ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR THE CONTINUED OPERATION AND MANAGEMENT OF THE EXISTING LIVESTOCK FEEDLOT ON PLOT 59, KEETMANSHOOP, KHARAS REGION

PREPARED FOR.

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DOCUMENT INFORMATION

Project Name	**Continued operation and management of the existing Feedlot on Plot 59, Keetmanshoop, Kharas region**
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List of Acronyms

CBD	Central Business District
MoHSS	Ministry of Health and Social Services
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
FANMeat	Farm Assured Namibian Meat
GAP	Good Agriculture Practices
MAWF	Ministry of Agriculture, Water and Forestry
MEFT	Ministry of Environment, Forestry and Tourism
MURD	Ministry of Urban and Rural Development
PPE	Personal Protective Clothing
WHO	World Health Organization

1. INTRODUCTION AND BACKGROUND

1.1 Background

Mr. Johann Blaauw hereinafter referred to as the proponent owns a livestock feedlot that has been operational for more than ten years. The feedlot is located northeast of the town, on Plot 59 of the Keetmanshoop Town and Townlands No. 150. The site measures approximately 5ha in extent and is located on an area zoned for agricultural purposes.

The main site infrastructure consists of holding pans, a workshop, site office and feed storage area. The feedlot has a holding capacity of 600 livestock which includes wearers and slaughtering cattle. The main operational activities of the feedlot involve receiving and feeding animals (fattening). Other operational activities include stormwater management, livestock health monitoring, manure management, and maintaining proper infrastructure. The livestock are sold live through auctions and exported to South Africa and slaughtered at the local abattoir. The feedlot has 19 permanent employees, all of whom reside in town and only security personnel are accommodated onsite.

The feedlot is located on an area designated for agricultural purposed, hence it was allowed to operate without and an EIA study being undertaken. However, given its locality in an urban area, the continued operation of the feedlot has potential to give rise to several environmental, socio-economic and public health impacts. Green Gain Consultants cc was appointed to prepare an Environmental Management Plan (EMP) for the continued operation and management of the existing livestock feedlot.

The EMP outlines measures to prevent the identified negative environmental impacts and to ensure those that do happen are kept to a minimum by providing this practical and achievable plan of management. It also identifies enhancement measures for the optimization of potential positive impacts that may be associated with the proposed project. The need for compliance and the need for monitoring compliance by inspection are explained as well as various role players and their responsibilities and reporting procedures are contained within this EMP.

1.2 EMP Methodology

Since Feedlot has been operational for some time and is located on area zoned for agricultural purposes, an Environmental Management Plan (EMP) was deemed sufficient pending approval of the Environmental Commissioner. The stipulated environmental impact assessment procedure in terms of the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 was followed. The following key activities and tasks have been undertaken as part of the EIA and EMP development process, namely to:

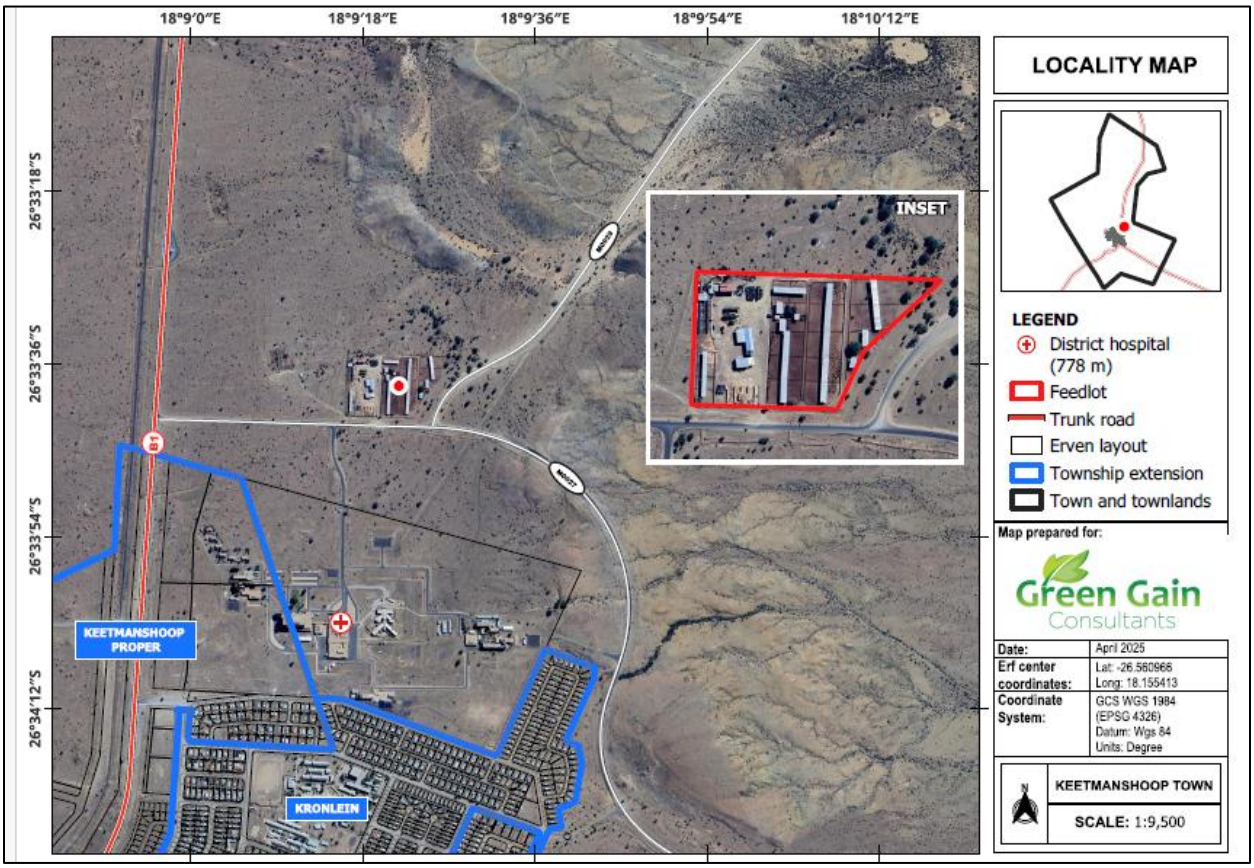
- Solicited initial input from the main stakeholders. This is essential toward the development of a sound plan. Since no resource sits in isolation, an environmental management plan can affect a number of other parties. For the best adherence and acceptance of a plan, input is needed to address concerns early in the planning process.
- Identify the problems and issues associated with the feedlot operations. Clearly defined objectives were identified in order to remain centered on a management plan. Only in this way can the success of this environmental management plan be gauged.
- Made a list of applicable criteria, standards and principles for the operation as required by legislation, regulation, policies and etc. As standards include criteria to fit various types of projects, much of the information is often irrelevant to any particular one.
- Established the extent of the management plan and what the client must do. It is easy for a management plan to end up in someone's hands and never be executed. Inform the client that creating the plan is an iterative process requiring routine correspondence to tailor it to Project Contractor's specific needs.
- Seek public input through advertisement of the EIA process in the two widely circulated newspapers and continuous engagements with registering as I&APs. An attempt to gather public input is always required.

