

**The Proposed Establishment and Operation of the Doros
Plains Lodge in the Kunene Region**

Draft Environmental Management Plan

ECC Application No.: APP-003461

June 2024



Ultimate Safaris (Pty) Ltd

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Abbreviations and Acronyms

DEAF	Department of Environmental Affairs and Forestry
DWA	Department of Water Affairs
EA	Environmental Assessment
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
GG	Government Gazette

GN	Government Notice
I&AP	Interested and Affected Party
JMA	Joint Management Area
JV	Joint Venture
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
SHE	Safety, Health & Environment

Appendices

Appendix A: Chance Find Procedures (National Heritage Council)

Glossary

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in Environmental Management Act - the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is land, water and air; all organic and inorganic matter and living organisms and (b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.

Environmental Management Plan – as defined in the EIA Regulations (Section 8(j)), a plan that describes how activities that may have significant environments effects are to be mitigated, controlled and monitored.

Interested and Affected Party (I&AP) - in relation to the assessment of a listed activity includes - (a) any person, group of persons or organisation interested in or affected by an activity; and (b) any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - practical measures to reduce adverse impacts.

Proponent – as defined in the Environmental Management Act, a person who proposes to undertake a listed activity. Ultimate Safaris (Pty) Ltd is the Proponent for this project.

Significant impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

1 Introduction

The project: Ultimate Safaris (Pty) Ltd (the Proponent) proposes to establish and operate the Doros Plains Lodge (hereinafter referred to as the *project*), located about 80 km southwest of Khorixas in the Kunene Region. Refer to Figure 1-1 and Figure 1-2 for the locality map. For this project, the Proponent has entered into a joint venture (JV) agreement with the three area managing conservancies, namely the Uibasen Twyfelfontein, Sorris Sorris and Doro !Nawas Conservancies.

The Lodge will serve as a provider of a tourism and lodging experience for high-end clients with an emphasis on a wilderness experience and speciality wildlife-based activities including rhino tracking. It will form part of a route that highlights a number of conservancy attractions and will enhance the profile and value that conservancies contribute to national tourism and biodiversity management efforts.

Namibia's Environmental Management Act (EMA) (7 of 2007) requires that an EMP is put in place before a project is implemented. This is usually prepared as part of an Environmental Assessment (EA). The Lodge is not expected to result in significant negative environmental impacts, therefore a scoping-level EA has been conducted.

This EMP is valid for the planning, construction and operational phases of the proposed Lodge. Each phase has a number of sub-activities, which all need to be managed in a specific way. The closure of the Lodge is not specifically addressed in this EMP. The activities are however similar in nature to that of general construction activities. Therefore, the relevant instructions to the construction contractor (see Chapter 5) will apply to the appointed closure contractor.

