ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) FOR THE PROPOSED DEVELOPMENT OF LARGE STOCK UNIT (CATTLE) FACILITIES AND ASSOCIATED INFRASTRUCTURE ON PORTION 1 OF THE FARM STERKFONTEIN NO.8501 WITHIN DANNHAUSER LOCAL MUNICIPALITY, AMAJUBA DISTRICT, KWAZULU-NATAL.

Proposed development of large stock unit (cattle) facilities and associated infrastructure with the capacity of 4000 cattle.

ABSTRACT

This is the draft Environmental Management Programme for the proposed development. It consists of recommended mitigation measures against the potential negative environmental impacts associated with the proposed development. Responsible parties and time frames for implementation of recommended measures are indicated within the EMPr.

Complied by

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Prepared For

Nyezenhle Holdings (Pty) Ltd

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Contents

A. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) WHO PREPARED THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr):

1. An EMPr must comply with section 24N of the Act and include -
(a) Details of -
(i) the EAP who prepared the report:

Business Name of EAP	Mondli Consulting Services		
Physical Address	6 Joseph Avenue, New Era House, Suite 9, Durban North		
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(ii) The expertise of the EAP (including curriculum vitae)

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
NM Msibi	Bachelor's degree in Environmental Planning and Development. She also holds certificates in Geographic Information Systems (GIS) and Project Management.	In the process of registration with EAPASA.	She has been involved with EIAs for the past four years.
BM Mthembu	Diploma in Nature Conservation Master's Degree (Environmental Studies Dissertation, Geography) Bachelor of Laws (LLB)	Reg. EAP: (EAPASA) Society of South African Geographers (Membership No. 28/09), confirmed to comply with the requirements set by South African Council for Natural Scientific Professions.	Has been involved in environmental and conservation field for over 20 yrs. Conducted EIAs for over 18 years including Strategic Env. Assessment. Has been involved in the review and commenting on development projects impacting on the environment.

B. A DETAILED DESCRIPTION OF THE ASPECTS OF THE ACTIVITY THAT ARE COVERED BY THE EMPr AS IDENTIFIED BY THE PROJECT DESCRIPTION;

The project entails the development of large stock unit (Cattle) facilities and associated infrastructure that will accommodate 4000 cattle with the purpose of supplying meat in areas of Northern KwaZulu-Natal. The proposed development will comprise of structure to receive cattle on arrival and kraals to be used by cattle. The Environmental Management Programme has therefore been drafted to cover potential environmental impacts linked with the construction and operational aspects of the proposed development,

These aspects therefore include removal of vegetation, soil erosion, pollution, waste management, stormwater management, soil contamination, alien plant invasion, water pollution and health and safety.

C. A MAP AT AN APPROPRIATE SCALE WHICH SUPERIMPOSES THE PROPOSED ACTIVITY, ITS ASSOCIATED STRUCTURES, AND INFRASTRUCTRE ON THE ENVIRONMENTAL SENSITIVITIES OF THE PREFERED SITE, INDICATING ANY AREAS THAT SHOULD BE AVOIDED, INCLUDING BUFFERES.

FIGURE 1:Map showing features on the site and the proximity of the Chelmsford dam.

D. A DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES, INCLUDING MANAGEMENT STATEMENTS, IDENTIFYING THE IMPACTS AND RISKS THAT NEED TO BE AVOIDED, MANAGED AND MITIGATED AS IDENTIFIED THROUGH THE ENVIRONMENTAL IMPACT ASSESSMSNET PROCESS FOR ALL PHASES OF THE DEVELOPMENT INCLUDING

The main aim and objective of the monitoring exercise is to ensure the appraisal of environmental performance in line with the Environmental Management Programme (EMPr), EIA Regulations and National Environmental Management Act (NEMA) No. 107 of 1998 as amended. The Department of Economic Development, Tourism and Environmental Affairs is responsible for ensuring compliance to NEMA. EMPr is also meant to provide objective feedback to Nyezenhle Holdings (Pty) Ltd during project construction and beyond, by making appropriate recommendations for remedial interventions where appropriate.

The monitoring deals with conformance and non-conformance measured against the EMPr. Any non-compliance observed during the construction period will be followed by an immediate remedial intervention. The environmental audit and monitoring will primarily focus on evaluating the measure of compliance with statutory requirements within the project site. The Developer is primarily responsible for ensuring compliance to the EMPr and other requirements and standards applicable for the operational phase of the proposed development.

The identified impacts and risks will be managed and mitigated throughout the following phases of development:

(i) Planning and design

There are no significant impacts that are expected during this phase of the proposed development. However, it is important that the potential impacts for the construction and operational phases are well considered during the planning and design phase to ensure that where possible, the design and/or layout are altered to reduce impacts and necessary financial provision is made for all mitigation and rehabilitation measures that need to be implemented throughout the different project phases. The 3 most important factors to be considered and planned for during the planning and design phase are:

- **Transplanting of Species of Conservation Concern**
  This will require planning as it needs to be implemented prior to the commencement of construction works including site establishment. A person with the necessary expertise needs to be consulted for this phase and will also be required to assist in marking of no go areas. Financial provision therefore also needs to be made for expertise and other resources needed.

  In terms of the vegetation assessment conducted on site, there will be no transplanting or identified species of conservation concern within the development footprint of 8.3HAs.

- **Proximity of Chelmsford Dam**
  Chelmsford Dam is located at a distance of over 500metres away from the site, and there are intervening factors between the Farm and the Dam.to the site.

- **Waste Management Plan**
  Waste management during the operational phase is one of the main concerns for this project as it can have detrimental impacts for environmental and human well-being. This needs to be considered in the planning for the development. All requirements for cattle farming projects/farms of the scale of the Sterkfontein feedlot project. Feedlot Project must be factored into the Waste Management Plan which will need to be approved by EDTEA prior to the commencement of the operational phase.

