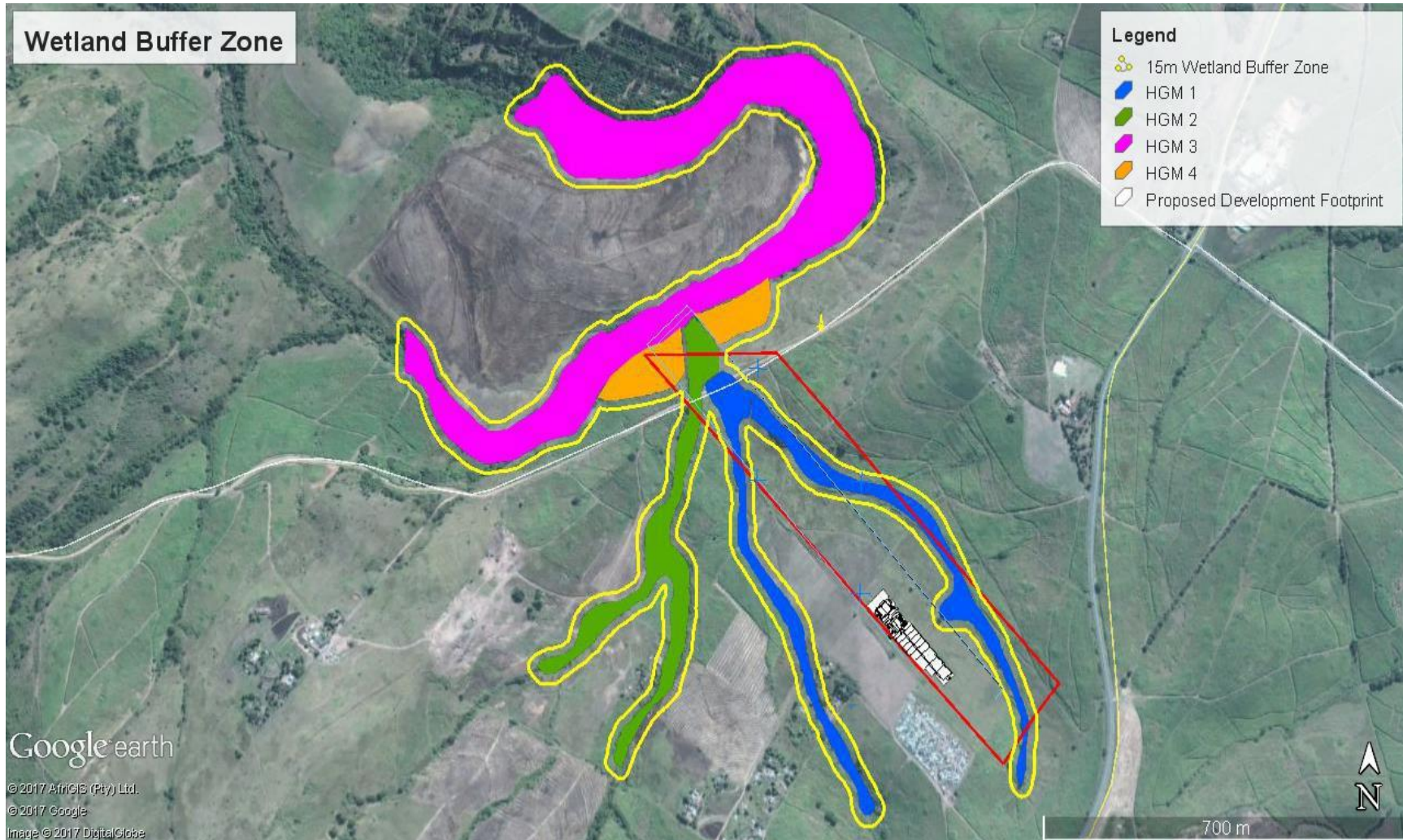


Figure 18: Post-mitigation 15m buffer zone.

It is the opinion of the specialists that the project be favorably considered and allow for the construction and operation of the abattoir to proceed, should all the measures outlined within this report be followed.

The Wetland Assessment can be reviewed under Appendix E.

## 12.2. Geotechnical Investigation

Geo-Caluza Consulting Engineers Pty (Ltd) conducted the Geotechnical Investigations for the proposed site. The objectives of the investigation were to complete a geotechnical survey of the site giving: -

- The soil profiles to a depth of approximately 3.5m or refusal.
- The engineering properties of the near surface soils.
- An assessment of the near surface soils, for their use in earthworks and foundations.
- Comments on any perceived geotechnical problems which may affect either the design or construction of the proposed development.

The fieldwork was conducted on 28 June 2017, which comprised of the following:

- Profiling of inspection pits that had already been excavated
- Conducting Dynamic Cone Penetrometer tests
- Percolation Test

The above-mentioned field work was conducted to assess the suitability of the site for the construction of the proposed facility and to assess the near surface soils, for their use in earthworks and foundations while identifying any perceived geotechnical issues.

In addition to the fieldwork conducted and in order to assess more accurately the engineering properties of various materials on site, the following lab tests were carried out on samples collected during the investigation:

- Particle Size Distribution,
- Atterberg Limit and Linear Shrinkage Determinations and,
- MOD AASTHO and CBR tests.