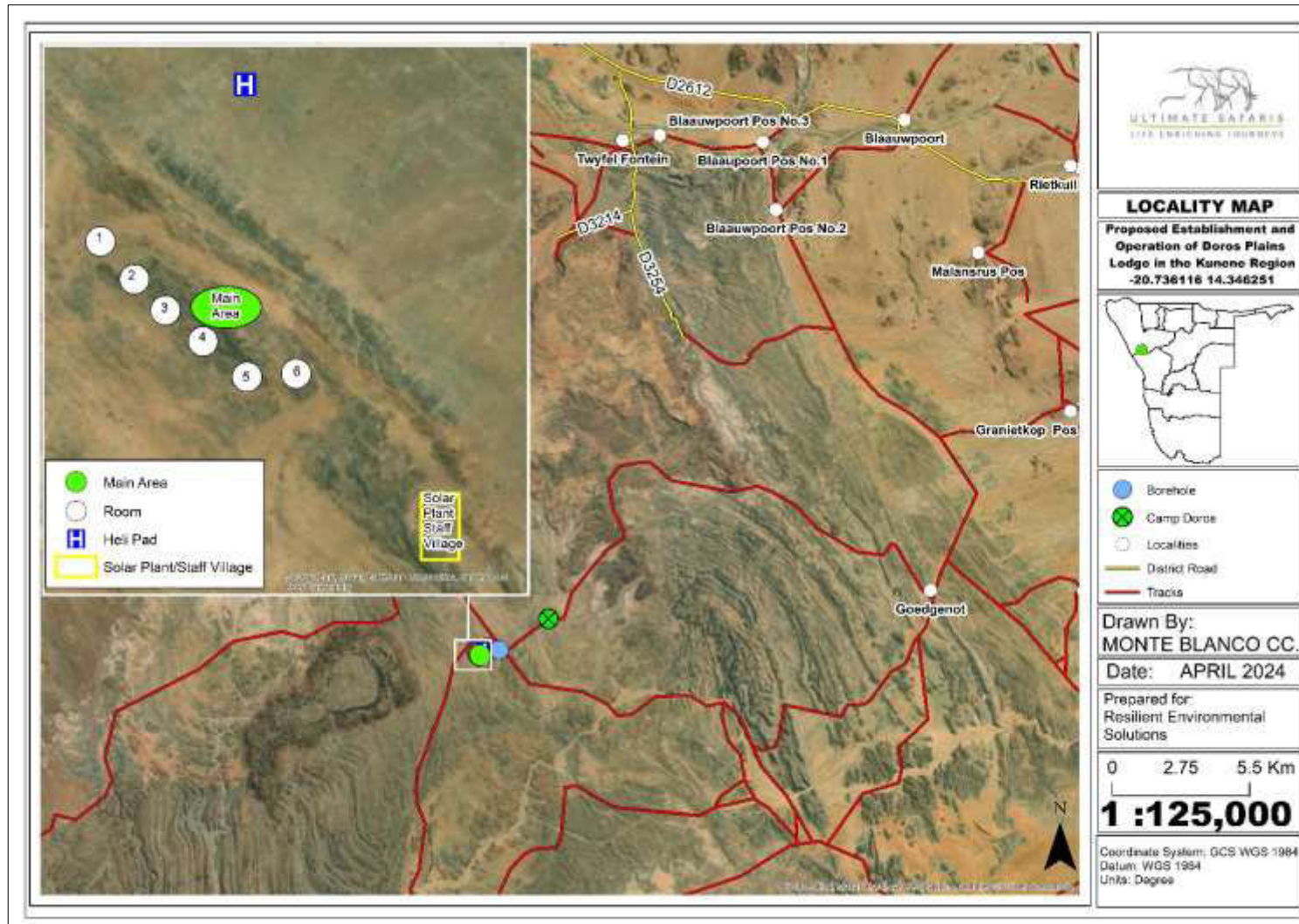


Figure 1-1: Location of the proposed Doros Plains Lodge in the Kunene Region

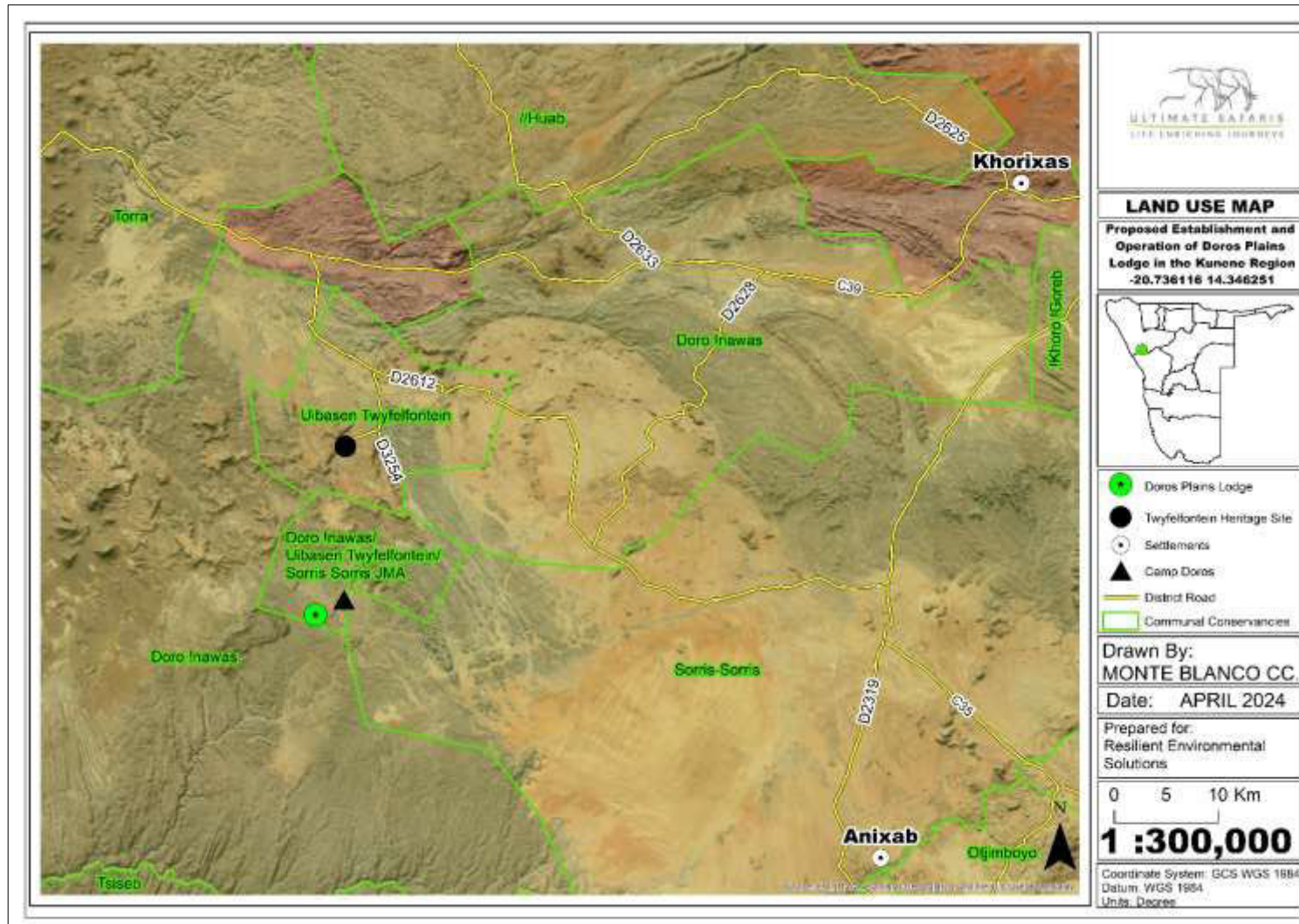


Figure 1-2: Location of the proposed Doros Plains Lodge in relation to the JMA, three conservancies and Camp Doros

2 Project Overview

Activities at the Lodge will include game walks (rhino and elephant tracking under the supervision of rhino rangers trained by Save the Rhino Trust (SRT), employed by the three conservancies that manage the area, as well as trained guides employed by the Proponent. The project represents a unique product insofar as it offers a lodging experience and comfortable stay to high-end clients comprising six semi-permanent rooms, staff accommodation, 3 guide/pilot tents and on-site laundry. It represents an innovative approach to developing a new tourism product with a strong emphasis on bringing value to conservancy biodiversity and tourism assets.