(ii) Pre-construction activities

There are also no anticipated impacts linked to pre-construction phase. However; failure to consider the aspects below will lead to some impacts occurring during the construction or operational phase.

Ablution Facilities

Failure to provide ablution facilities prior to commencement of construction activities will lead to workers not having access to ablution facilities during the construction phase.

Provision of clean drinking water

Workers may be forced to consume water that is not clean or safe to drink if no plan is put in place to provide clean drinking water for the construction phase.

Environmental Awareness

Without the provision of environmental awareness training prior to the commencement of construction activities, workers will most likely be ignorant of environmental issues and act in ways that will cause environmental degradation including littering.

Vegetation Retention

Vegetation must be retained during the construction phase to reduce disturbance of the project to the surrounding environment. The site and no-go areas must be clearly marked out pre-construction.

Waste Management Plan

Without a proper waste management plan being put in place, handling and disposal of waste during construction and especially during the operational phase will result in negative environmental impacts which will affect ecosystem functionality and can also affect human health. This must include the disposal of carcasses and animal waste (manure).

(iii) Construction Activities

- **Vegetation Removal**
  Some vegetation will be removed when clearing space for construction of the feedlot facilities for the proposed project.

- **Soil Erosion**
  Soil will be exposed to erosion as a result of vegetation removal and earthworks.

- **Pollution**
  Littering by workers, failure to store site accordingly on site and failure to dispose of waste in an area permitted to handle and dispose of such waste will result in pollution within the affected area.

- **Soil Contamination**
  Failure to store hazardous substances such as fuel in the correct manner will most likely lead to such substances leaking/spilling resulting in soil contamination. Mixing of concrete on site without use of liners/mixing trays will also result in soil contamination.

- **Nuisance: Noise and dust**
  Noise from construction workers, vehicles and earthworks can be a nuisance for the surrounding community. Dust emissions will be as a result of use of the gravel road to access the site for the proposed development. Dust emissions from earthworks are expected to be low.

- **Spread of Alien Plants**
  Removal of vegetation exposes soil which when left bare for an extended period can be invaded by alien plant species.

- **Visual Impact**
  This impact can occur where the presence of the structures for the proposed development affect the sense of feel and general appearance of the area where the proposed development will be located.

- **Socio-Economic**

  This is a positive impact that will occur as a result of the employment opportunities that will benefit the locals during the construction phase.

- **Health and Safety**
  The different activities to be performed during the construction phase may pose health and safety risks for workers including tasks such as handling of potentially hazardous substances, operation of plant and vehicles and equipment.

(iv) Rehabilitation of the environment after construction

- **Alien Plants**
  Alien plants may continue to spread if areas that are not developed are not re-vegetated as part of the site rehabilitation.

- **Soil Erosion**
  Soil erosion may occur where the site is not properly landscaped post-construction.

(v) Where relevant, operation activities*;*

Odour
Smell can be emitted from the site during the operational phase as a result of cattle manure, accumulation of dead cattle on the site.

Health Impacts

Where waste and manure are not handled properly on the site, this can cause an emission of significant concentrations of compounds such as ammonia which can have an impact on the health of people especially those closest to the site. Failure to handle waste properly can also lead to introduction or increase of pests such as flies, mosquitoes and rodents which can negatively affect human health.

Groundwater Contamination

Where the waste storage area is not constructed properly, liquids from the Facility can result in localized groundwater contamination.

E. A DESCRIPTION OF PROPOSED IMPACT MANAGEMENT ACTIONS, IDENTIFYING THE MANNER IN WHICH THE IMPACT MANAGEMENT OUTCOMES CONTEMPLATED IN PARAGRAPH (D) WILL BE ACHIVIED, AND MUST, WHERE APPLICABLE, INCLUDE ACTIONS TO-

(i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation

1. Planning and Design Phase

   The design and layout of the proposed development must be holistically considered and all amendments necessary must be made prior to the commencement of construction to ensure that the design and layout implemented will have the least negative impacts.

   The project team must also ensure that sufficient resources are allocated for mitigation measures required in the different project phases to be implemented especially in terms of allocation of financial resources which can often be a limiting factor.

2. Pre-Construction Phase

Ablution Facilities

- Provision of ablution facilities must be planned in such that workers will have access to clean and safe ablution facilities from the first day of work.
- Establishment of long-drop toilets is strictly forbidden.
- Mobile toilets can be provided for workers as an option on site.

Provision of clean drinking water

- The provision of clean drinking water for workers must be provided. This is generally the responsibility of the Contractor for the construction phase and therefore this must form part of the agreements between the Developer and Contractor.

Environmental Awareness

- Pre-construction environmental awareness must be conducted with the Contractor, Developer, ECO and EDTEA. This will include: -
    - Highlight of the conditions of the Environmental Authorization if granted;
    - Presentation of EMPr and mitigation measures contained therewith to all concerned;
    - Explanation of responsibilities for the implementation of mitigation measures within the EMPr and
    - Signing of the EMPr by Contractor.

- All parties that will be part of the construction activities must be inducted prior to commencement of works.
- Environmental Induction can also be made part of the toolbox talks once construction has commenced.
- The Approved EMPr must be kept on site at all times to ensure monitoring by organs of state with jurisdiction on site.

Vegetation Retention

- The site must be clearly marked out including working and no-go areas.
- Removal of vegetation must be limited to the necessary areas.

Waste Management Plan

A waste management plan for the operational phase has been drawn up with clear details on how all waste types will be handled and disposed of. Once approved, the Waste Management Plan must be adhered to and failure to follow procedures within this plan will constitute a non-compliance which is punishable through fines and may result in instruction to cease all activity on the site.