According to the Geotechnical Investigation, the general area around which the site is located is largely underlain by weathered sandstone bedrock of the Natal Group. The investigation indicated the site to be located on sandstone bedrock overlain by a mantle of transported material and residual soils. The transported materials were encountered on site as colluvial soils and are described by dry, brown, loose, intact, silty sands to gravelly silty sands with roots. These soils occur from surface to depths ranging between 1.20 and 1.70m below existing ground level. The residual soils occur as the dominant materials on site and are described as dry to slightly moist, brown to orangey brown to pinkish brown, loose to medium dense, intact, silty sands. These soils occur from surface to depths ranging between 1.0 and 2.00m below existing ground level. The weathered sandstone was encountered underlying the residual soils at depths ranging between 1.42 and 2.0m below existing ground level. It is described as orangey brown to pinkish brown, orange, speckled white and occasional stained brown, highly to completely weathered, fine to medium grained, very soft to soft rock that is improving with depth.

There was no groundwater seepage encountered in any of the investigative pits put down for investigation. However, during periods of prolonged rainfall, particularly during the summer season, there will be a marked increase in the occurrence and

magnitude of groundwater seepage flow. Perched groundwater flows at the soil/rock interface are likely to become more prolific in the rainy months. Platforms intercepting this interface are likely to encounter groundwater seepage during these times. From a geotechnical perspective, the site is considered suitable for the proposed development subject to the recommendations given in the report.

The Geotechnical Report can be reviewed in Appendix E.

### **12.3. Vegetation Survey**

Malachite Specialist Services (Pty) Ltd Vegetation Impact Assessment for the proposed site. The primary aim of the vegetation survey was to combine field survey techniques with botanical distribution data, to determine the vegetation composition and potential impact of the proposed development on vegetation communities within the study area.

The botanical assessment was first conducted whereby an initial remote sensing mapping exercise was done to identifying important habitats and vegetation types and contextualising the significance of the natural asset on the study site. This data was augmented during a field assessment. The botanical assessment was conducted to establish the environmental baseline in terms of the benchmark condition for comparative on-site investigations. The field work was conducted on 9 January 2017 to verify the presence or absence of species predicted to occur on the site.

The vegetation communities identified within the study area was based on floristic composition and the ecological status of the relevant micro-habitats. During the site investigation two vegetation micro-habitats were identified. These micro-habitats differ in terms of species composition and structure; as well as susceptibility and response to disturbance. These habitats included:

- Sugar cane plantations; and
- Species associated with the wetland systems and drainage lines

Figure 19 below is a representation of the micro-habitats identified.



**Figure 19: Micro-habitats identified within the site namely sugar cane and associated pioneer species (Green) and vegetation associated with the wetland systems and drainage lines (Blue).**

The agricultural fields micro-habitat dominates the site and is associated with elevated levels of disturbance. Due to the dominance of the sugar cane crop present within this micro habitat, the vegetation structure has been severely impacted. Table 16 below summarises the findings within this micro-habitat.

**Table 16: Summary of Species Within the Agricultural Micro-Habitat.**

Summary of Floral Structure and Composition			
Micro-habitat	Agricultural land		
Conservation Status	Low	Sensitivity	Low
Indicative Species (Grass species)	<i>Cynodon dactylon</i> , <i>Panicum maximu</i> , <i>Sporobolus africanus</i>		
Indicative Species (Herbaceous species)	<i>Richardia brasiliensis</i>		
Indicative Species (Tree species)	<i>Trichilia dregeana</i> .		
Species of Conservation Concern	None		
Alien species	<i>Solanum mauritianum</i> , <i>Tagetes minuta</i> and <i>Bidens bipinnata</i> , <i>Rubus cuneifolius</i> , <i>Mangifera indica</i> and <i>Lantana camara</i>		
Land Use	Agricultural land (Sugar cane)		
Need for rehabilitation	High		

No species of conservation concern were noted within this micro-habitat and as a result this micro-habitat was attributed with a low sensitivity.

The wetland and drainage lines micro-habitat has been encroached by alien invasive species. The agricultural practices have resulted in disturbances to the vegetation community of the wetland thus allowing for the encroachment of alien invasive species. Table 17 below summarises the findings within this micro-habitat.

**Table 17: Summary of Species Within the Wetland and Drainage Micro-Habitat.**

Summary of Floral Structure and Composition			
Micro-habitat	Wetland and drainage lines		
Conservation Status	Low	Sensitivity	Moderate-High
Indicative Species	<i>Kyllinga brevifolia</i> , <i>Cyperus denudatus</i> , <i>Pycnus macranthus</i> , <i>Phragmites australis</i> and <i>Imperata cylindrica</i> , <i>Syzigium cordatum</i> , <i>Bridelia micrantha</i> , <i>Phoenix reclinata</i> .		
Species of Conservation Concern	None		
Alien species	<i>Schinus terebinthifolium</i> , <i>Solanum mauritanum</i> , <i>Lantana camara</i> , <i>Chromolaena odorata</i> and <i>Ricinus communis</i>		
Land Use	Agricultural		
Need for rehabilitation	High		

No species of conservation concern were noted within this micro-habitat and this micro-habitat was attributed with a moderate-high sensitivity.