The proposed Lodge components and associated infrastructure are as follows:

- Project footprint: the actual footprint for the Lodge and its associated infrastructure is maximum eight hectares.
- Guestrooms: six prefabricated (semi-permanent) guest rooms constructed on elevated platforms. The rooms will be equipped with en suite toilets and showers, as well as plunge pools. The toilets will function on a sophisticated water reticulation system. The dining area will be built in a complimentary style to the rooms.
- Guest food preparation: all food preparation shall be undertaken in a fully equipped kitchen. The food will be prepared using gas fuel and stored in solar powered fridges.
- Staff accommodation: a staff village and support infrastructure such as storerooms and laundry room will be established as semi-permanent structures.
- Water supply: will be sourced from two newly drilled boreholes for the project located about 800m northeast of the Lodge, to supply water for both construction and operations. Preliminary pump tests from the boreholes show strong water; the yields are 25m³/hr and 9m³/hr, based on boreholes' blow tests. The Proponent will consider developing bulk water storage tanks for the Lodge on-site.
- Sewage management: all sewage will be treated with chambered septic tank systems designed according to recognised standards (e.g. South African National Standards). Reclaimed water will be re-used as far as possible in gardening efforts.
- Solid waste management: solid waste from the Lodge shall be sorted to recycle as far as possible and shall be transported back to Windhoek. A small incinerator will be used to dispose of items that cannot be recycled or easily transported. To reduce the volume of plastic bottles, the Proponent shall issue each tourist with a re-useable water flask that shall be refilled from a bulk drinking water container. This shall result in a considerable reduction in waste.
- Electricity (power supply): the proposed Lodge will be 100% energy self-sufficient with solar power (a single photovoltaic installation, situated within the Lodge footprint)

and water heating will be by heat pump powered by solar. A diesel generator will be kept on-site and used as a backup electricity source.

- Site accessibility and vehicle parking: A 5km access road will be established from the existing Camp Doros to the Lodge. This will entail minor roads works to cater for the project's operations and maintenance. There will be a level area to park safari vehicles transporting guests.
- Air transport: a helipad and an airstrip for small fixed-wing aircraft will be established close to the Lodge site.
- Fencing: No fencing will be used in the concession area.

3 Project Phases

3.1 Construction Phase

3.1.1 Construction Workforce and Duration

The Proponent will appoint a contractor for the establishment of the Lodge and related facilities and infrastructure. The construction crew will be housed in temporary accommodation on-site for the duration of the construction works. However, the number of workers for this phase is unknown at this stage.

The estimated duration of the construction period is approximately nine months. However, this might be adjusted depending on local conditions.

3.1.2 Construction Services and Utilities

The services and utilities required during the construction phase include:

3.1.2.1 *Water Supply*

The water required for construction works will be sourced from the two newly drilled boreholes near the Lodge. About 25m³/day will be required for two months, and about 15m³/day for domestic use for the rest of the construction period.

3.1.2.2 *Fuel Supply*

A small amount of fuel (for backup generators) is anticipated to be stored either in a secure mobile storage tank or in a stationary tank on an impermeable bunded surface on-site.

3.1.2.3 *Electricity Supply*

Electricity will be provided by generators supplied by the contractor.

3.1.2.4 *Sewage Management*

Portable toilets will be supplied by the appointed contractor on-site during the construction phase. The contractors will remove the toilets upon completion of construction works.

3.1.2.5 *Solid Waste Management*

The solid waste will be collected in a secure central place on-site, removed from the area and disposed of at the nearest waste management site (possibly Khorixas). If not possible, the waste will be transported to Windhoek's solid waste management facility as appropriate.

3.2 Operation and Maintenance Phase

The Proponent will manage the operations of the proposed Lodge. The following activities will be undertaken on-site:

- Upmarket lodging for high-end market.
- Guided game walks (including rhino tracking under supervision of *Save The Rhino* (SRT) trained guides) – importantly, this activity shall be aligned with the monitoring duties of the rhino rangers. The rhino rangers are the ones employed by the three managing conservancies and funded/supported by the Proponent.
- Guided elephant tracking with skilled guides – Ultimate Safaris has a reputation for skilled and knowledgeable guides.
- Guided walks and development of cultural tourism.
- General hospitality services (restaurant, administration, laundry etc.) to the lodging clients.
- Fly-in option, via helicopter or a fixed-wing aircraft.
- General site maintenance works.

3.2.1 Operation Workforce

The Lodge workforce will be accommodated on-site in the staff village. The number of personnel is anticipated to be 20, many of whom will be employed out of the conservancies as per the signed JV contract.