3. Construction Phase

- **Vegetation Removal**
    - Vegetation removal must be minimized.
    - A search and rescue site walk-through must be completed by a suitably qualified specialist prior to construction to locate and mark SCC for translocation or preservation as may be relevant and appropriate.
    - The construction area must be demarcated and all areas beyond the demarcated area must be treated as no-go areas.
    - The appointed ECO must be given the chance to mark indigenous vegetation on the site prior to the commencement of removal of vegetation on site as may be applicable.
    - All areas earmarked to be cleared, must be adequately staked and inspected by the ECO to ensure that no fauna and/ or indigenous vegetation is accidentally injured/ killed / removed by construction activities on site.
    - Where indigenous vegetation as marked needs to be removed, the correct procedure must be followed under the supervision of the ECO.
    - All areas cleared for construction purposes must be re-vegetated with indigenous vegetation/grass upon completion of construction works with no areas eft bare.

- **Soil Erosion**
    - Soil erosion must be reduced by controlling the amount of space that is cleared of vegetation.
    - Cleared areas must be developed as soon as possible and not left bare for extended periods of time.

- Stormwater management on site must be such that the erosion potential of the stormwater is reduced or the stormwater is directed away from exposed surfaces.
- Areas where vegetation had been removed for construction purposes must be promptly re-vegetated once the work on that particular section has been completed. Vegetation used must be indigenous trees or grass.

- **Pollution**
  - All workers must undergo environmental induction which must include best practice allowed on site such as waste disposal at the designated areas.
  - All waste within the site must be stored in a designated waste storage area. Closed bins must be used for storage of general waste.
  - Waste from the site must be regularly disposed of at the nearest landfill site and waybills/receipts must be kept as proof of safe waste disposal. No dumping or burying of building waste or spoil material from the development should take place on areas other than a licensed landfill site.
  - Waste must not under any circumstances be left to accumulate on site.
  - Waste on site may not be buried or burned.
  - All disposal of construction waste must be approved by the ECO and Engineer and must be such that it does not result in on-site or off-site environmental degradation.

- **Soil Contamination**
  - There must be designated storage areas for potentially hazardous substances which must be equipped with a fire extinguisher. All storage of potentially hazardous substances must be in line with the provisions of Hazardous Substances Act (Act 15 of 1973).
  - A spill kit must be provided on site and used to clean up any minor spills that occur on the site. Such soil must be stored as hazardous waste and be disposed of as advised by the Appointed ECO.
  - Spills must be reported to the Department of Water and Sanitation, Daunhauser Local Municipality, Amajuba District Municipality and KZN Department of Economic Development, Tourism and Environmental Affairs.
  - All vehicles must be kept in good working condition and any spills/leaks observed must be attended to immediately. Drip trays must temporarily be placed under vehicles observed to be leaking until such time that they are serviced if they cannot be fixed immediately.
  - Drip trays must be provided and used accordingly when dealing with fuel and other hazardous substances.
  - Concrete mixing must only take place on mixing trays or on impermeable liners.
  - Alternatively ready-made mixed concrete be brought on site, this will mainly be for the stabilization of kraals.
  - Concrete trucks must not be washed out or cleaned on the site or other area near the site.

- **Nuisance: Noise and dust**
  - Noise Control Regulations (Regulations 154, 10 January 1992) of the Environmental Conservation Act (Act No. 73 0f 1989) must be adhered to.
  - Noise levels on site must be kept as low as possible at all times throughout the construction phase.
  - Construction workers must not be allowed to play any loud music on the site.
  - Construction operations must be restricted to daylight period, Monday to Saturday, and must adhere to legally stipulated hours (7.00 – 18.00).
  - The residents near the site must be informed when the construction phase of the proposed development is about to commence.

- All construction vehicles and plant must adhere to the recommended speed limits for the road used to get to the site.
- Where necessary, a water cart must be used to spray water on the road to reduce dust.

- **Spread of Alien Plants**
  - Control measures must be in place during construction and the operation phases of the development to prevent the proliferation of noxious weeds on site.
  - Where alien plant species are observed growing on cleared spaces, they must be mechanically removed.
  - Exposed areas must be re-vegetated with indigenous plants upon completion of activities on the affected areas.

- **Visual Impact**
  - Vegetation around the site must not be disturbed.
  - Disturbance of the surrounding environment must be minimized.
  - The paint colours chosen must not result in overall change of the feel of the area.

- **Socio-Economic**
  - The local leadership including the ward councilor must be engaged for the appointment of locals.
  - The terms and conditions of employment must be clearly explained to those appointed including how much they will earn, when they will be paid and the payment method.
  - Use of local labour must be maximized as far as is allowed for within the budget for the development.
  - The Contractor along with the Developer must consider any possible form of certification for the workers to endorse the skills they displayed. Additionally, some of the workers may be sent to train for skills such as First Aid skill which they can use within the community but can also help with improving their employability.
  - Employee rights according to the Basic Conditions of Employment Act must be respected at all times.

- **Health and Safety**
  - All requirements of the Occupational Health and Safety Act (Act No. 85 of 1993) must be complied with.
  - Only workers with the required licenses may be permitted to operate plant, machinery and vehicles.
  - All workers must be provided with the necessary Protective Clothing (PPE) for the tasks they are expected to complete and use of such PPE must be enforced.
  - Standard road safety measures must be followed by all plant and vehicle drivers.
  - Extra caution must be exercised in areas with high number of people especially around schools at times that the school children are arriving/leaving school.
  - Workers must at all times be provided with clean drinking water.
  - Clean and hygienic mobile toilets must be provided for workers throughout the construction phase. Such toilets must regularly be serviced by an approved service provider to ensure that they are clean and safe to use at all times.
  - Emergency procedures must be explained to all workers in case of occurrences such as a fire breakout.