A large portion of the study area has been assessed as being low sensitivity from an ecological perspective due to the altered ecological functioning of the area and the transformed nature of this habitat. The area surrounding the development footprint falls within an agricultural landscape unit and is considered to be of low ecological sensitivity as a result of current and historic anthropogenic activities, which have severely transformed the ecological integrity of the area. Further to this not only are there limited ecologically sensitive areas surrounding the site (apart from the Nonoti River system), there is a low degree of ecological connectivity between the study area and adjacent open spaces within the landscape. The Nonoti River system has an elevated landscape connectivity and provides suitable habitat for vegetation communities.

Based on the findings of the vegetation survey, it is recommended that the development proceed, provided that best practices are implemented during the construction and operation phases of the development.

The Vegetation Survey can be reviewed in Appendix E.

## 12.4. Desktop Heritage Assessment

The desktop assessment was conducted as the proposed development is approximately 1Ha in size and therefore triggers Section 38 (1) (c) (i) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999). The relevant section of the NHRA states that:

“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—  
 (c) any development or other activity which will change the character of a site —  
 (i) exceeding 5 000 m<sup>2</sup> (0.5 ha) in extent;  
 must notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

The desktop study consisted of analysing various sources (heritage reports and maps) for evidence of prior habitation in the project area. According to Anderson (2015:12), there are archaeological sites in the wider area that include both Stone Age and Iron Age sites. No sites occur in the study area. Many of the sites no longer exist due to sugar cane farming, road works and

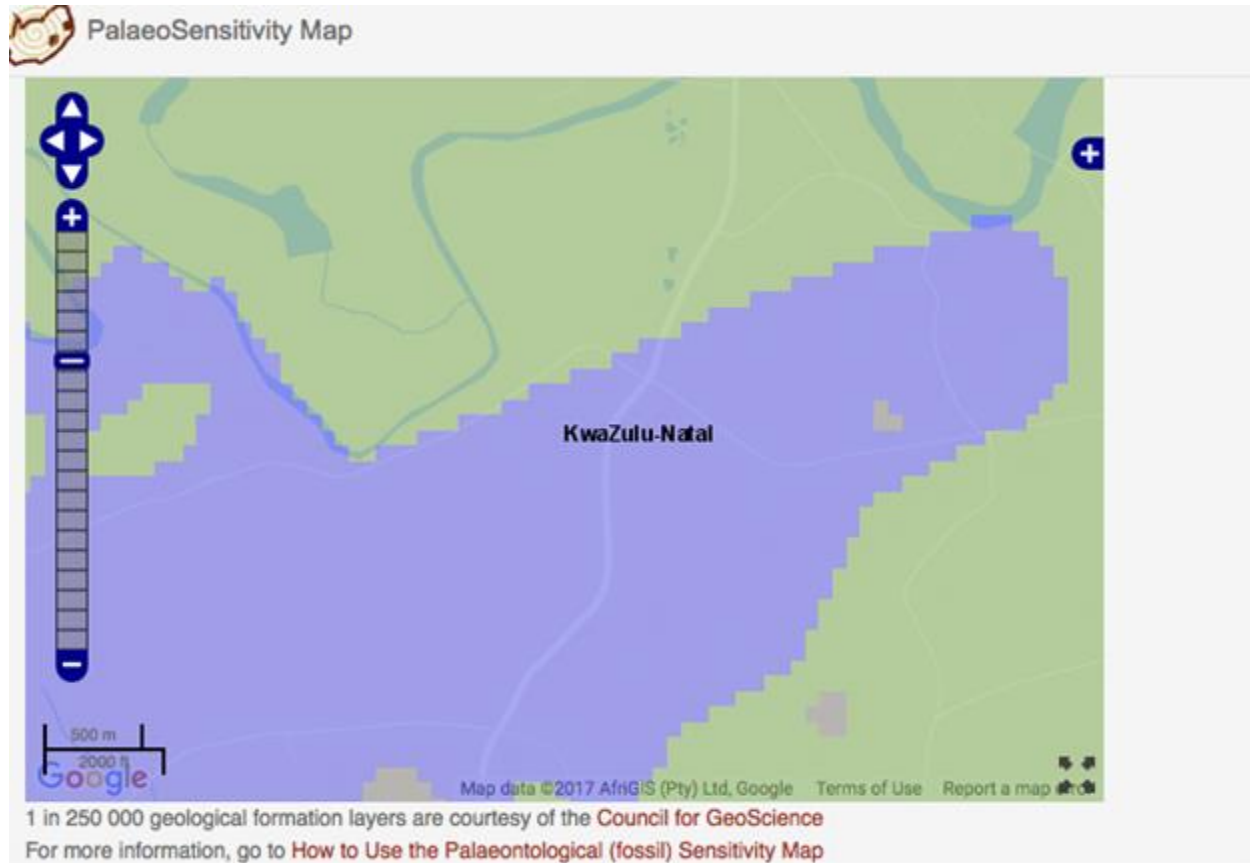
other developments (such as housing). Sugar cane farming would have destroyed sites that occurred on or near the surface of the land.

No known national, provincial or local heritage sites, battlefields, or cemeteries/graves are known to occur in the project area.

The area where the abattoir is proposed to be located appears to be used for sugar cane farming according to the Google Earth images and 1:50 000 map (2931AD) and is therefore highly disturbed by such activity.