The Proponent will keep on-site maintenance to a minimum. All operational phase vehicles will be serviced in Windhoek, and not on-site.

3.2.2 Operational Phase Services and Utilities

The water, wastewater and electricity requirements for the Lodge operational phase have been detailed under Section 2 above. The remainder of the services requirements and other operational management activities are as follows:

- Road access – an unproclaimed road will be upgraded so that it can be used to gain access to the Lodge.
- Water consumption – maximum daily consumption with the full complement of guests and staff is estimated as 15m³/day. Average consumption 10m³/day.
- Solid and sewage waste management – will be carried out as proposed during the construction phase.
- Fuel - 5,000 litre fuel tank will be installed in a secured area on an impermeable bunded surface on-site.

- Air transport: There is an airstrip facility located 7km south of the existing Ultimate Safaris' Onduli Ridge Camp and about 55km northeast of the proposed Lodge. The airstrip will continue to be used solely for the Proponent's operations. Therefore, Lodge guests will have the option of being flown from the airstrip at Onduli Ridge to the Doros Plains Lodge, by fixed-wing aircraft or helicopter.

4 EMP Roles and Responsibilities

The EMP has identified the Architect, Site/Project Manager, Contractor, Lodge Manager and Safety, Health and Environment (SHE) Officer, also known as Environmental Control Officer (ECO). These are important roles to guide the environmental management of the Lodge design and planning, construction and operational activities. These roles might however be combined and carried by fewer persons. A list of specific responsibilities and duties to be undertaken by each role are provided below.

It should be noted that the above roles are delegated roles, and the owners of Ultimate Safaris (Pty) Ltd are ultimately responsible for the implementation of the EMP.

4.1 Architect

The architect's responsibilities in the EMP implementation include:

- Designing aspects of the Lodge.
- Advising the Proponent on the best and suitable Lodge infrastructure designs and related services.

4.2 Construction Site Manager (Project Manager)

The responsibilities of the site manager during the construction phase will be to:

- Implement and ensure compliance with the environmental management measures proposed in this document.
- Ensure compliance with relevant environmental and related authorisations and license conditions.
- Implement and maintain an Environmental Management System per project phase and as required.
- Maintain stakeholder engagement and grievance mechanisms;
- Identify and appoint appropriately qualified specialists (where necessary) to undertake the work components in a timeous manner and to acceptable standards.

4.3 Contractor and Subcontractors

The contractor representatives will:

- Ensure that the relevant commitments contained in the EMP are adhered to.
- Compile relevant method statements for approval by the site manager prior to initiation of activities.
- Ensure their staff are appropriately trained to carry out procedures in the EMP.
- Maintain records of all occurrences or incidents which have an environmental impact.

4.4 Lodge Manager

The Site Manager will be responsible for the following:

- Operating the Lodge and overseeing all activities on-site during operations.
- Managing and overseeing the implementation of this EMP.
- Preventing non-compliance with the EMP and if necessary, dealing with perpetrators.
- Liaising with relevant interested and affected parties/stakeholders.
- Ensuring all incidents are recorded and documented.
- Undertaking an annual review of the EMP and amending the document when necessary.

4.5 Safety, Health and Environment (SHE) or Environmental Control Officer

The SHE Officer or Environmental Control Officer (ECO) will be responsible for the following activities:

- Planning and carrying out site inductions to the workers on-site and visitors to the Lodge.
- Ensuring that the requirements of the EMP are carried out throughout the project life span.
- Monitoring the overall implementation of the EMP.
- Preparing EMP monitoring reports on a 6-monthly basis.

5 Environmental Management Plan Actions

The aim of the management actions laid out below is to avoid negative impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the mitigation measures recommended to manage the potential impacts identified in the scoping report for the project. These mitigation measures have been arranged in the EMP as follows:

- Applicable legislation in terms of permitting/licensing (Table 5-1);
- Planning and Design phase management actions (Section 5.1);
- Construction phase management actions (Section 5.2) and respective monitoring under Section 5.2.2; and
- Operation phase management actions (Section 5.3) and the monitoring under Section 5.3.2.

The Proponent and their appointed Project Manager, who are in charge of the whole operation, have the final responsibility for implementation of the EMP.

The Environmental Management Act implies that the EMP should be monitored. Monitoring needs to be more intensive (weekly) during the construction phase, while during the operational phase it can be monthly. Renewal of the ECC (after 3 years) depends on the results of this monitoring.

The Proponent should assess these commitments in detail and should acknowledge their obligation to the specific management actions detailed in the tables of the following Sections.