This EMP was written to guide short-term goals and decision making and will provide environmental related guidelines. By having this plan in place, the site manager will have means to make good decisions. With public input, the plan helps agencies measure public opinion. It can help to guide future management decisions, especially when citizens are affected. It creates focus within an agency, guiding it through management changes.

2. PROJECT DESCRIPTION

2.1 Location

The existing Keetmanshoop feedlot is located on Portion 59 of the Keetmanshoop Town and Townlands No.150. It is located about 3km northeast of the town Central Business District (CBD) at the intersection of Koes/Aroab road on the following coordinates *-26.560966" S and 18.155413" E.*



The feedlot is adjacent to Agra Livestock Auction Pan. It is located safe distances from public facilities and the town built up areas. The following public facilities ae within a reachable distance of the feedlot.

- Keetmanshoop hospital: ±800m
- Public roads (B1 & M0027): ±500m & ±10m respectively
- Residential area: ±1000m
- River/Watercourse: ±600m
- Water source/Dam (van Rhijn dam): ±1000m

2.2 Feedlot facilities

The feedlot covers an area of 5ha in extent and consists of the following site infrastructure.

- Holding pans
- Auction pans x 15
- Maintenance Workshop
- Feed storange area
- Site office
- Security room
- Ablution facility

Figure 1: Overview of the existing feedlot area

2.3 Operation procedures

- *Animal husbandry*

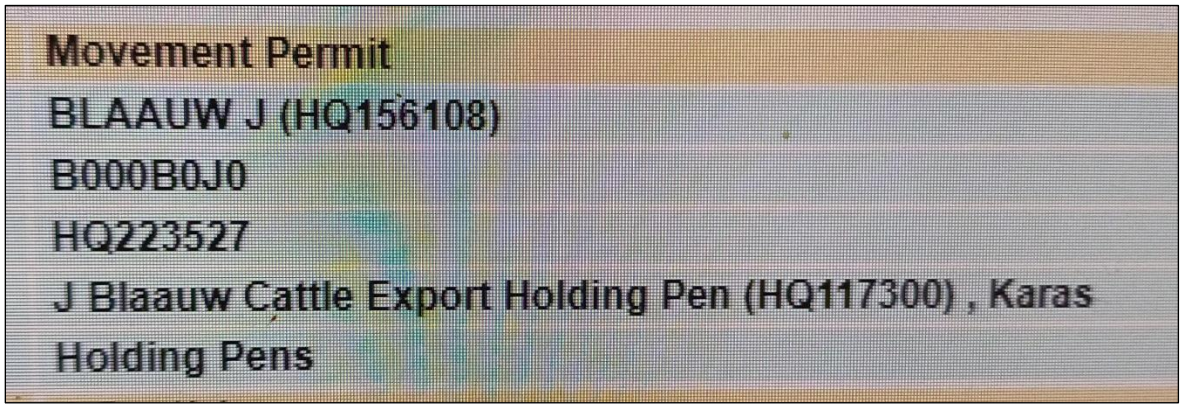
The feedlot has a holding capacity of 3500 weaners and 2500 slaughtering cattle. The main operational activities of the feedlot involve receiving and feeding animals (fattening) for slaughtering and export to South Africa. The livestock are brought in from the owner's farm and from other local farms. The weaners are brought in at 6months old while slaughtering livestock are brought in at around 9 months old.

Vehicles delivering livestock enter a security gate and the livestock will then be offloaded and kept in the shaded holding pens where they will receive food and water. The feedlot diet is made up of grain and roughages i.e. hay, straw, & silage. The food is obtained from the feed plantation located in town and from local feed suppliers, i.e. Agra.

The local veterinarian is contracted to inspect all animals on an ad hoc basis and during auctions. All animal coming to the feedlot are vaccinated before they enter the holding pens. Sick animals are kept in an isolation pen for observation and treatment. Other operational activities include manure management and maintaining proper infrastructure. The feedlot has 19 permanent employees, all of whom reside in town and only security personnel are accommodated onsite

- *Animal marketing*

The feedlot is registered for export purposes and has a movement permit from the Ministry of Agriculture, Water and Land Reform. Slaughtering animals are either exported live to RSA, sold on auctions (Agra Spring Auctioneer) or sold to the local abattoir. Weaners are normally kept and fed for at least three months before sold in the same manner as slaughtering livestock.



- *Stormwater management*

The feedlot is located outside the built-up town area, therefore far away from the Municipal services such as water and stormwater channels. The feedlot was built in such a way that the stormwater runoff is diverted away from the holding pan area and manure stock piling. Surface water that seeps through the holding pens and manure stockpiles is diverted away in a separate pond.

- *Waste Management*

The proponent manages different types of feedlot waste as follows:

CATEGORY	TYPES	ORIGIN	MEANS OF DISPOSAL
SOLID	Dug/Manure	Animal handling area and holding pans	Sold as compost/fertilizer
	General household/office waste	Domestic and office operation	Municipal landfill site
	Carcass	Dead animal	Municipal landfill site
	Grease, scraps etc.	Workshop	Scrapyards
	Hazardous waste	Expired veterinary drugs/medicines	MoHSS/Veterinary Incinerator
	Others	Condemned or spoiled products	Municipal landfill site
LIQUID	Livestock Urine	Animal handling area and holding pans	Septic tank as effluent
	Blood	Animal handling	Septic tank as effluent
	Domestic sewage	Toilets	Septic tank as effluent
	Wash water	Showers, kitchen	Septic tank as effluent
	Expired medicine	Animal vaccinations	MoHSS
	Used oil		

The holding & auction pans get cleaned regularly and manure stockpiled on site. The manure is collected by local gardeners, the Municipality, as fertilizers. The feedlot receives relatively low mortality rates due to strict animal husbandry. In case of any mortality the carcass will be composted and disposed of at the Municipal landfill site.