A farm dwelling and associated buildings are situated approximately 80m south west of the abattoir alongside the P107 road. The building closest to the proposed development is situated approximately 30m south west of the abattoir. The ages of the buildings are unknown; however, it is assumed that the structures will not be impacted upon by the proposed abattoir development. There could be graves in close proximity to the structures, but this could not be ascertained from maps and Google Earth images; however, it is again assumed such sites will not be impacted by the abattoir and associated activities.

The South African Heritage Resources Agency's (SAHRA) Fossil Sensitivity Map indicates that the project area is situated in an area of low fossil sensitivity. Figure 20 below indicates that an area of low sensitivity requires no further studies whereas an area of moderate sensitivity requires a desktop palaeontological assessment. However, due to the highly disturbed nature of the project area due to agricultural activities, there is a low probability of finding intact fossil finds therefore it was recommended that no further studies are undertaken in this regard.



**Figure 20: Fossil Sensitivity Map indicates Where the Project Area is Situated in an Area of Low Fossil Sensitivity (indicated in blue) with a Slight Overlap into an Area of Moderate Fossil Sensitivity (indicated in green)**

In conclusion, the highly disturbed nature of the area where the proposed agri-project will be situated, indicates that there is a very small chance of finding any intact heritage resources such as graves, archaeological remains, and fossils in the project area. It is the understanding of the specialist that the structures on the south west boundary of the proposed development will not be impacted in any way by the construction of the abattoir and its associated buildings.

Based on the above, it is the specialist's conclusion that the abattoir development can proceed with the provision that the mitigation measures provided in the report are implemented where necessary.

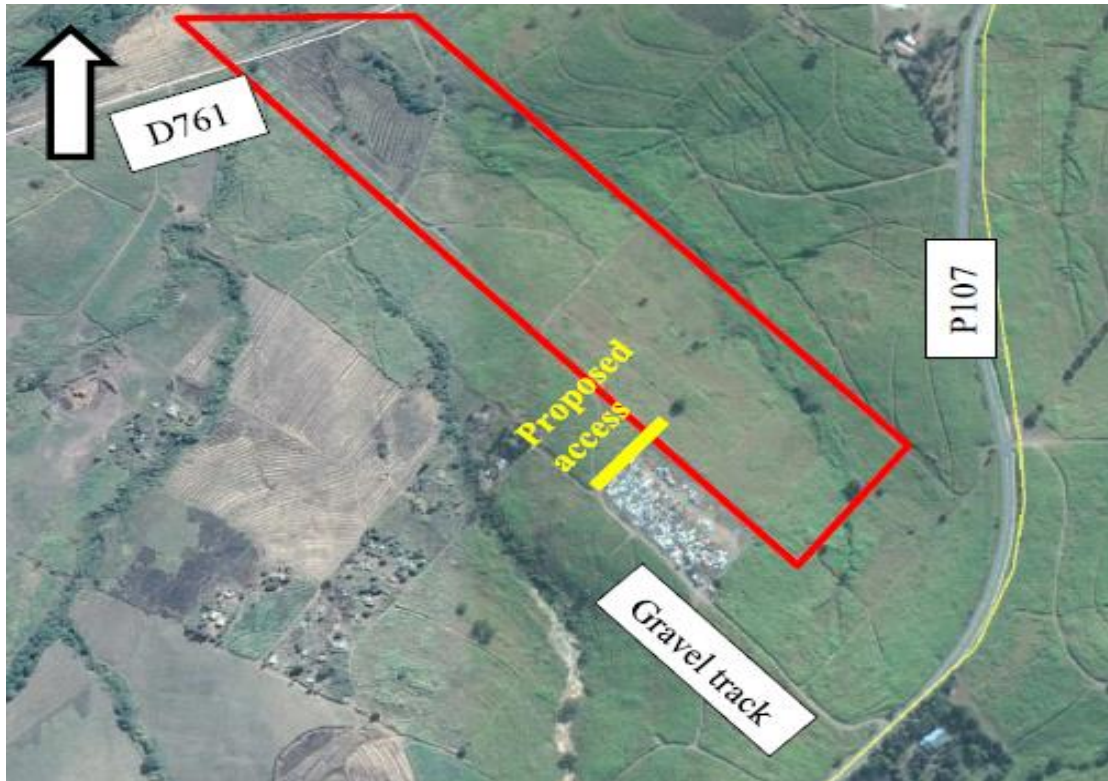
The Report can be reviewed in Appendix E.

## 12.5. Traffic Impact Assessment (TIA)

It is proposed that the development be served by a full access on Unnamed Gravel Track via an existing Type B1 Access intersection on P107, which is a Class 4, single carriageway, two-lane paved road. Both the P107 and the D761 are under the jurisdiction of KZN DoT. An assessment of the sight distance at the P107/Gravel Track intersection revealed that there will be no problems with sight-distances as long as the verges on the western side of the P107 are free of obstructions such as bushes, etc. in both directions.

The proposed access plan is illustrated on figure 21 below.





**Figure 21: Proposed Access Plan**

Due to environmental constraints restricting access to the development site, it is proposed that the development be served by access on Unnamed Gravel Track as shown in Figure 21 above.