Table 5-1: Legislation applicable to the project in terms of permitting and licensing

Legislation	Provisions	Contact Details
Environmental Management Act 2007 Environmental Impact Assessment (EIA) Regulations (EIAR) (GG No. 4878)	Activities listed in Government Notice (GN) No. 29 of GG No. 4878 require an Environmental Clearance Certificate (ECC). The amendment, transfer or renewal of the ECC (EMA S39-42; EIA Regs19 & 20). Amendments to this EMP will require an amendment of the ECC. The ECC needs to be renewed every 3 years.	Mr Timoteus Mufeti: Environmental Commissioner at MEFT Tel: +264 61 284 2701

Legislation	Provisions	Contact Details
Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	
Water Act (54 of 1956) Water Resources Management Act No. 11 of 2013	License and permit requirements of the applicable water and wastewater legislation	Mr Franciskus Witbooi MAWLR: Water Affairs (Water Law Administration & Policy) Tel: +264 61 208 7226
Road Traffic and Transport Act 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public roads and the regulations pertaining to road transport, including the licensing of vehicles and drivers.	Mr Eugene de Paauw (Roads Authority – Specialist Road Legislation) Tel.: +264 61 284 7027
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that “No person shall possess or store any fuel except under authority of a licence or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”	Mr Carlo Mcleod (Ministry of Mines and Energy (MME)): Acting Director – Petroleum Affairs Tel.: +264 61 284 8291
Forestry Act (No. 12 of 2001)	Permits are required for the removal of protected plants species.	Northwest Regions Forestry Offices (MEFT) Tel: 061 208 7320 Or MEFT Head office in Windhoek Tel: +264 61 284 2111
Nature Conservation Ordinance No. 4 of 1975 (as amended)	Permits are required for the removal of protected plants species.	
Namibia Tourism Board Act 21 of 2000	The Proponent should obtain the necessary authorisation for the Lodge and register with the Namibia Tourism Board.	Namibia Tourism Board Tel: +264 61 290 6013 Windhoek
National Heritage Act (No. 27 of 2004)	Discovered heritage resources should be reported to the National Heritage Council.	Mrs. Erica Ndalikokule National Heritage Council: Tel: +264 61 301 903

5.1 Planning and Design Phase

Objective: The Lodge and its associated structures should fit into the natural environment, making full use of the natural features of the site and adding to the ‘sense of place’.

Environmental performance indicator: Guests who visit the Lodge site attractiveness and ‘environment-friendly’ design of the Lodge as reasons why they do so.

Who is responsible?

The Architect and the Proponent must design the Lodge for minimal impact on the available resources and sensitivity to the sense of place.

5.1.1 Mitigation Measures

Aesthetic issues

- The Lodge buildings (structures) should be aesthetically pleasing, in a style that fits in with the natural environment.
- Use shapes that do not contrast with the surroundings.
- Use colours that are sympathetic (i.e. do not contrast) with the environment.
- Use natural materials as much as possible (e.g. rocks from the area, wooden poles and thatch).
- Place television signal receptors, solar panels, water tanks and other necessary features at sites that make them inconspicuous from the access roads and approaches.
- Where possible, camouflage installations such as water tanks using elements from the surrounding environment, or construct a rough pole screen around tanks so that they are not conspicuous.
- Signs at the Lodge should not be intrusive. For example, a parking sign could be painted on a rock, rather than metal made.
- Avoid neon signs and anything that flashes light.
- Lighting along the walkways should be modest and should be directed downwards to minimise interference with starlight and the moon, and to prevent creating a ‘glow’ into the night sky. Do not place lights to intentionally light up trees or rocks.
- Avoid excessive lighting at swimming pool(s).
- Walkways should be demarcated simply by rocks along the edges.
- Walkways must not be straight, but rather winding, taking care to go around major obstacles (trees).
- Avoid razor wire, security fences and burglar bars as much as possible.
- Minimise the use of shade cloth – rather use reeds or poles (shade cloth becomes shabby after a short while).

- Specify that all services (e.g. pipes and cables) are to be buried underground as far as possible.
- Place service areas (e.g. parking, storage, clothes drying) out of sight of tourists.

Water efficiency

- All toilets should drain into properly designed septic tanks (i.e. using the relevant South African National Standard) and placed at least 5 metres from any structure.
- The boreholes should not be pumped at rates beyond the sustainable yield, thus ensuring that groundwater flow directions are not altered or induced toward the boreholes.
- As far as possible install only showers in the Lodge, not baths, to reduce water consumption.
- Specify low-flow shower-heads for the showers.
- Specify appropriate minimal-water flushing devices in the toilets.

Energy efficiency

- The guest rooms should be designed to facilitate passive cooling.
- Solar power systems should be used to run the Lodge apparatus as much as possible. Generators should be used as little as possible.

Pest control

- Specify fly-screens on open-able windows in the guest rooms, Lodge area, kitchen area etc., so that there is less need to use insect repellents.
- Design scavenger-proof storage areas for food and waste.

5.2 Construction Phase - Instructions to the Contractor and Subcontractors

Objective: To construct the Lodge with minimal disturbance to the surrounding biophysical environment.

Environmental performance indicator: The environmental footprint of the Lodge is limited to the Lodge area itself, with the surrounding areas and resources largely unaffected.

Who is responsible?

- The construction contractor must be instructed in writing by the Project Manager to implement the mitigation measures. It is then his responsibility to ensure that ALL the measures are implemented.

- The Project Manager should inspect the site at least twice per month to make sure that the measures are being implemented.
- The Project Manager must do a final inspection once the Lodge is built and issue the building contractor with a completion letter once s/he is satisfied that the job has been done in accordance with this EMP.