In terms of liquid waste management, all solids screened from the various effluent streams are either disposed of at the Municipal landfill or collected for re-use (composting) by third parties. Condemned material and potentially hazardous waste is disposed of according to the requirements of the Municipality Health Department in most cases burned at a dedicated site or taken to the Ministry of Health and Social Services (MoHSS) for incineration.

2.4 Routine Cleaning and Maintenance

The feedlot prescribes to the FAN Meat standards with regard to bio-safety, food safety as well as animal health and welfare, a well-organized and thought-through feedlot management plan is indispensable. As such the feedlot has adopted a routine cleaning and maintenance plan as follows.

Cleaning & Maintenance Practice	Frequency
Removal of spilt feed	At least weekly
Elimination of wet patches	At least weekly
Repairs to potholes	At least monthly
Under fence cleaning	At least monthly
Catch drain cleaning	After rainfall and as required to eliminate weeds
Diversion banks	After rainfall and as required to ensure integrity
Sedimentation basin	After rainfall and as require ensure working volume
Holding pond	Annually
Pen cleaning	Pen cleaning is continual with an average cleaning interval of 10 weeks. Depending on weather and pen conditions this may extend to 12 weeks

The above plan will have the following effects

- Minimize the odour levels and reduce the risk of fly breeding
- Minimize the dust in the surrounding, thereby reducing the possibility of air pollution
- Promote good pen drainage
- Minimize cost of feedlot maintenance and
- Optimize the overall performance of cattle

3. LEGAL FRAMEWORK

3.1 National legislation pertaining to livestock production

All activities related to the feedlot operation and management should be guided by the Acts and respective Regulations as amended and Government Notices.

- Acts as amended with their Regulations, amendments and Government Notices:
- Animal Health Act 1 of 2011
- Animal Identification Regulations: Health Act, 2011 (GRN gazette No 6476, 23 November 2017)
- Stock Brands Act 24 of 1995
- Regulations in terms of the Stock Brand Act No. 24 of 1995 from 2004
- Prevention of Undesirable Residue in Meat Act No. 21 of 1991
- Regulations in Terms of The Prevention of Undesirable Residue in Meat Act No. 21, 1991 from 1994 (prohibition of hormonal growth promoters and other substances) Medicines and Related Substances Control Act No. 13 of 2003
- Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947
- Prohibition in terms of the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947 (prohibition of the feeding of ruminant derived proteins to ruminants)
- Stock Theft Act 12 of 1990
- Animal Welfare Act of 1962
- Meat Industry Act No. 12 of 1981 as amended

3.2 Other applicable legislation

In addition to the pertinent legislation on livestock production, the feedlot operation is required to adhere to certain applicable provisions of the National and Internation legislations.

LEGISLATION	PROVISION AND REQUIREMENTS
Constitution of the Republic of Namibia (1990)	Articles 91 (c) commands the state to actively promote and sustain the environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include: • Guarding against overutilization of biological natural resources, • Limiting over-exploitation of non-renewable resources, • Ensuring ecosystem functionality, • Protecting Namibia's sense of place and character. • Maintain biological diversity. • Pursuing sustainable natural resource use. Article 95(i) recites: "The State shall actively promote… maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future".
Pollution Control and Waste Management Bill, 2003	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as provide for general waste management. The bill provides a framework for a multitude of administrations on pollution control and waste management in the country.
Environmental Management Act 07 of 2007	Ensuring that the significant effects of activities on the environment are considered carefully and in time. To promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment. **Of relevance to this project are the following listed activities, as provided in Section 27 of the Environmental Impact Assessment Regulations of 2012, which includes:** No. 8.5 Construction of dams, reservoirs, levees, and weirs. No.10.1 The Construction of oil, water, gas and petrochemical and other bulk supply pipelines.
Water Act 54 of 1956 and Water Resources Management Act 11 of 2013	The Water Resources Management Act 11 of 2013 is present without regulations; therefore, the Water Act 54 is still in force. The Act provides for the management and protection of surface and groundwater resources in terms of utilization and pollution. This Act further provides provision for the control, conservation, and use of water for domestic, agricultural, urban, and industrial purposes. In addition, the Act gives provisions that pertain to

	license or permit that required abstracting and using water as well as for discharge of effluent.
Soil conservation Act 76 of 1969	The objectives of the Soil Conservation Act 76, 1969 are to make provision for the combating and prevention of soil erosion, and the conservation, protection, and improvement of the soil, the vegetation, and the sources and resources of the water supplies.
Nature conservation Ordinance of 1975.	The Nature Conservation Ordinance Section 14 protects and preserves wild animal life, fisheries, wild plant life and objects of geological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of Namibia.
Hazardous Substance Ordinance of 1974	This Ordinance provides for the control of toxic substances and is thus also relevant for pollution control. It covers the manufacturing, sale, use, disposal, dumping, importing, and exporting of hazardous waste. Of relevance to the proposed project are the use of Chlorine in water treatment and the unearthing of asbestos cement pipes which are classified as dangerous goods.
Labour Act (No 11 of 2007)	The Objectives of the National Labour Act are: • To establish a comprehensive labour law for all employers and employees; to entrench fundamental labour rights and protections. • Regulate basic terms and conditions of employment. • To ensure the health, safety, and welfare of employees; to protect employees from unfair labour practices. • To regulate the registration of trade unions and employers' organizations; to regulate collective labour relations. • To provide systematic prevention and resolution of labour disputes.
Asbestos Regulations: Schedule 1 (2) of Labour Act, 2007 (No. 11 of 2007, International Labour Organization Convention No. 162)	To comply with governmental requirements and minimize employee exposure, controls are necessary wherever there is a potential for exposure to airborne fibres.
Public Health and Environmental Act, 2015	The objectives of the PHE Act are to. • Promote public health and wellbeing. • Prevent injuries, diseases, and disabilities.