Due to the fact that the maximum peak hour trip generation volume is less than 50 trips, **no Traffic Impact Assessment** is required according to the TMH 16 Vol 1 *South African Traffic Impact and Site Traffic Assessment Manual* (COTO, 2012). According to architectural plans, a total of 30 bays have been accommodated on site, which has been approved by the Town Planning Department.

The development is supported from a traffic and transportation perspective provided the recommendations as per the TIA are implemented.

The TIA can be reviewed under Appendix E.

## 12.6. Stormwater Management Plan

A Storm Water Management Plan was prepared by J Singh Consulting for the proposed new abattoir facility. In accordance with the National Building Regulations, the Municipality requires a stormwater management plan. Coastal Drainage and Stormwater Management prescribe that the stormwater discharge from a privately owned site be controlled and limited to the predevelopment scenario.

The objectives of the SWMP are as follows:

- Ensure compatibility of the site with relevant regulations and by-laws from the stormwater perspective;
- Protect all life and property from damage by stormwater floods;

- Prevent erosion of soil by wind and water; and
- Develop a conceptual Surface Water Management Plan for the site during construction and post-development when compared to pre-development.

The earthworks operation will be carried out by a suitably qualified contractor. The specifications with respect to the following will be issued on the bulk earthworks drawings and details upon appointment of a contractor.

- Material Utilization plan in terms of the platform cutting and filling.
- Extents of the cutting and filling specifications of the platform and required compaction required. The controls and procedures.
- Stormwater Management for the pre and post scenarios.

The evaporation holding tanks is to discharge at the 1:10 year peak storm discharge rate as per the calculations in the SWMP. The pipe size from the tank is governed to 160 diameter pipe. The recommended size of the tank is 8m wide x 15m long x 1.8m deep. This allows the tank to have a :

- 300mm freeboard in the event of minor blockages and siltation in the tank.
- Attenuate the volume required.

According to the SWMP, there are no objections to the proposed development. The SWMP can be reviewed under Appendix E.

### **13. ENVIRONMENTAL IMPACT STATEMENT**

According to the Wetland Assessment, the delineated wetland and buffer areas will not be directly impacted on assuming that no infrastructure or activities will be conducted within the wetland system and that the 15m buffer is maintained. The risks during the construction phase were determined to be low. The risks of the operational phase were determined to vary from low to moderate. The moderate risks were identified for the risks pertaining to the deterioration of the water quality of the wetland resources. The risks were determined to be low risks after mitigation measures were applied. It is the opinion of the specialists that the project be favorably considered, and allow for the construction and operation of the abattoir to proceed, should all the measures outlined within this report be followed.

According to the Geotechnical Investigation, it should be noted that the subsoil conditions contained within the draft report relate to the information obtained from the inspection pits, percolation tests and dynamic cone penetrometer tests put down for investigation. It is possible that variances to the anticipated subsoil conditions will be encountered in other parts of the site during construction. It is therefore important that when such variances occur they are reported to Geo-Caluzza Consulting Engineers (Pty) Ltd so that timeous assessment, and recommendations for the necessary adjustments to construction procedure, can be made.

According to the Vegetation Survey, any development activity in a natural system will have an impact on the surrounding environment, usually in a negative way. The purpose of the study was to identify the potential impacts caused by the proposed development. Ecosystems are vulnerable to anthropogenic disturbances and these disturbances degrade the health, functionality and later the community structure and composition. A number of impacts pertaining to the ecological integrity of the study site are predicted to occur as a result of the proposed development. These impacts are associated with the proliferation of alien invasive species and the loss of species of conservation concern and to a lesser extent the loss of indigenous vegetation through clearing, fragmentation of vegetation communities. These impacts should be bore in mind during the construction and operation phases of the development.

According to Heritage Assessment, the highly disturbed nature of the area where the Nonoti abattoir and associated processing plant will be situated, indicates that there is a very small chance of finding any intact heritage resources such as graves, archaeological remains, and fossils in the project area. It is the understanding of the specialist that the structures on the south west boundary of the proposed development will not be impacted in any way by the construction of the abattoir and its associated buildings. Based on the above, it is the specialist's conclusion that the abattoir development can proceed with the provision that the mitigation measures provided in the report are implemented where necessary.

Through this Basic Assessment, it had been concluded that the proposed development is not expected to have any significant, adverse or lasting impacts on the environment. During the construction phase, the project can be expected to have low negative impacts on various environmental attributes with proper mitigation measures implemented. Similarly, the project can be expected to have a positive impact on the regional and local socio-economy during the construction phase. This will be as a result of the creation of jobs as well as procurement opportunities from local suppliers in the area. Once operational, the abattoir will directly contribute to the local economy and indirectly to the regional and national economy. Benefits of the project outweigh the potential negative environmental and social impacts, which can be mitigated to within acceptable levels. Based on the outcomes of the risk assessments conducted as part of the BAR, coupled with the recommendations made by the specialists, the overall negative impact of the project is of Low - Medium significance, which can be reduced to Low significance through the implementation of simple, effective mitigation measures.

The EMP must be adhered to and will ensure that any negative impacts however minimal are not magnified. During the post construction phase of the project, the contractors must ensure that all hazardous materials are removed from the site and that rehabilitation of land is undertaken according to the requirements of the EMP.