- **Heritage Impact**

Where any heritage resources be uncovered during the construction phase, the measures below must be implemented.

- KZN Amafa and Research Institute must be contacted if any heritage objects are identified during earthmoving activities, and all development must cease until further notice.
- Amafa must be contacted if any graves or heritage objects are identified during construction and the following procedure is to be followed:
  - Stop construction
  - Report finding to local police station
  - Report to Amafa to investigate
- Sources of all-natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt etc) must be obtained in a sustainable manner and in compliance with the heritage legislation.
- Should any Palaeontological Material be uncovered a Palaeontologist must be called in to investigate.

4. Rehabilitation of the environment after construction and where applicable post closure;

- **Alien Plants**
  - Landscaping post-construction must include re-vegetation with indigenous grass/trees.
  - The ECO must be consulted to ensure that no alien plant species are planted as part of the rehabilitation.
  - All alien plants on site must be eradicated.

- **Soil Erosion**
  - All surfaces disturbed must be stabilized and re-vegetated accordingly.
  - Stormwater from the site must be channeled to avoid on-site and off-site erosion.

5. Operational Phase

- **Odour**
  - Waste dung generated by the cattle must be managed appropriately.
  - Manure stockpiles must be kept dry and removed regularly.
  - Feed pans must be kept dry to minimize odour.
  - Waste management must be in such that there is no accumulation of any waste such as carcasses on the site. Waste disposal frequency must be increased in summer where warm temperatures cause quicker decay.
  - Keep area around the facility free of spilled manure and litter.
  - The drainage must be of high standard.

    - **Composting**
  - Cattle dung can be used as manure.
  - Manure stockpiles must be kept dry and removed regularly.

      - **Landfill disposal**

- The dead cattle (carcasses) can also be disposed at the landfill site that is permitted to accept such type of waste.

- **Health Impacts**
  - All workers must be provided with the necessary Protective Clothing (PPE) for the tasks they are expected to complete and use of such PPE must be enforced.
  - Standard road safety measures must be followed by all plant and vehicle drivers.
  - Workers must at all times be provided with clean drinking water.
  - Clean and hygienic mobile toilets must be provided for workers throughout the construction phase. Such toilets must regularly be serviced by an approved service provider to ensure that they are clean and safe to use at all times.
  - Hand sanitizers must be available on site.
  - Emergency procedures must be explained to all workers in case of occurrences such as a fire breakout.
  - Should there be any overhead lines / underground cables encountered on site this will have to be reported to ESKOM.
  - All waste on the site must be properly and regularly disposed of per the applicable standards for cattle farming.
  - No development of residential property must be allowed closer to the site than the regulated safe distance to a cattle farm.

- **Groundwater Contamination**
  - The waste storage area on the site must have an impermeable floor and must be according to the applicable standards for safe storage of waste including carcasses.
  - Storm water must be conducted in a manner which prevent soil erosion.
  - Stormwater control should be done by cleaning and repairing the canals.

F. THE METHOD OF MONITORING THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (E)

1. Planning, Design and Pre-Construction Phase

   During these phases, environmental issues will need to be considered for decision making and therefore reported on any planning/pre-construction meetings that are held in connection with the development.
   An Environmental Control Officer must be appointed prior to the commencement of construction activities.
   The ECO will be responsible for monitoring compliance to pre-construction measures and liaising with EDTEA with regards to the conditions of the EA for the Development.

2. Construction Phase

   The appointed Environmental Control Officer must:-
   - Conduct monthly site audits and monitor activities on site against what is set out in the EMPr and against conditions of the EA.
   - Compile Environmental Compliance Reports which must be submitted to EDTEA.
   - Findings of the audit conducted must be communicated with the project committee including the Contractor, Engineer and Developer. The ECO must within these reports highlight any non-compliances

identified and actions to be taken to rectify the non-compliances and remedy the impacts of the non-compliance.

Monitoring must also be conducted by EDTEA who may visit the site whenever necessary to monitor compliance to the EMPr and EA.

The Contractor must appoint one of the workers to be responsible for the day-to-day monitoring of compliance to impact mitigation measures as contain within the EMPr. This is the person that will deal closely with the ECO and communicate any challenges faced in implementation of mitigation measures with the ECO.

The Contractor must obtain receipts/waybills for waste disposal and service of toilets. Such must be kept on file at all times for the ECO or officials to view upon request as proof of safe waste disposal and proof for safe and regular toilet servicing.

G. THE FREQUENCY OF MONITORING THE IMPLEMNETATION OF THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (E)

An on-site assessment/monitoring must be conducted every two weeks (twice a month) for the duration of the construction period. A single audit report for each month must be submitted to EDTEA as per contact details for their compliance and monitoring section.

Additionally, issues relating to environmental compliance must be discussed on the project meeting platform to ensure that the importance of compliance and environmental preservation is made clear to the team and that relevant parties are directed to take necessary action for on-site compliance.

H. AN INDICATION OF PERSONS WHO WILL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS

- Appointed ECO (Environmental Control Officer) – overall responsibility of environmental reporting, training and awareness and the overseer of the implementation of the whole EMPr and Specialists recommendations.
- Contractor / Site Engineer or Builder – responsible for all engineering or building related work on site, and project implementation.
- Nyezenhle Holdings (Pty) Ltd (Developer) – ensure adherence to the EMPr.
- EDTEA (Compliance Section) – inspections.

I. THE TIME PERIODS WITH WHICH THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (E) MUST BE IMPLEMENTED

All the stipulated mitigation measures are relevant for compliance throughout the different phases.