	• Protect individuals and communities from public health risks. • Encourage community participation to create a healthy environment. Provide for early detection of diseases and public health risks.
Employment Service Act 8 of 2011	To provide for the establishment of the National Employment Service; to impose reporting and other obligations on certain employers and institutions; to provide for the licensure and regulation of private employment agencies, and to deal with matters incidental thereto.
Atmospheric Pollution Prevention Ordinance 11 of 1976	To provide for the prevention of the pollution of the atmosphere and matters incidental thereto. The Ordinance deals with administrative appointments and their functions; the control of noxious or offensive gases; atmospheric pollution by smoke, dust control, motor vehicle emissions; and general provisions.
Pollution Control and Waste Management Policy, 2003	The bill provides a framework for a multitude of administrations on pollution control and waste management in the country. Each authority identified by the bill shall play its respective role.
Basel and Rotterdam Convention, Framework Convention on Climate Change	Agreed to ensure environmentally sound management of hazardous waste and other wastes through the reduction of their movements, to reduce their impacts on human health and the environment.
FAN Meat	
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes how a town or municipality should be managed by the Town or Municipal Council.
Urban and Regional Planning Act No. 5 of 2018	Town Planning Procedures was applied for the alienation of the development site (Plot 59) of Keetmanshoop and was approved by the Ministry of Urban and Rural Development.
Keetmanshoop Town Planning Scheme	Identify different land use categories, zoning, uses and consent uses. The land is zoned agricultural; hence the usage is consistent with the land uses

4. ABOUT THE RECEIVING ENVIRONMENT

4.1 Socio-economic setting

Keetmanshoop is the biggest urban center in the Kara's Region with an estimated urban population of about 35,000 (S. Nashima, 2018). It is also known as the Capital of the South and is widely acknowledged as the administrative capital of southern Namibia. The town of Keetmanshoop is currently attracting significant interest from the private and public investor from various industries. The town boasts virgin town land totaling about 40 000 hectares which is characterized by hospitable terrain for most land use nodes.

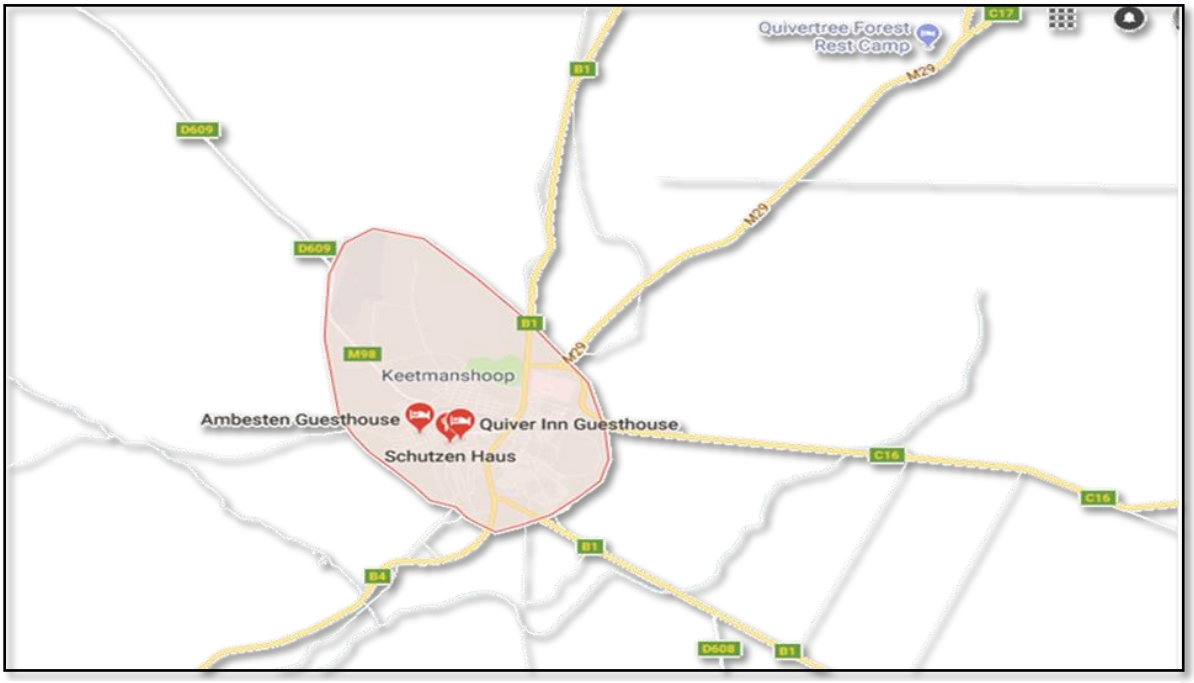


Figure 2: Keetmanshoop town area

The town served with a university campus, a vocational training center, a number of secondary schools and several primary schools. The town has also a district hospital, clinics, churches and cathedrals. The predominant economic activities in and around Keetmanshoop is real estate development which include trade and commercial shopping centers. In terms of tourism and accommodation, the town is served with a number of hotels, restaurants, guesthouses and lodges. Other activities such as small and large stock farming and irrigation projects are also dominant in the outskirts of town. Some main tourism attractions around Keetmanshoop are the Quiver Tree Forest on the Farm Gariganus, the Keetmanshoop Museum and Mesosaurus Fossils Camp.

4.2 Biophysical setting

- **Climate:** Classification of climate: The climate in Keetmanshoop is called a desert climate and is classified as BWh by Köppen and Geiger.

- **Average Rainfall:** There is virtually no rainfall during the year, in a year, the average rainfall is 35 mm. Temperature: In Keetmanshoop, the average annual temperature is 20.9 °C.

- **Wind Directions:** Wind blow from Northwest to Southeast and Northeast to Southwest on an average record of 19 mph, experiencing strong wind during dry season between July – September.

- **Humidity**: Relative humid conditions occur during rainy season, from January to March with 48% and from October to December. Rainfall and temperature determine the variation in humidity.

- **Topography and elevation**

Generally, Keetmanshoop is known to having a generally flat landscape, with rises occasionally, however the proposed project site lies on a gently sloping land portion land relatively far from the town and the major rivers. There is a minor river, and a small earth dam (Van Rhjin dam) located north of the plot.