## **14. IMPACT MANAGEMENT MEASURES FROM SPECIALIST STUDIES**

### **14.1. Wetland Investigation**

#### **Abattoir Mitigation Measures**

The following mitigation measures apply to the wetland ecosystems:

- A large amount of water is used for hygiene reasons in animal processing operations, producing large amounts of wastewater that must be treated. The proposed closed water system must be implemented to limit the risk of contamination. No water will be discharged into the natural environment.
- The primary and secondary wastewater treatment systems, as per design, must be implemented and maintained with regular monitoring.
- The handling of effluent from the abattoir should be disposed of in a sustainable manner with the separation of different materials and use of suitable disposal facilities.
- Grease and solid traps with suitable grease removal facilities should be installed upstream of major collection sumps.
- Blood should not be dumped informally and the authorised service provider will ensure this, monitoring must be in place.

- There should be a full examination of process by-products and wastes to identify options for waste minimisation. In some cases, substituting raw material may lead to changes in the process. Often, re-using or recycling by-products reduces waste production. Recovering valuable materials from waste streams can be economically and environmentally sensible.
- Techniques and procedures to integrate all waste management options should be adopted wherever possible. A beneficial re-use strategy should be initiated after the waste management strategy.
- Cleaner production and waste minimisation aims directly at the source of the waste generation and attempts to eliminate waste before it is produced, or to reduce the amount generated. Wastes should be disposed of only after all preventive and minimisation measures have been taken.
- Using high pressure water hoses for washing waste must be incorporated to minimise the amount and therefore the cost of water used.
- A recycling program should be implemented for all relevant materials, and awareness around this must be included in an induction program.
- Disposal of carcasses must be arranged, and no carcass may enter the natural environment and watercourses.
- Final flow from septic tanks should be discharged to a municipal sewer line and not to the natural environment; where there is no sewer line, an appropriate disposal plan will be required and implemented.
- Condemned meat products that have been trimmed free of transmittable pathogens can be sold as animal food to zoos or similar.
- Stormwater can become contaminated when it comes into contact with animal holding pens, sludge stockpiles and treated wastewater irrigation areas. This contaminated stormwater can have detrimental environmental effects on surrounding ecosystems and should be kept from making contact with such areas. Clean stormwater must be kept away from the contaminated areas and directed to the stormwater drainage system.
- The manure storage and lagoon areas should have containment walls to keep the manure from washing downslope into the wetland areas.
- The effluent treatment area, manure lagoon area and burial trench should be moved out and away from preferential flow paths.
- No livestock may be allowed from within the wetland area as they cause excessive erosion and bank collapse through trampling of vegetation and soils.
- Livestock should be confined to designated areas.

## **General Mitigation Measures**

The following measures apply to the wetland ecosystems:

- The recommended buffer zones must be strictly adhered to. Buffer areas must be visibly demarcated and managed as No-Go areas.
- The stormwater management design for the area must be evaluated to ensure that dirty water does not flow from the site to wetland areas.
- Construction areas must be demarcated, and wetland areas marked as “restricted” in order to prevent the unnecessary impact too and loss of these systems.
- Sediment trapping berms and temporary erosion control measures must be implemented during the construction phase.
- During the construction phase vehicles and machinery must make use of existing access routes, before adjacent areas are considered for access. Should access routes be required, these must be placed beyond wetland areas and buffer zones.
- Laydown yards, camps and storage areas must be beyond the water resource areas and associated buffers where applicable.
- During construction contractors used for the project must have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.
- 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”.
- Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the aquatic systems.
- Temporary and permanent erosion control methods may include the use of on-site debris and felled trees which can be placed between the wetlands and working areas.
- 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.

## 14.2. Geotechnical Investigation

The site is considered suitable for the proposed development from a Geotechnical Perspective. However, the following specialist recommendations must be adhered to:

### Foundation Recommendations

- The investigation conducted on site indicated the site to be generally underlain by silty sands of very loose to loose consistencies improving with depth. It is therefore recommended that the proposed structures be founded on reinforced concrete rafts. Reinforced concrete rafts may be considered for structures which have a regular (square or rectangular) outline, and will be most suitable for the steelwork and similar structure which is generally light loaded with relatively small plan area. This foundation type needs to be complemented by good site drainage and plumbing service precautions. Rafts can be founded at 1.0m below ground level, where an Estimated Allowable Safe Bearing Pressure, EASBP of 60kPa can be assumed.
- Before raft is constructed, the in-situ materials should be ripped to at least 400mm, ripped and recompacted to minimum 95% Modified AASHTO, MDD and Optimum Moisture Content, OMC. All deleterious materials such as refuse items and vegetation should be removed before compaction is resumed. Such subgrade treatment will result in saving in concrete thickness.
- No building should be founded on fill material unless it is specifically engineered to support structures. It is recommended that Geo-Caluza Consulting Engineers inspect and approve all foundation excavations to confirm depth of founding and bearing pressure.
- Alternatively, the proposed structures may be founded on very soft weathered sandstone bedrock occurring at depths ranging between 1.42 and 2.0m below existing ground level using conventional strip footings. An EASBP of approximately 150kPa may be assumed on very soft sandstone bedrock.
- In addition to the above recommendations, the following good practice is also recommended: -
  - The buildings should have a concrete surround, minimum width 1 metre, with falls away from the building to ensure drainage of stormwater away from the structure. This will prevent the ingress of water into the foundation soils.
  - All roof water is to be collected via down pipes and discharged away and downslope of the building.
  - No flower beds or vegetation to be planted adjacent to the structures.
  - No stormwater or effluent disposal soakpits to be located within 3 metres of any structure.
- Precautionary measures as indicated below may also be considered for a stable development:
  - Damp proof medium to be placed below floors and tied into brick walls.
  - Brickforce to be incorporated in every alternative mortar course (clay bricks) or every course (hollow concrete blocks) from top of footing to floor slab/surface bed level.
  - Similarly, brickforce to be incorporated in every alternative mortar course or every course from top of lintel beam to wall plate height.
  - To avoid any settlement related damage, it is recommended that all finishing be carried out as late as possible.