5.2.1 Mitigation Measures

a. Site preparation, work plan notification and identification of the construction workforce

- The Contractor should mark out (e.g. on the ground or with danger tape) the areas of all Lodge structures before any workers, equipment or building materials are brought in. A 2-metre buffer can be allowed around the perimeter of buildings to allow building activities.
- The marked-out area should be inspected and approved by the Project Manager. Thereafter, all site staff should be clearly informed that they may not move or disturb any areas beyond those limits.
- Ultimate Safaris should keep in touch with SRT and conservancies on dates and plans for construction activities so that the conservancies and SRT can arrange to have a team present in the area during construction.
- The Contractor should send names, cell phone numbers and ID numbers of all workers onsite for screening with Blue Rhino Task Team. These details can be sent to SRT who will forward them to the Blue Rhino Task Team.

b. Sourcing of building materials

- Building sand and other locally-derived building materials should only be procured from sites which have ECCs.
- Rocks that will be used for construction or cladding should be collected from the Lodge site.

c. Clearing of land

- The only land that may be cleared is the roads, the areas where buildings will be erected, parking bays, driveways and pathways.
- As much land clearing as possible (e.g. the removal of rocks) should be done by hand. Heavy earthmoving equipment, which will disturb the soil, create dust, and leave tracks and scars, should be used minimally or not at all.
- As far as possible, all lay-down areas, such as the areas where building materials and equipment are stockpiled, should be areas that will later be used for parking, building, or driveways. In other words, do not stockpile materials in surrounding areas beyond the actual final Lodge footprint.

- The construction contractor may only disturb an area up to 2m around each building site or development area (e.g. the Lodge main area, rooms, staff quarters, driveway, parking area). This is enough space to move around with wheel barrows, scaffolding and other equipment. As noted earlier, this ‘footprint area’ should be demarcated from day 1, with metal droppers and hazard tape so that everyone on site knows exactly which areas are off-limits.
- Site personnel should refrain from killing or snaring or intentionally disturbing local animals that may be found on and around the site.
- Personnel should not damage or cut down vegetation that is outside the Lodge footprint, and should not unnecessarily damage or remove any plants within the footprint unless required to do so for the project activities.
- Movement of vehicles and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to vegetation.

d. Facilities for workers

- All workers should be housed on a brownfield site, and where facilities such as water and energy are easily available.
- Wherever the workers are housed, they must be provided with water, toilet and washing facilities.
- Cooking facilities must be provided, preferably with gas cookers rather than open fires. If open fires are used, these must be made in a designated cleared kitchen area so that there is no possibility for starting a veld fire. Firewood should not be collected from the local environment, but should be provided by the site manager who procures it responsibly.

e. Management of waste and hazardous substances

General waste

- Project personnel should be sensitized to dispose of waste in a responsible manner and not to litter.
- The project sites should be equipped with different waste bins for each waste type (except for sewage that will be contained in the provided portable toilets, or pit latrines for construction phase).
- Ensure that there is no waste left scattered on site, but rather be disposed of in allocated site waste bins and thereafter to the nearest waste management facility.
- No burying of waste is allowed on site or anywhere else throughout the project lifecycle.
- All domestic and general waste produced on a daily basis should be contained until such time that it will be transported to designated waste sites on a weekly basis or as required.
- Provide animal-proof waste receptacles for temporary storage until transportation to the nearest waste facility.

- Separate all organic waste (e.g. kitchen waste), and dump this in a designated compost heap. This should be an enclosed place where it cannot be dug out and scattered about by scavengers.
- All combustible waste (e.g. empty cement bags), should be burned in a drum or enclosed container, with the necessary care taken to avoid the possibility of starting a veld fire.
- All non-combustible but recyclable waste (e.g. bottles, tins, plastic packaging) should be neatly stored separately to optimise re-use and recycling or must be removed from site at least once a week.
- Any waste that is stored temporarily at the site must be secured to avoid it being blown into the surrounding areas, and to prevent it being scavenged by animals.
- Measures must be taken to prevent any waste from attracting scavengers (e.g. kitchen waste should not be left to rot in the open so that it generates smells which will attract animals).
- Any waste that cannot be composted or re-used or recycled or burned should be dumped only at a properly managed waste disposal facility.

Hazardous waste

- No paint, solvents, thinners, diesel, oil or any other harmful substances may be poured onto the ground. They must be collected in a container and removed from site for proper disposal.
- All fuels and other chemicals must be stored in leak-proof containers, ensuring that they cannot react with each other or be spilt into the ground. Bulk fuel and other liquid hazardous substances should be stored on an impervious bunded surface, with sufficient capacity to contain 1.5 times the volume of fuel/hazardous liquid (in the event of a significant spill/container failure).
- No vehicles or other equipment are to be serviced or repaired on-site. However, should this be done (in cases of emergency), any grease, oil etc. must be collected in a container and removed from the site for proper disposal (see waste management section below for details).

f. Soils and water resources pollution

- All precautions are to be taken to prevent contamination of the soil, surface and groundwater. Proper training of the Proponent's personnel would reduce the possibility of the impact occurring.
- Polluted soil must be collected and transported away from the site to an approved and appropriately classified hazardous waste treatment facility.
- Soil contamination should be minimised by lining the ground with durable plastic where necessary.
- Toilet water should be treated using portable toilets or pit latrines. Portable toilets should be periodically emptied out before reaching capacity and transported to a wastewater treatment facility.
- The fuel storage tank on-site should be placed on a bunded and impervious surface.

- Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources.
- An emergency preparedness plan should be compiled and all personnel appropriately trained.
- Liquid wastes and hydrocarbons should be contained on site in designated containers and disposed of at a suitable waste treatment facility, so that they do not contaminate local groundwater systems.

g. Use of water during construction

- Although water is needed for many aspects of construction, it should be used sparingly at all times.
- All taps, pipes and tanks must be managed and maintained so that they do not leak.
- Water reuse/recycling methods should be implemented as far as practicable.
- The Proponent should adhere to any licence/permit requirements of the applicable water and wastewater legislation.

h. Protection of wildlife

- The killing or trapping of wild animals for any reason whatsoever should be strictly prohibited.
- One or two members of staff should receive training on how to handle snakes. This will ensure that snakes can be safely removed from site when necessary as opposed to being killed.
- Any suspected poaching activities should be immediately disciplined, and should be reported to the nearest law enforcement officers.
- The Proponent should work together with local law enforcement staff and any local anti-poaching initiatives in the area to combat this crime.
- Anti-poaching awareness should be raised among the site workers to inform them of the impacts of poaching on the environment and the functionality of the conservancies.

i. Transport and storage of fuel and other materials

- Loads upon vehicles must be properly secured to avoid items falling off the vehicle at any time.
- All materials (e.g. cement, bricks, poles, stones, pipes, etc.) must be stored at a central storage area on site so that the site is neat and orderly, and to avoid a situation where materials are lying scattered about on the project site.
- All fuels, paints, solvents and other chemicals must be stored in watertight containers, ensuring that they cannot react with each other or be spilt onto the ground.

j. Vehicular traffic safety

- All drivers of the project vehicles should be in possession of valid and appropriate driving licenses to operate such vehicles.
- Vehicle drivers should adhere to the road safety rules.
- Project vehicles should be in a roadworthy condition and serviced regularly in order to avoid accidents as a result of mechanical faults of vehicles.
- Vehicles drivers should not be allowed to operate vehicles while under the influence of alcohol.
- No heavy trucks or project related vehicles should be parked outside the allocated or designated project site boundaries.

k. Dust generation

- Personnel should be provided with dust masks when operating in dust generating environments or tasks.
- Vehicles and machinery should be regularly maintained to ensure they do not emit harmful gases into the air.
- Dust suppression methods should be employed to minimise dust generation, especially on problematic local access roads.

l. Noise in the area

- Noise from vehicles and equipment on site should be reduced as far as possible to acceptable levels (e.g. regularly servicing the vehicles, or if necessary replace them).
- When operating noisy equipment on site, workers should be provided with applicable personal protective equipment (PPE), such as earplugs.
- Construction and operational activities should only be done during daylight hours.
- Movement of vehicle and machinery should be restricted to existing roads and tracks, and should be restricted to daylight hours only, to prevent unnecessary disturbance to plants and animals.
- Aircraft traffic should be kept to a minimum and should follow defined routes that are set to cause least disturbance to large animals (e.g. rhinos, elephants, large antelope, and bustards) which will get stressed when fleeing in the heat of the day.

m. Boreholes

- Water should be pumped by solar pumps or as a minimum a combination of solar with a backup generator.
- If possible, the pump should be hidden from view of tourists or general traffic.

n. Health and safety

- The Labour Act's Health and Safety Regulations should be complied with.

- All personnel should be trained in/sensitised to the potential health and safety risks associated with their respective site jobs.
- Prior to operating and using site machines and equipment, personnel involved in different project tasks should be trained on how to properly and correctly use these, if they are not familiar with them.
- Appropriate personal protective equipment should be provided to personnel.
- Heavy vehicle, equipment and fuel storage site should be properly secured and appropriate warning signage placed where visible.
- An emergency preparedness plan should be compiled and all personnel appropriately trained.
- Train all employees and subcontractors on environmental awareness, the Proponent’s internal Environmental Health and Safety Policy, and this Environmental Management Plan.

o. Laying of pipelines

- Pipelines should be buried underground or be covered with rocks where burying is not possible.
- Where possible, pipelines should be laid next to Lodge roads. This is to avoid the need to make another scar on the landscape, and to make it easier for staff to inspect the pipeline. However, care should be taken not to make the pipeline vulnerable to damage during road maintenance.
- Trenches excavated should be kept open for the shortest practicable time. If practicable, trenches should be excavated in short sections at a time as opposed to the entire length of the proposed infrastructure.

p. Discovery of heritage resources

- In the event that heritage resources are discovered, the steps outlined in the National Heritage Council’s ‘Chance Finds Procedure’ (see Appendix A) should be adhered to.
- Caution should be exercised when carrying out excavations associated with the construction activities in the event that archaeological/heritage remains are discovered.
- The worksite manager should familiarise themselves with the NHC’s Chance Find Procedure and if uncertain about the procedure should receive training by a suitably qualified archaeologist with respect to the identification of archaeological/heritage remains and the procedures to follow in the event that such remains are discovered during operation.
- Personnel should be informed not to not destroy /damage or throw away any unknown object found/discovered on site during operations, but to report these objects to the site manager who then informs the National Heritage Council.
- If any significant archaeological materials are found, the National Heritage Council’s Chance Find Procedures should be followed. Furthermore, the worksite manager should be notified and all on-site (construction) activities stopped immediately.