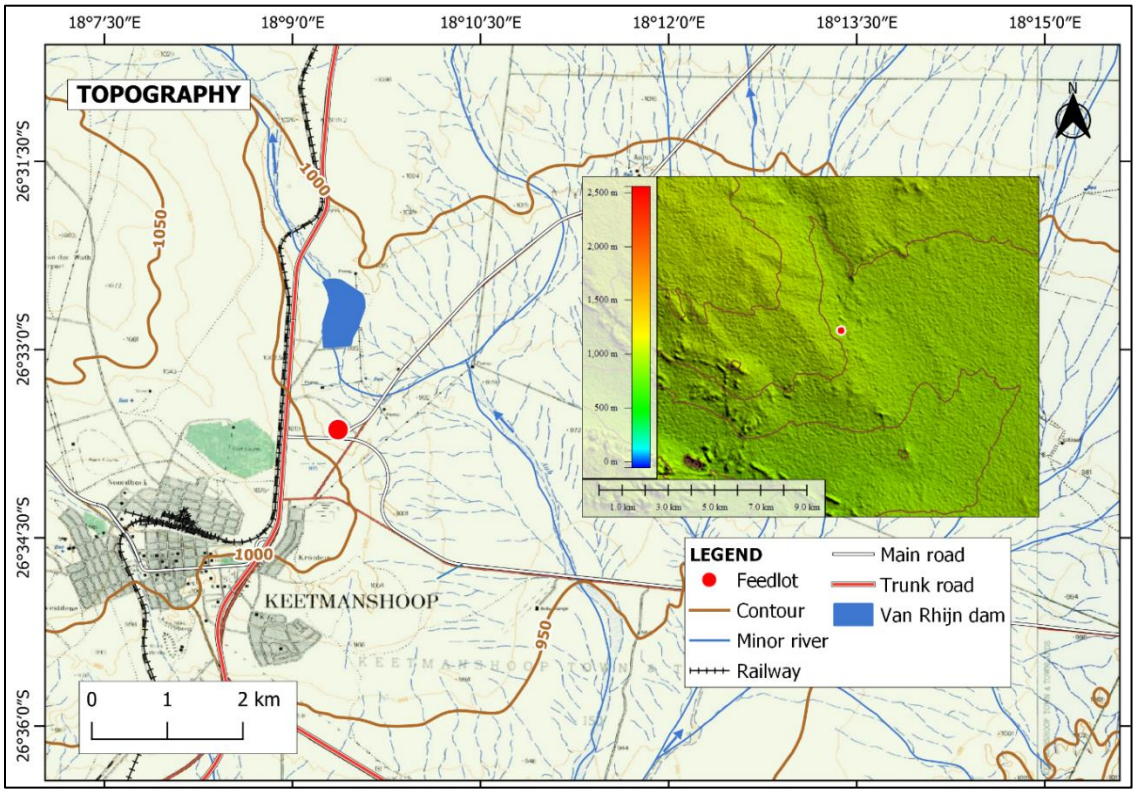


Figure 3: Topography map of Keetmanshoop townlands

- **Soil and geology**

The dominant soils around Keetmanshoop are Eutric Leptosols, these are fertile soils with high base saturation which form in actively eroding landscapes. The aquifer at Keetmanshoop is neither a porous nor a fractured aquifer but a moderately productive aquifer. The concentration of ground water at Keetmanshoop is between 1000 to 2000 milligrams per litre, which is suitable for human consumption.

Morover, Keetmanshoop has highly deformed volcano sedimentary rocks of the Gariep group underlie the study area. They were formed during a period of ocean formation, destruction, and subsequent mountain building. The resultant material is intensely deformed sedimentary and associated volcanic that has been weathered overtime. The Nama formation in the Karas Region surrounds is formed of basal onglomerates, thin volcanic rocks overlain by quarzites, carbonates, cherts, schists, and amphibolites.
The rocky outcrops, inselbergs and mountains in the Karas Region area comprise these rocks, and have been sheared, faulted and tilted over time. Eutric regosols are on the project area, these are very weakly developed mineral soil in unconsolidated materials. Regosols are extensive in eroding lands, in particular in arid and semi-arid areas and in mountain regions. Land use and management of Regosols vary widely. Some Regosols are used for capital-intensive irrigated farming, but the most common land use is low volume grazing. Regosols in mountain areas are best left under the forest. Figure 9: Soils and Rocks map for illustartaion and overlay, below are illustrative image and map below reveal the soil characteristics on site:

- **Geohydrology**

The project area is characterised by the Nama Group, which is a Vendian to Cambrian group of stratigraphic sequences deposited in the Nama foreland basin in central and southern Namibia. The Nama foreland basin is a peripheral foreland basin, and the Nama Group was deposited in two early basins, the Zaris and Witputs, to the north, while the South African Vanrhynsdorp Group was deposited in the southern third. The Nama Group is made of fluvial and shallow-water marine sediments, both siliciclastic and carbonate.

The groundwater basin of the area is the Orange-Fish River Basin which is located in southern Namibia across parts of the Hardap and Karas Regions. It can be divided into Orange and Fish sub-basins, occupying 15% of the Namibian land surface in total. It is home to an estimated 77 000 people, which represents 56% of the total population of the two regions.

Closer to the project site approximately 0.5km to the eastern side of the site lies the Skaap river, a minor ephemeral stream. The stream feeds into Fish River at a confluence that is over 20 km away. The area is characterised by a relatively low water table, which is characteristic of orange groundwater basin.

5. ROLES AND RESPONSIBILITIES

5.1 Role Players and Responsibility

The overall implementation of this EMP remains the core responsibility of the project proponent. However different stakeholders will also have roles to play in order to ensure proper project management.

a. Proponent

Appointing a Feedlot Manager to ensure the overall implementation of this EMP as follows:

- Ensure that the employees and the Contractor are aware of all specifications, legal constraints as well as procedures pertaining to the project specifically with regards to the environment.
- Ensure that all stipulations within the EMP are communicated and adhered to by employees, contractors and sub-contractors.
- Monitor the implementation of the EMP throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.
- Be fully conversant with the Environmental Impact Assessment for the project, and all relevant environmental legislation

b. Contractor and sub-contractors

The Contractor(s) Managers will be contractually required to comply with the various commitments in this EMP. In the event of nonconformance, the contractor will be required to take corrective action according to the requirements of the EMP. Clean up may be done on their behalf, and if so, the contractor will be back-charged accordingly.

c. Municipality of Keetmanshoop

The Municipality of Keetmanshoop as relevant local Authority shall play a supervisory role to ensure that the project complies with the relevant Municipal bi-laws.

6. ENVIRONMENTAL MANAGEENT REQUREMENTS

In order to ensure successful implementation of this EMP, it is recommended that the proponents consider the following aspects.