### **Ablution Blocks**

- The general feasibility of an on-site sanitation system, in particular, a septic tank soak-away disposal method, is evaluated in terms of the requirements laid down by SABS0400:1990 and Guideline No.6 of the Durban Metro: Waste Water Management Department.
- Several criteria are used to assess whether septic tank soak-away systems are feasible. These are the following: -
  - Suitability of the subsoils/ existing geotechnical conditions for disposal of wastewater and sewage effluent by subsoil percolation,
  - Occurrence of groundwater, bedrock and layers of poor permeability.
  - Availability of sufficient area that may be allocated for evapotranspiration purposes, and
  - Sufficient soil cover.
- Two percolation tests pits designated as PT1 and PT2 were excavated to determine the soil suitability for waste disposal by soil percolation. These percolation tests gave percolation rates ranging between 3 and 7 minutes for a 25mm drop in water level corresponding to application rates of 107 and 90 l/m<sup>2</sup>/day, respectively.
- The subsoil conditions underlying the site for the proposed development are considered suitable for the disposal of effluent via a septic tank and soakway system provided enough evapotranspiration area is available.

### **Subgrade Treatment for Paved/Surface and Parking Areas**

- It is expected that the paved areas and internal roads will be lightly trafficked within the structures. The layer works should therefore be designed by a competent engineer for the anticipated traffic loads. Generally, it will suffice to treat the in-situ subgrade material. by ripping to a minimum depth of 150mm (or as required by the roads design Engineer) and recompact to a minimum 93% Mod AASHTO dry density.

### **Drainage**

- A most important factor in the promotion of a stable site is the control and removal of both surface and groundwater from the site. Such water should be directed towards the natural surface drainage lines. Disposal of stormwater should conform to the Local Authority's requirements.
- Surface drainage of building platforms should be designed to direct water away from fill edges to prevent overtopping of the fill crest and erosion of the fill embankment slopes. It is important that grassing of fill embankments be carried out as soon as possible after construction.
- The need for subsoil drainage will need to be assessed during construction. Where groundwater seepage is encountered, these zones will need to be controlled with effective subsoil drains, particularly where water is likely to gain ingress into foundations and structural layers of the fill embankments. The occurrence of seepage at the base of housing platform cuts may require similar treatment.

## **Earthworks**

- It is recommended that all earthworks be carried out in accordance with SANS 1200D, as amended from time to time.
- All fill (if any) should be compacted in layers of not more than 150mm thickness loose to at least 93% modified AASHTO density at OMC. Terrace surfaces should be sloped at 1:1½ to allow for free drainage. Care must be exercised in the design of the terraces to ensure that erosion is not promoted by the storm water runoff.

## **Ease of Excavation**

- Excavation conditions over much of the site should categorise as soft mechanical excavation" according to SANS 1200D "Classification of material for machine excavation" to depths of about 2.3m below existing ground level. Intermediate to hard excavation can be anticipated with depth.

### **14.3. Vegetation Survey**

- Based on the findings of the field assessment it is evident that wetland systems will be impacted by the proposed development. Subsequently it is recommended that a wetland delineation and functionality assessment be undertaken to confirm the extent, health and functionality of any wetlands within the study site. This will be conducted in compliance with the National Water Act (Act 36 of 1998).
- An invasive alien control programme must be implemented to eradicate the existing alien invasive plants/trees and to prevent the introduction and spread of these species as per the legislative requirements specified under the Conservation of Agricultural Resources Act, 1983 amended in 2001 and the National Environmental Management: Biodiversity Act 2004 (Act No, 10 of 2004). There must be ongoing control and elimination of all alien invasive species throughout the life-span of this development.

### **14.4. Heritage Assessment**

- For any chance finds, such as archaeological sites, graves, etc., all work must cease in the area affected and the Contractor must immediately inform the Project Manager or Environmental Control Officer (ECO). A registered heritage specialist must be called to site for inspection. The relevant heritage resource agency (Amafa) must also be informed about the finding.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Written permission (permits) must be obtained from Amafa if heritage resources, including graves, are to be removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area to be protected by a 3m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.



- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Should any remains be found on site that could potentially be human remains, the South African Police Service as well as Amafa must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.
- If there are chance finds of fossils during construction, work in the area of the find must be stopped and a palaeontologist must be called to the site in order to assess the fossils and rescue them if necessary (with an Amafa permit). The fossils must then be housed in a suitable, recognized institute.