For example: Mitigation measures for impacts related to construction activities must be implemented throughout the construction phase of the development.

The mitigation measures, responsibilities and time frames are indicated in the tables below for each of the different project phases.

Pre- Construction Phase

Activity	Management / Mitigation	Responsibility	Frequency / Timing
A1 - Legislation, permits, agreements and EA requirements	All members of the project team must adhere to all environmental legislation relevant to the project. • Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) • National Environmental Management Act (Act 107 of 1998) • National Environmental Management: Waste Act (Act No. 59 of 2008) • National Waste Management Strategy (1999) • National Water Act (Act No. 36 of 1998) • National Health Act (Act No. 61 of 2003) • National Environmental Management: Air Quality Act (Act No. 39 of 2004) • Conservation of Agricultural Resources (Act No. 43 of 1983) • National Environmental Management: Biodiversity Act (Act 10 of 2004) • Alien and Invasive Species Regulations, 2014. • KwaZulu-Natal Heritage Act, 2018. • Occupational Health and Safety Act, 85 of 1993 • National Forests Act (Act No. 84 of 1998) • Noise Control Regulations (Regulations 154, 10 January 1992) • SANS 10400 amendments, in terms of the National Building Regulations and Building Standards Act, No. 103 of 1977, as amended.	Contractor/Developer and ECO	Pre-, during and post construction.

	1. The EMPr must be kept on site at all times. 2. All members of the project team must be provided with adequate environmental training. 3. Any and all mitigation measures that must be set up prior construction must be implemented. 4. Monitoring and control programmes must be put in place to manage alien invasive plants. 5. The working area is to be clearly demarcated and all construction work is to be kept within the demarcated area.	Contractor/Developer and ECO	Ongoing
A2 - Access to site *Sound environmental principles must be followed*	**A2.1 Routing**		
	a. Access route must be clearly marked and disturbance outside these areas is not permitted. Choice of access routes must take into account minimum disturbance to surrounding environment.	Contractor/Engineer and ECO	Prior to moving onto site and during construction
	b. in cases of underground services and servitudes, the location of all underground services and servitudes must be identified and confirmed before construction commences.		
A3 – Setting up the construction camp/Site *Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation are reduced.*	**A3.1 Layout & Location**	Contractor/ECO and Engineer	Pre-Construction/Site Set Up
	a. If the Contractor chooses to locate the campsite on private land, he must get prior permission from both the Engineer and the landowner.		
	b. The size of the construction camp must be minimized (especially where vegetation/grassland has had to be cleared for the site camp).		
	c. The construction camp must be properly fenced with a 1.8m high bonnox (or similar type) fence, secured and kept in a clean and orderly state at all times.	Contractor/ECO and Engineer	
	d. The construction camp must be located on a level area at least 50m from any watercourse, wetland, water supply or on slopes greater than 1:3. The position of the camp must be ratified by the Engineer and the ECO.	Contractor/ECO and Engineer	

	e. The Contractor must attend to the drainage of the campsite to avoid sheet erosion and / or standing water.	Contractor/ECO and Engineer	
	f. Safeguard of watercourses and Chelmsford dam, which is located over 500metres from the proposed site.		
	g. Through appointed specialist, indigenous vegetation around the site must be marked off including no go areas. Such specialist must also assist and guide the translocation of identified plant species of conservation concern.		
	A3.2 Ablutions		
	a. There is an existing ablution facility on the site, however it should be maintained properly.	Contractor/ECO and Engineer	During set-up and On-going
	b. The construction of a "long-drop" is forbidden.		
	c. A mobile toilet must be placed close to working areas at all times during the construction phase for easy access of workers.		
	A3.3 Provision for Camp Waste Disposal		
	a. Bins and / or skips must be provided at convenient intervals for the disposal of waste within the camp. The bins must be covered. Bins should have liner bags for efficient and safe disposal of waste.	Contractor/ECO and Engineer	During site set-up and on-going
	b. At least three rubbish bins must be located at the construction camp for the collection of waste.		
	c. Recycling and the provision of separate waste receptacles for different types of waste should be encouraged. Where possible, plastics, paper, glass and cans should be separated from other domestic waste for recycling. If waste is to be recycled, appropriately labelled waste receptacles must be made available.		
	e. Any potentially hazardous containers must be punctured or disabled prior to disposal.		

A4 – Education of site staff on general and environmental conduct *These points need to be made clear to all staff on site before the project begins*	**A4. 1 – Education**		
	a. The Contractor must ensure that all site personnel have a basic level of environmental awareness training. Environmental awareness posters must be used on site. The Contractor must submit a proposal for this training to the ECO for approval. Topics to be covered must include: 1. What is meant by "environment"; 2. Why the environment needs to be protected and conserved; 3. How construction activities can impact the environment; 4. What can be done to mitigate against such impacts; 5. Awareness of emergency and spills response provisions; 6. Social responsibility during construction e.g. being considerate to local residents. It is the contractor's responsibility to provide the site agent with environmental training and to ensure that the site agent has sufficient understanding to pass this information onto the construction staff.	Contractor/ECO and Engineer	During staff induction and on-going
	b. Staff operating equipment shall be adequately trained and sensitized to any potential hazards associated with their tasks	Contractor/ECO and Engineer	During staff induction, followed by on-going monitoring
	c. The Engineer / ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.		
	d. The use of pictures and real-life examples is encouraged as these tend to be more easily remembered.		
	e. No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the Contractor and certified competent by the Project Management.		
	f. All employees must undergo the necessary safety training.		
	A4.2 – Worker conduct on site		