6.1 Environmental awareness training

All contractors and employees involved in management or any work on the project should be briefed on their obligation towards environmental protection and methodologies in terms of the EMP prior to work commencing. The briefing should be done by the proponent prior to any work in the form of an on-site talk.

6.2 Record keeping

There should be an up-to-date filing system for the project whereby method statements, environmental incidents report, training records, audit reports and public complaints register are kept. It is advised that photographs of the site should be taken as a visual reference.

6.3 Non-compliance and penalties

In cases of transgressions and non-compliance to the EMP by the contractor, that contractor should be liable to a penalty fine (as per Engineering Standards or as applicable to the Municipality). Transgressions should be recorded in a dedicated register and be filed. The official designated by the Municipality shall issue the penalties in terms of the severity on the environment.

Adherence to this EMP during operation of the project will ensure that the environmental impacts associated with the project will be mitigated to a greater extent thus promoting sustainable development. The commitment and co-operation of the identified responsible person(s) will ensure effective implementation of the EMP; therefore, it is imperative that there is file dedicated for Environmental Documentation.

6.4 Environmental Reports (annually)

The Municipality should appoint a responsible person who among others should be responsible for conducting regular monitor of general operation of the ponds. This monitoring report should then be compiled into annually reports. These reports should be submitted to the competent Authority (MET) for the renewal of the Environmental Clearance Certificate.

6.5 Awareness and Training

It is important to ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimization of environmental harm.

To achieve effective environmental management, it is important that employees, contractors and sub-contractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP. This requires the proponent to ensure proper environmental training. The environmental training should typically include the following:

- Employees must have a basic understanding of the key environmental features of the site and the surrounding environment
- The significant environmental impacts, actual or potential, as a result of their work activities
- The environmental benefits of improved personal performance.
- Their roles and responsibilities as well as importance in achieving conformance with the environmental policy and procedures, and with the requirement of the company's environmental management systems, including emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures.
- The mitigation measures required to be implemented when carrying out their work activities.
- The importance of not littering and the need to use water sparingly.
- Details of, and encouragement to, minimize the production of waste and re-use, recover and recycle waste where possible.
- Details regarding fauna and flora of special concern

7. POTENTIAL IMPACTS AND MANAGEMENT DURING OPERATION PHASE

Below is a list of potential impacts emanating from the continued operation of the feedlot and the proposed measures that should be applied by the Feedlot Manager

Significant impacts	Source of impacts	Mitigation measures	Monitoring actions	Responsibility
a). Public health impacts				
• Odour can be a nuisance to the neighbors	Odour always originates from the anaerobic breakdown of wet manure and waste feed	Regular removal of manure and cleaning of the animal holding areas including feeding trough	Observe presence of wet manure that could produce odour	Feedlot Manager
• Noise generation	The ongoing operation may result in generation of noise which could be nuisance to the neighboring land users	Reduce noise generating activities and keep noise at minimum level	Own observation and Complaints received	Feedlot Manager
• Visual amenity	The presence of the feedlot presents a visual intrusion to the original landscape view	All infrastructure should be made of local material and blend in with the local landscape	Visual inspection	Owner
• Vermin, flies and spread of Diseases	The ongoing operation may attract vermin, flies and contribute to the spread of diseases that may disrupt the operation and also affect animal health in the area.	-regular manure removal -Avoid stockpiling wet manure as this produces very strong odours, even after spreading -Ensure fly control through baits control, use of insecticide sprays and traps -Sick animals should be isolated -Animal must be vaccinated -In case of suspicion of one of the noticeable diseases, the nearest State Veterinarian must be informed immediately	-Health records	Feedlot Manager

• Dust emission. The dust concentrations can be high downwind of feedlots during sunsets	Movement of animals within the feedlot distributes dry manure that in turn leads to generations of dust. Additionally, dust can negatively impact animal health and potentially reduce weight gain and feeding efficiency.	-Ensure regular removal of excess manure from the feedlot -Sprinkler water in case of excessive dust -Increase the number of animals per pen to help compact the surface and reduce dust	Monitoring loose, uncompacted materials and addressing them promptly to help prevent dust buildup.	Feedlot Manager
b). Traffic impact				
• Increased traffic	The delivery of animals and auction days can increase traffic on the adjacent roads	-Provide access road and turn off points to the feedlot area with clear appropriate road signs	-Traffic movement	Feedlot Manager
• Dust on the adjacent road	Dust can reduce visibility on roads near the feedlot, creating safety concerns and air pollution.	-Ensure regular removal of excess manure from the feedlot -Sprinkler water in case of excessive dust	-Visual observation	Feedlot Manager
c). Impact on water resources				
• Contamination of surface water and runoffs	The runoff from the feedlot can pollute runoff and surface drainage during rain season	-Reduce the amount of clean water entering the holding pens by means of erecting an earthen ridge or terrace across the slope upgrade from the pens. -Drainage water mixed with manure should be handled as sewage and disposed off accordingly	-Direction of drainage and runoffs	Feedlot Manager
• Contamination of groundwater	Contamination can occur through leaching contaminated water into the ground -Contaminated runoff from an active feedlot that run into the nearby water source adjacent to the lot may flow through the soil and threaten groundwater quality.	-Since the feedlot is far away from the Municipal sewage system, the use of a septic tank should be considered -Ensure regular removal of excess manure from the feedlot upgrade from the pens.	Water quality from nearby source	Feedlot Manager

• Water demand	Generally, feedlot operation requires significant amounts of water for various purposes, including drinking water for the animals, cleaning, and waste management.	-Optimize water availability -Implementing water conservation practices i.e. recycling water -Monitoring water consumption, -Ensure that the quality of water meets the needs of the animals.	Monthly water usage	Feedlot Manager
d). Impacts on Energy				
• Increase demand for energy usage	Feedlot energy demand primarily comes from powering equipment for feed preparation, feeding, waste management, and other operational needs, as well as heating and cooling.	-Explore the use of alternative energy sources such as solar energy.	-Monthly energy consumption	Feedlot Manager
e). Impact on soil				
• Contamination of soil	Although manure can enrich soil with nutrients, excessive manure or runoff can lead to nutrient imbalances, soil contamination, and potential groundwater pollution.	-Ensure regular removal of excess manure from the feedlot	-Visual observation	Feedlot Manager
f). Waste Management				
• Solid waste	-Generation of general waste from office, kitchen etc. -Generation of solid waste from Animal handling area and holding pans	-All general waste should be contained and properly dumped at the municipal landfill site. -Develop waste collection program -Create awareness among employees -Dug/manure should be collected and used as fertilizer.	Regular inspection	Feedlot Manager
• Liquid waste	- Liquid waste is generated from ablution facility and animal urine.	-Provide temporary sanitation for the workers and security employees -Ablution facilities must be connected to the septic tank or sewage line.	Site inspection	Feedlot Manager