#### **14.5. Traffic Impact Assessment**

- Regarding access control, it is recommended that any form of access control be set back at least 20m from the cadastral boundary to accommodate the onsite queuing of minimum one WB-50 (articulated) truck.
- The loading bay requirements for a development of this nature is typically one WB-50 bay per 1500m<sup>2</sup> PFA. It is recommended that the development accommodate at least one WB-50 loading bay (17x4.3m) and one Single-Unit loading bay (9x3m).
- It is recommended that a vehicle tracking assessment of the proposed site plan is undertaken at building plan submission stage.

### **15. CONDITIONS OF AUTHORISATION**

In terms of Monitoring and Auditing, the following are recommended to ensure protection of the environment during construction:

- An ECO must monitor the construction site and activities on a monthly basis for the duration of the construction phase,
- An ECO must document the findings and submit a monthly report to the Competent Authority;
- The Project Manager and Contractor are responsible for the implementation of the EMP and protection of the environment for the duration of the construction period.
- An ECO must monitor the facility on a bi-monthly basis (i.e. once every 2 months) for the operational phase, for a period of 6 months following completion of construction to ensure that rehabilitation has been successful.

### **16. ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE**

- The proposed plans and designs of the abattoir have been completed and are included in this BAR as Appendix C. However, these still require approval and Environmental Authorisation from the Competent Authority; the Department of Economic Development, Tourism and Environmental Affairs.

#### **Wetland Assessment - Limitations for water resource assessment:**

- The GPS used for wetland delineations is accurate to within five meters. Therefore, the wetland delineation plotted digitally may be offset by at least five meters to either side;

- A dry season survey was conducted, and some wetland plants may have been missed as they would only be identifiable during flowering (wet season);
- The project area is utilized for large scale sugar cane farming and has been largely modified. The access to wetland areas was limited by the current agricultural practices; and
- Wetland systems identified at desktop level within 500m of the project area were considered for the identification and desktop delineation, with wetland areas within the project area being the focus for ground truthing.

#### **Vegetation Survey:**

It is difficult to apply pure scientific methods within a natural environment without limitations or assumptions. The following apply to this study:

- The findings, results, observations, conclusions and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the perceived impacts on vegetation communities.
- The vegetation survey was based on a single site visit conducted on 9 January 2017. The presence of existing sugar cane production has resulted in a decline in floral communities. As such the single site visit is deemed suitable.
- The majority of the habitat surrounding the study area has been completely transformed due to agricultural activities and anthropogenic developments.

## **17. RECOMMENDATIONS OF THE EAP**

The information contained in this report and the documentation attached hereto, in the view of the EAP, is sufficient for the Public Participation Process (PPP). Should the Competent Authority request additional studies to be conducted, this shall be conducted and obtained to assist the Competent Authority in making an informed decision.

The EMP, which includes recommended conditions and mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application, is provided. Refer to Appendix G for a full Environmental Management Plan. The EMP must be read in conjunction with the BAR.

## **18. TIMEFRAMES**

An environmental authorisation valid for five (05) years is requested. Construction may commence at any time within this 5-year period.

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## 19. UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

(i) 1World Consultants (Pty) Ltd hereby confirms that the information provided in this Basic Assessment Report is correct at the time of the compilation and distribution for review. Input from specialists was utilised in the compilation of the Report.

(ii) 1World Consultants (Pty) Ltd confirms that all comments received from Stakeholder and I&APs have been included in this report. It is to be noted that in terms of the EIA Regulations (2014), GNR 982 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the EAP. Should no comment be received within the 30-day comment period, it will be assumed that the relevant State Department has no comment to provide.

(iii) All information from the specialist studies have been included in this Basic Assessment Report. Recommendations from the specialists have been included in the EMP.

(iv) All information and comments received in response to this Basic Assessment Report will be summarised and responded to in a final version of the Report, which will be submitted to EDTEA for consideration in terms of issuing Environmental Authorisation.

For 1World Consultants (Pty) Ltd:



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**Fatima Peer B.Sc. (Hons) Pr. Sci. Nat.**  
SENIOR ENVIRONMENTAL ASSESSMENT PRACTITIONER

## APPENDICES

The following appendices must be attached as appropriate:

Appendix	Description of Contents
<b>A</b>	Minutes of the Pre-application Meeting Landowner Details Environmental Screening Report
<b>B</b>	Company Profile Project Experience of EAP Declaration of the EAP Curricula Vitae of EAP Team Declaration of Specialist Curricula Vitae of Specialists
<b>C</b>	Preferred Alternative: Proposed Design of the Facility Artist Impression of the facility Security: Perimeter Fence Service Level Agreements Acknowledgement of Receipt of Application for EA Needs and Desirability Report Alternative 1: Facility Designs Mechanical Design Report
<b>D</b>	I&AP Distribution list Background Information Document Newspaper Advertisement Copy of notice board Photograph of notice boards at site Public Meeting Comments Received on the BID Proof of Comments Received on the BID
<b>E</b>	Wetland Assessment Geotechnical Investigation Vegetation Survey Heritage Impact Assessment Traffic Impact Assessment Stormwater Management Plan
<b>F</b>	Draft Environmental Management Plan