	a. A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following rules: a. No alcohol / drugs to be present on site, no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs. b. Prevent excessive noise to minimize disturbances to local residents. c. No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel). d. Bringing pets onto site is forbidden. e. Construction staff are to make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires to be permitted on site. The use of gas-operated cookers for preparation of food on site must be encouraged. f. Trespassing on private / commercial properties adjoining the site is forbidden. g. Only ***pre-approved*** security staff and workers shall be permitted to live on the construction site. h. No worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do. i. The staff conduct rules are described in a separate table of Rules (Section F of the EMP). This is aimed at providing staff with the basic information regarding worker conduct on site)	Contractor/ECO and Engineer	During staff induction, followed by on-going monitoring
A.5 Set up of Waste Management	**A.5.1 Waste Management**		
	a. The contractor is responsible for the internal collection of refuse and for transporting it to a registered landfill site once every week; unless a service agreement is entered into between the contractor and the municipality.	Contractor/ECO and Engineer	During site set up and on going

	b. The excavation and use of rubbish pits is forbidden.		
	c. Burning of waste is forbidden.		
	d. Individual skips/bins for different types of waste (e.g. building rubble and hazardous waste.) must be provided. This meaning that hazardous waste must not be in the same container/bin as general waste as the two must be disposed of separately.		
A.6 Cultural Environment	**A.6.1 Protection of Cultural Environment**		
	Prior to the commencement of construction, all the staff needs to know what possible archaeological or historical objective of value may look like, and to notify the Engineer / Contractor should such an item be uncovered. If any artefacts or graves are uncovered during construction, all work on site is to cease and AMAFA as well as the ECO is to be notified for comment. Construction may only commence once approval by AMAFA is granted.	ECO / PM / C	During site set up and on-going.

Construction Phase

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Removal	• Vegetation removal must be minimized. • The construction area must be demarcated and all areas beyond the demarcated area must be treated as no-go areas. • The appointed ECO must be given the chance to mark indigenous vegetation on the site prior to the commencement of removal of vegetation on site. This must be done through a pre-construction walk through by with a qualified specialist for accurate marking of species for removal and/ or translocation. • If any SCC or plant species high on the Red List are identified within the proposed footprint, effective rescue and relocation of them must be undertaken. • No protected species may be removed and/or destroyed without a valid permit. • Where indigenous vegetation as marked needs to be removed, the correct procedure must be followed as directed by the ECO. • No construction may take place within an area which is classified as highly sensitive. • No clearance of vegetation must be allowed to take place outside of the development footprint. • All areas cleared for construction purposes must be re-vegetated with indigenous vegetation/grass upon completion of construction works with no areas to be left bare. • The site is already fenced, Developer must conserve the area outside of the development footprint but inside the site.	Contractor/Developer and ECO	Pre-, during and post construction.

Soil Erosion	• Soil erosion must be reduced by controlling the amount of space that is cleared of vegetation.
	• All temporary embankments that are considered sensitive to erosion must be adequately retained and supported (sandbags, fascine work, retaining blocks etc.).
	• Topsoil monitoring must take place prior to soil stripping and backfilling. The ECO must determine if the quality of soil is satisfactory, prior to backfilling.
	• Topsoil must be sequentially removed in accordance with the requirements on site.
	• All topsoil must be adequately stored:
	  o On a Flat surface;
	  o Below two metres;
	  o Suitably covered if stored for prolonged periods of time.
	  o Separate from sub-soil and other stockpiles.
	  o Not near watercourses
	• Cleared areas must be developed as soon as possible and not left bare for extended periods of time.
	• Stormwater management on site must be such that the erosion potential of the stormwater is reduced or the stormwater is directed away from exposed surfaces.
	• Areas where vegetation had been removed for construction purposes must be promptly re-vegetated once the work on that particular section has been completed. Vegetation used must be indigenous trees or grass.
		Contractor/Engineer and ECO	Throughout the Construction Phase

Pollution	• An adequate number of proof litter bins are to be placed throughout the site. Two (2) waste bins at least must be present, one (1) for hazardous waste and one (1) for non-hazardous waste at each working site. • Burning and Burying of waste on site is prohibited; Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste; • Dedicate a demarcated and signposted storage area on site for the collection of construction waste; • All domestic waste is to be removed from site and disposed of at a registered solid waste landfill site as mentioned in the Waste Management Plan; • Care must be taken to ensure that no waste fall off disposal vehicles on-route to the landfill. • General refuse/rubbish shall be removed from site as soon as the waste bins are reaching full capacity; • Hazardous waste must be separated from non-hazardous waste and disposed of at a hazardous treatment facility, • records and proof of disposal must be kept; and, • A register must be kept of the quantities of waste disposed and proof of disposal must be available at the site office • All workers must undergo environmental induction which must include best practice allowed on site such as waste disposal at the designated areas. • All disposal of construction waste must be approved by the ECO and Engineer and must in such a manner that is does not culminate in on-site or off-site environmental.	Contractor/Engineer and ECO	Throughout the Construction Phase

Soil Contamination	• There must be designated storage areas for potentially hazardous substances which must be equipped with a fire extinguisher. All storage of potentially hazardous substances must be in line with the provisions of Hazardous Substances Act (Act 15 of 1973).
	• A bunded area must be established where high amounts of fuel are to be stored on site and such bunded area must be able to store the full capacity of the storage container(s) placed on it.
	• A spill kit must be provided on site and used to clean up any minor spills that occur on the site. Such soil must be stored as hazardous waste and be disposed of as advised by the Appointed ECO.
	• In the case of a spill, the following steps must be taken:
	  o Stop the source of the spill;
	  o Contain the spill;
	• Report the spill to this the Department of Water and Sanitation, Daunhauser Local Municipality, Amajuba District Municipality and KZN Department of Economic Development, Tourism and Environmental Affairs.
	• Remove the spilled product for treatment and/or authorized disposal;
	• Determine if there is any soil, ground water or other environmental impact;
	• Where necessary; undertake remedial action in consultation with this Department of Water and Sanitation and the Department of Economic Development, Tourism and Environmental Affairs and
	• Document and submit the incident documents to Department of Water and Sanitation, Daunhauser Local Municipality, Amajuba District Municipality and KZN Department of Economic Development, Tourism and Environmental Affairs.
		Contractor/ECO and Engineer	During site set up and on going