• Hazardous waste	Waste such as expired drugs/vaccines and condemned (sick) animal carcass	-All hazardous waste generated must be collected disposed of in a correct manner -expired drugs can be taken to the MoHSS or Veterinary office for incineration -condemned animal should be composted at the Municipal landfill site (not onsite)	Site inspection	Feedlot Manager
g). Occupation health impacts				
• Unpleasant working conditions	Odour, dust and flies can create an unpleasant workplace and affect cattle performance and staff welfare	*Ensure the following* -pen cleaning, cleaning of drains and sedimentation tanks and basins, manure spreading and disposal of mortalities.	Site inspection	Feedlot Manager
• Diseases	Employees are at risk of occupational diseases resulting from the nature of the job and surrounding environments.	-All employees must be provided with -Personal Protective Equipment (PPE) -Adhere to normal working hours as per the National Labour Act.	Regular meeting	Farm Manager
• Microbial risk to public health	Microbial pathogen in wastewater could cause diseases i.e. gastric, diarrhea etc.	-Final effluent must be analyzed before use -No untreated wastewater must be discharged in the environment - Effluent must be treated to the required standard - Effluent line must be marked as unfit for human consumption	-Laboratory test	Farm Manager
h). Social-economic Impacts				
Increase crime rate	The project may attract new crime rate in the area	-Ensure proper security must be ensured		Farm Manager
i). Legislative requirements				

• Non-compliance	Lack of compliance with relevant legislation may cause transgression or conflicts with the law.	• Implement the conditions of the Wastewater Discharge Permit and also apply for renewal once the certificate has expired. • Any changes to the project should be subjected to the EIA as per EMA.	-Renewal of Permits and ECC	Proponent
• Lack of enforcement of the EMP	Lack of enforcement would mean the potential impact associated with the plant could still exist	• Provide a commitment plan for improvement and corrective actions to remedy the existing and future challenges that could lead to serious environmental and public health impacts • Compile annual Environmental Performance Report which should be submitted to MET • This EMP must be updated every three years, concurrently with the renewal of the ECC.	Bi-annual reports to MET	Proponent

8. POSITIVE IMPACTS AND ENHANCEMENT MEASURES

The continued operation and management of feedlot plays a vital role in modern beef production and presents several economic benefits to the local economy. The said benefits can only be realized by implementing the enhanceent measures.

Aspect	Beneficiary impacts	Enhancement Measures
Source of Employment	The operation of the feedlot and its associated activities create employment for many people through direct and indrect opportunities.	Give preferences to local unemployed people
Meat supply Consistency	The continuation of the operation for the feedlot will help to ensure a consistent supply of beef to meet market demands, especially during periods when pasture-based production is limited.	Ensure legal compliance to guarantee long term operation
Economic Efficiency:	Feedlots can be more economically efficient than other beef production systems due to the increased weight gain and reduced land requirements per animal	Ensure legal compliance to guarantee long term operation
Targeted Production:	Feedlots allow targeted production of specific beef characteristics desired by consumers, such as marbling and tenderness.	Preferences for the local market
Resource Management:	Feedlots can optimize the use of feed resources, including grains and by-products that may not be suitable for human consumption.	Source feed the local market

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9. DECOMMISSIONING PHASE

The decommissioning of the existing feedlot and the associated infrastructure is not foreseen in the immediate future. However, should the decommissioning of the feedlot and its associated infrastructure become pertinent at any stage, this EMP should be updated before the commencement of any decommissioning works. The updated EMP should entail the following components.

- The nature of the envisaged decommissioning and rehabilitation process
- Types and nature of components to be decommissioned i.e., buildings, piping, etc.
- Types and quantity of waste to be produced i.e., hazardous waste and non-hazardous waste
- Proposed waste management strategy.
- Responsibilities of each party to be involved in the decommissioning process.
- Envisaged environmental rehabilitation procedures.

Rehabilitation is defined as the process of taking all the necessary actions to repair the damaged environment in-order to make the land suitable for other uses or to simply beautify the affected area. In this case, the rehabilitation will entail clean-up, treatment, or restoration of contaminated areas (e.g., contaminated soils by oil or fuel spills, concrete spills, etc.) and refilling of excavated pits with the overburden.

During the operation phase, the Feedlot Manager or ECO shall conduct a site inspection and ensure rehabilitation of disturbed areas. Rehabilitation measures during the operation phase will include.

- Clean up all soil polluted during maintenance work and disposal to an appropriate waste dump site.
- Remove all windblown litter once maintenance has seized.
- Remove all potential hazards (i.e., the sewerage pit) and ensure the area is left safely and neatly.

10. ENVIRONMENTAL MONITORING

To ensure adherence to this EMP, it is advisable to keep monitoring certain issues. This monitoring is the ultimate responsibility of the Feedlot Manager. Monitoring activities should be done at different interval/frequencies as indicated in the table below and should be done throughout the project life span. Any negative impact found should be reported to the Environmental Commissioner and correct mitigation measures should be established by the project team in consultation with different specialists.

Issues to be monitored	Monitoring Objectives	What needs to be monitored	Frequency and means of Monitoring
Diseases outbreak	Ensure healthy operation and meet standards	Sick animal	Regularly
Fly breeding	Ensure healthy operation	Presence of flies	Regularly
Dust	Avoid air pollution	Air quality	Regularly
Noise	Reduce nuisance	Noise level	Regularly
Smell/Odour	Ensure healthy operation	Air quality	Regularly
Pollution	Protect environment	Cleanliness	Regularly

11. EMMERGENCY MANAGEMENT PROCEEDURES

11.1 Types and source of Emergencies

Emergencies can occur at any time or place either during the operation and management of the feedlot. These emergencies may affect the operation and disrupt the quality and quantity of water supply to the area. Some of the emergencies which are associated with the operation of the feedlot are as follows.

- Medical emergency i.e. disease outbreak
- Fire outbreak
- Sever whether
- Disruptions to essential supplies (feed, water, power)

11.2 Emergency response procedures

The following emergence response plan should be enforced in case of any emergency

Emergency	Response action	Responsibility
Medical emergency i.e. disease outbreak Some of the noticeable diseases at feedlot are. • Foot-and-mouth disease • Contagious Bovine Pleuropneumonia (Bovine lung sickness) • Lumpy Skin disease (Knopvelsiekte) • Rift Valley Fever (Slenkdalkoors) • Blue tongue disease • African Horse sickness • African swine fever • Avian Influenza (Bird flu) • Newcastle disease • Rabies (Hondsdolheid) • Bovine Tuberculosis • Bovine Brucellosis (Besmetlike nageboorte) • Sheep scab (Brandsiek) • Anthrax (Miltsiek) • Bovine Malignant Catarrh (Snotsiekte) • Rinderpest	-Ensure regular check-up of the animals to identify sick animals - if any of the noticeable diseases are suspected, it must be reported to the State veterinarian as soon as possible -The feedlot maybe put on quarantine by the State Veterinary office. It is important to adhere to the restrictions in order to prevent the spread of outbreaks.	Owner/Feedlot manager

Fire Outbreak	Establish fire prevention measures, identify fire hazards, and have a clear plan for fire response, including fire extinguishers, evacuation procedures, and communication with local fire departments.	Owner/Feedlot manager
Sever whether	Have a plan for severe weather events, including procedures for sheltering animals, securing equipment, and communicating with employees and potentially affected parties	Owner/Feedlot manager
Disruptions to essential supplies (feed, water, power)	• Feed and Water: Develop contingency plans for securing alternative feed and water sources, and for managing the health and welfare of animals during supply disruption. • Power: Ensure backup power generation capacity to maintain essential operations, such as water pumping, during utility outages.	Owner/Feedlot manager

12. CONCLUSION AND RECOMMENDATIONS

12.1 Conclusion

It can be concluded from the Environmental Assessment that, if all mitigation measures are implemented as outlined in the EMP, it is anticipated that the consequences and/or probability of the predicted negative impacts will be managed/reduced. Upon approval by the authorities, this EMP shall be considered legally bidding and any deviation or transgression from this EMP is punishable by law as per the Environmental Management Act, No. 07 of 2007. Parties responsible for transgressing may be held responsible for any rehabilitation that may need to be undertaken.

The preparation of this EMP is based on the current information provided, any changes or deviation with regards to the existing project site shall trigger changes to this EMP. The proponent should play a pivotal role in the implementation of this EMP as outlined in the report. The proponent should also ensure proper coordination with all parties involved in the project activities during all project phases. The proponent shall also ensure to avail necessary resources (i.e., human, financial, etc.,) and training to enable the full implementation of this EMP. Monitoring of certain environmental parameters must be conducted regularly as outlined in this EMP.

Upon approval by the MEFT, this EMP should be used as an on-site reference document for the continued operation and maintenance, and decommissioning phase, thus a copy of this EMP shall be always kept onsite. It would be advisable that the EMP be revisited after 3 years to ensure that changes in site conditions or operation are addressed, as well as to incorporate any new or amended legislation that may be applicable. The project manager prepares a quarterly report on the environmental performance of the project. Environmental biannual reports must be kept available for possible submissions to the MEFT and ensure the renewal of the project's ECC.

12.2 Recommendations

It is recommended that the proponent

- Ensure compliance with FAN Meat standards for feedlots operations in terms of animal husbandry, movement of animal, animal identification, bio-security etc
- Ensure adherence to the National Legislation relating to Livestock production as well as to applicable provisions of the National, and international legislations.
- Enforce the Routine Cleaning and Maintenance plan as outline in Section 2.4
- Ensure compliance monitoring of all parameters outlined in Section
- Liaise with the Keetmanshoop Municipality with regards to monitoring of groundwater quality of the nearby water point (Van Rjin Dam)
- Obtain Fitness Certificate from

13. REFERENCES

- Garrad, S., Heyns, P., Pfaffenthaler, M. & Schneider, G. (2017). Environmental Awareness for Sustainable Development. A Resource Book for Namibia. Hanns Seidel Foundation. Windhoek. Namibia.
- Mendelsohn, J., Jarvis, A., Roberts, C. & Robertson, T. (2009). *Atlas of Namibia. A Portrait of the Land and its People.* Sunbird Publishers. Cape Town. South Africa.
- Mr. Rudo-Whan Benade, Health Inspector, Municipality of Keetmanshoop (personal communication, 2018).
- Mr. Samuel Nashima, Senior Manager: Infrastructure and Technical Services, Municipality of Keetmanshoop (personal communication, 2018).
- Namibia Statistics Agency (2014). 2011 Housing and Population Census Regional Profile, //Karas Region.
- Namibia Statistics Agency. (2011). National Census 2011.
- Shangula, K. (2007). The Economic Impact of the Tourism Sector on the Namibian Economy: The Tourism Satellite account. Namibia International Investors Conference. Windhoek, Namibia.
- Stubenrauch Planning Consultants (2015). Keetmanshoop Structure Plan 2015 – 2030 draft: Volume 1.
- The Farm Assured Namibian Meat (FAN Meat), FANMeat standards for Feedlot, 2020

14. APPENDICES

1.1 Appendix 1 Compliance Monitoring Form

The following checklist should be used during the compliance monitoring.

PART 1: ADMINISTRATIVE INFORMATION

Project Title:		Date:
Project location:	Reporting period	Individual Preparing Checklist:
Region:		Department:
Feedlot Manager:		Phone No.:

PART 2: ENVIRONMENTAL ASPECTS

	ENVIRONMENTAL COMPLIANCE (AS PER EMP REQUIREMENT?)		
ENVIRONMENTAL ASPECT/IMPACT	***YES***	***NO***	***Remarks*** *(specify the location, a good practice observed, causes of non-conformity, and proposed action)*

PART 3: RECOMMENDATION

FOR EACH ITEM CHECKED IN PART 2, DESCRIBE THE CORRESPONDING CONTROLS TO BE IMPLEMENTED TO REDUCE POTENTIAL ENVIRONMENTAL IMPACTS (e.g., spill prevention, erosion controls, air emission controls including dust suppression, selection of materials, etc.). Provide details of the activities and impacts for each box and the proposed mitigations. Include attachments where appropriate. Use the same number system for your input.

Assessor: Signature: _____ Date: _____

Feedlot Manager: Signature: _____ Date: _____

Date of site inspection: _____