	• All vehicles must be kept in good working condition and any spills/leaks observed must be attended to immediately. Drip trays must temporarily be placed under vehicles observed to be leaking until such time that they are serviced if they cannot be fixed immediately. • Drip trays must be provided and used accordingly when dealing with fuel and other hazardous substances. • Concrete mixing must only take place on mixing trays or on impermeable liners. • Concrete trucks must not be washed out or cleaned on the site or other area near the site, unless such cleaning will not cause any environmental harm.		
Nuisance: Noise and Dust	• Noise Control Regulations (Regulations 154, 10 January 1992) of the Environmental Conservation Act (Act No. 73 0f 1989) must be adhered to. • Noise levels on site must be kept as low as possible at all times throughout the construction phase. • Construction workers must not be allowed to play any loud music on the site. • Construction operations must be restricted to daylight period, Monday to Saturday, and must adhere to legally stipulated hours (7.00 – 18.00). • The residents near the site must be informed when the construction phase of the proposed development is about to commence. • All construction vehicles and plant must adhere to the recommended speed limits for the road used to get to the site. • Dust suppression must be implemented on all access roads with use of, a water cart must be used to spray water on the road and site to reduce dust. This practice must be carefully monitored by the ECO and all water usage must be recorded throughout the project lifespan.	Contractor/Engineer and ECO	Through construction phase and operation since access road is a dirt gravel road.

Spread of Alien Plants	• An Alien Plant Eradication plan must be drawn up and implemented throughout the construction phase. • In cases of alien plant species observed growing on cleared spaces, they must be mechanically removed. • Exposed areas must be re-vegetated with indigenous plants upon completion of activities on the affected areas.	Contractor/Engineer and ECO	Throughout the Construction Phase
Visual Impacts	• Vegetation around the site must not be disturbed. • Disturbance of the surrounding environment must be minimized. • The paint colours chosen must not result in overall change of the feel of the area	Contractor/Engineer and ECO	Throughout the Construction Phase
Socio-Economic	• The local leadership including the ward councilor must be engaged for the appointment of locals. • The terms and conditions of employment must be clearly explained to those appointed including how much they will earn, when they will be paid and the payment method. • Use of local labour must be maximized as far as is allowed for within the budget for the development. • The Contractor along with the Developer must consider any possible form of certification for the workers to endorse the skills they displayed. Additionally, some of the workers may be sent to train for skills such as First Aid skill which they can use within the community but can also help with improving their employability. • Employee rights according to the Basic Conditions of Employment Act must be respected at all times.	Contractor/Engineer and Developer	Throughout the Construction Phase and for the duration of the project activity

Health and Safety	All requirements of the Occupational Health and Safety Act (Act No. 85 of 1993) must be complied with. Only workers with the required licenses may be permitted to operate plant, machinery and vehicles. All workers must be provided with the necessary Protective Clothing (PPE) for the tasks they are expected to complete and use of such PPE must be enforced. Standard road safety measures must be followed by all plant and vehicle drivers. Extra caution must be exercised in areas with high number of people especially around schools at times that the school children are arriving/leaving school. Workers must at all times be provided with clean drinking water. Clean and hygienic mobile toilets must be provided for workers throughout the construction phase. Such toilets must regularly be serviced by an approved service provider to ensure that they are clean and safe to use at all times. Emergency procedures must be explained to all workers in case of occurrences such as a fire breakout. Should there be any overhead lines / underground cables encountered on site this will have to be reported to ESKOM.	Contractor/Engineer/Health and Safety Officer and ECO	Throughout the Construction Phase
Heritage Impact	Where any heritage resources be uncovered during the construction phase, the standard measures below must be implemented. • Amafa must be contacted if any heritage objects are identified during earthmoving activities, and all development must cease until further notice. • Under no circumstances may any heritage material be destroyed, inundated, collected, or removed from the site unless under the direction of KwaZulu – Natal Amafa and Research Institute and heritage specialist.	Contractor/Engineer and ECO	Throughout the Construction Phase

	• Amafa must be contacted if any graves or heritage objects are identified during construction and the following procedure is to be followed: ▪ Stop construction ▪ Report finding to local police station ▪ Report to Amafa to investigate • Sources of all-natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt etc) must be obtained in a sustainable manner and in compliance with the heritage legislation. • Should any remains be found on site that is potentially human remains SAPS should also be contacted, and no SAPS official may disturb or exhume such remains without the permit from Amafa. • No activities are allowed within 50m of a site, which contains rock art.		

Operation Phase

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Odour	• Waste dung generated by the cattle must be managed appropriately. • Manure stockpiles must be kept dry and removed regularly. • Feed pans must be kept dry to minimize odour. • Waste management must be in such that there is no accumulation of any waste such as carcasses on the site. Waste disposal frequency must be increased in summer where warm temperatures cause quicker decay. • The removal of the carcasses must be executed in accordance with the regulations of the Meat Safety Act 2000. • Keep area around the facility free of spilled manure and litter.	Developer	Through operation phase
Handling of waste within the site	• Waste must not be stored on site in excess of ninety (90) days; • All general waste must be disposed of at a registered landfill site as mentioned in the Waste Management Plant; • An adequate number of proof litter bins are to be placed throughout the site. Two (2) waste bins at least must be present, one (1) for hazardous waste and one (1) for non- • All trucks that remove manure to the farm must be covered with a cover sheet to prevent waste on the road. Should spills occur it must be removed immediately;	Developer	Through operation phase

Air Emissions	• Dust suppression measures must be implemented constantly to reduce dust especially in access road • Loose manure must be removed regularly to prevent dust. • Feeding pans and / or silage storage must be cleaned frequently • Water sprinkling method must be done on the access road to reduce dust. • All vehicles and trucks that are coming in for loading of off-loading of the cattle must adhere to the recommended speed limits for the road used to get to the site.	Developer	Through operation phase
Health Impacts	• Adhere to the occupational health and safety Act • Appropriate signage must be placed to caution employees. • All waste on the site must be properly and regularly disposed of per the applicable standards for Cattle feedlot. • All workers within the farm must be provided with the proper clothing for their work roles. • Emergency procedures must be explained to all workers. • Hazardous areas must be demarcated with danger tape.	Developer	Throughout the Operational Phase

Groundwater Contamination	• The waste storage area on the site must have an impermeable floor and must be according to the applicable standards for safe storage of waste including carcasses. • All hazardous substances to be stored on the farm must be stored on impermeable surfaces. • A spill kit must be kept on site throughout the construction site for the clean-up and disposal of possible spills. Where a spill occurs, the following actions must be taken: o The spill must be immediately cleaned up and contaminated soil/material be disposed of at disposal site licenced to handle and dispose of hazardous waste. o The significant spills that take more than just a spill kit to clean must be reported to the Department of Water and Sanitation, Daunhauser Local Municipality, Amajuba District Municipality and the EDTEA. o The spill must be recorded including impacts of the spill, how the action taken to deal with the spill and associated impacts and measures to prevent the same incident from occurring again.	Developer	Through operation phase
Nuisance generated by trucks and cattle calves	• Although the farm is located away from residential area, noise mitigation measures must be taken into consideration. • There must be limited working hours of noisy equipment and trucks. • Plant privets around the feedlot boundary to reduce noise from cattle calves during early morning to reduce roaring during night time.	Developer	Through operation phase
Surface run off	• Implement the stormwater plan to the letter.	Developer	Through operation phase

Decommissioning Phase

The activity is not expected to have a decommissioning phase. However, upon completion of the construction phase:

The ECO must inform EDTEA of the upcoming completion of the construction phase.

A final site assessment must be conducted to ensure that:

- All rubble and any other waste has been removed from the site and properly disposed of.
- All disturbed areas have been re-vegetated accordingly.
- All areas which may have been contaminated have been cleared of contaminants and all other possible contaminants which will not be used for the operation phase have been removed from the site.
- All temporary services which had been commissioned for the purpose of the construction phase must be decommissioned without any harm to the environment.
- A final report must be submitted to EDTEA on rehabilitation measures implemented and recommendation on whether any further action is required.

EDTEA will need to be informed of the intended commencement of the operational phase as set out in the EA issued for the project.

Should any decommissioning of the cattle farm be required for whatever reason, the following mitigation measures must apply.

Activity	Management / Mitigation	Responsibility	Frequency / Timing

Spread of Alien Plants • Introduction and spread of alien plant species through improper disposal of feed. • Introduction of alien plant species through revegetation.	• All litter and feed pans must be removed from the site. • Once hardened surfaces have been ripped, they must be revegetated with indigenous vegetation.	Developer and Appointed Contractor	Decommissioning Phase
Odour • Odour from chicken manure being left on the site.	• All waste material must be removed from the site including carcasses and manure stockpiles. • The appropriate steps must be followed to empty and decommission septic tanks on site. • If the ablution facilities and septic tank system are not decommissioned properly this could lead to odour.	Developer and Appointed Contractor	Decommissioning Phase

Visual Impact • Failure to ensure that all structures are removed correctly and that the site is rehabilitated accordingly will have visual impact as the site in its disturbed state will not blend in with the surrounding area.	• The site area will be appropriately rehabilitated to blend in with surrounding environment.	Developer and Appointed Contractor	Decommissioning Phase
Groundwater Contamination • Potentially hazardous substances could be spilled when clearing storage area.	• All potentially hazardous substances must be contained and disposed of at a hazardous waste disposal site. • Care must be taken in emptying septic tanks to not result in pollution of the surrounding area. • A suitably qualified Contractor must be engaged in terms of decommissioning of the stormwater soakaway and the septic tank system. • Spill of hazardous substances must be prevented or otherwise cleaned up. • Vehicles and machinery will also be needed during this phase and therefore the risk of fuel and other hydrocarbons will pose a threat for groundwater and surface water contamination. • Where appropriate measures are not followed for the decommissioning of toilets and septic tanks, this could lead to contamination of soil and water resources	Developer and Appointed Contractor	Decommissioning Phase

Over and above the above contained decommissioning related mitigation measures, the Developer will have to notify all the relevant state departments of the intended decommissioning and reasons for the decommissioning to ensure that they all have the opportunity to raise concerns relating to their area of authority. The cattle farm must not under any circumstances be abandoned without proper decommissioning protocol being followed.

J. CONCLUSION

According to the National Environmental Management Act, 1998 everyone must take reasonable measures to ensure that they do not pollute the environment. In this regard the reasonable measures will include informing and educating employees about environmental risks of their activities and instill a sense of environmental consciousness.

It is therefore, crucial that all recommendations are adopted and effected to the letter during all phases of tis development as part of the mitigation measures. It must also be kept in mind that the Environmental Management Programme is a live document, that need adjustment as the need arise, as long as such changes are in the interest of the environment.