5.2.2 Monitoring

Depending on how the Proponent drafts the contract, the Contractor might have one of his staff carrying out the role of Environmental Control Officer – i.e. person responsible for monitoring the implementation of the mitigation measures detailed above. However, the Proponent may designate one of their staff to carry out the role of ECO independent from the Contractor. Either way, the ECO should, as stated above, carry out frequent (possibly daily or weekly) monitoring during the construction phase. The findings of this monitoring should be incorporated in the Lodge Manager’s monthly environmental reports (see Section 5.3).

5.3 Operation Phase - Instructions to the Lodge Manager

Objective: To manage the Lodge with minimal disturbance to the surrounding biophysical environment, and to ensure that guests to the Lodge behave in a way that does not impact negatively on the environment, wildlife and other land owners or users (e.g. tourist activity).

The term ‘environment’ includes the biophysical and social environment, which is why this EMP deals with both. However, the EMP does NOT cover equally important aspects such as customer care, financial management, stock control, etc. These ‘business management’ issues are outside the scope of an EMP, though of course they are critical in running a Lodge properly.

Environmental performance indicator:

- Visitors notice the efforts being made by the Lodge to be ‘environmentally friendly’ and they cite this as one of the main reasons why they return to stay at the Lodge in future.

Who is responsible?

- The Lodge Manager is responsible for ensuring that the entire operation (on and off-site) of the Lodge conforms to the standards usually ascribed to ‘eco-tourism’.
- The Lodge owner or Proponent should write the job description for the Lodge Manager, ensuring that the relevant sections of this EMP are included as his/her duties
- The Lodge Manager should compile an environmental report on a regular basis (e.g. monthly) according to a prescribed format. These reports will aid in the compilation of the 6-monthly monitoring reports, which will be required when renewal of the ECC is needed after 3 years.

5.3.1 Mitigation Measures

The following environmental management issues require attention:

- A. Waste management
- B. Water management
- C. Energy management
- D. Tourist management
- E. Pest management
- F. Maintaining sense of place
- G. Wildlife management and protection

A. Waste Management

Human waste

- All toilets should drain into two- or three-chambered septic tanks, which are designed according to recognised standards (e.g. South African National Standards) and able to cope with high and low flow rates. The bacteria within a septic tank require a certain minimum flow to keep active.
- Notices must be placed at each toilet to remind guests not to flush foreign objects down the toilet.
- Each septic tank should have a grate trap at the inflow, and this should be cleaned regularly.
- Use appropriate, bio-degradable toilet cleaners that do not kill the bacteria in the septic tank (various products are available on the market).
- Drains from kitchens must have an oil trap and a grate trap. The purpose of these is to trap oily waste, which can clog up or slow down decomposition in the septic tank, and to catch kitchen off-cuts such as scraps of meat, vegetables etc. The traps must be cleaned daily, and the scraps must be thrown into the appropriate bin.
- The Proponent should adhere to any licence/permit requirements of the applicable water and wastewater legislation.

Domestic waste (kitchen scraps, tins, bottles, plastics, paper, etc.)

- Reduce the amount of waste that is generated. In this regard, try to:
 - Buy supplies in large containers (e.g. cooking oil, tinned food, and cleaning materials) so as to avoid too many empty bottles, tins, etc.
 - Avoid purchases that are packaged excessively – e.g. rather buy 5 loose, unpackaged lettuces and put them in a cool box than buying 5 lettuces packaged individually in plastic and styrofoam.

A. Waste Management

- Separate all organic waste (e.g. kitchen waste), and dump this in a designated compost heap on site. This should be an enclosed place where it cannot be dug out and scattered about by scavengers.
- All recyclable waste (e.g. bottles, tins, plastic packaging, cardboard boxes, paper) should be neatly stored to optimise re-use and recycling, or must be removed from site at least once a week.
- Any waste that is stored temporarily at the site must be secured to avoid it being blown into the surrounding areas, and to prevent it being scavenged by local wild animals such as jackals, hyenas etc.
- Measures must be taken to prevent any waste from attracting scavengers (e.g. kitchen waste should not be left to rot in the open so that it generates smells which will attract animals).

Bulky waste (e.g. building rubble)

- All combustible waste (e.g. empty cement bags), should be burned in a drum or enclosed container, with the necessary care taken to avoid the possibility of starting a veld fire.
- Bulky materials that can be re-used (e.g. wooden planks, metal offcuts, tyres) should be stored separately and neatly, so that they can readily be found and used when needed.

Hazardous waste (batteries, paints, solvents, thinners, used or expired medical equipment)

- These types of waste must be kept separate from other waste and should not be dumped in the general waste dump.
- Hazardous waste should be collected and disposed of periodically at a hazardous waste treatment facility (e.g. Walvis Bay or Windhoek).

Waste disposal

- Any waste that cannot be composted or re-used or recycled or burned should only be dumped at a properly managed waste disposal site.
- When transporting the waste to the dump site, ensure that there is no possibility of waste blowing or falling off the vehicle. The best solution is to load the bins onto the vehicle so there is no need to transfer the waste from one drum to another. This means that at least 2 sets of bins will be required, because set number 2 will be in operation while set number 1 is being transported to and from the dump.
- At the dump, the bins should be completely emptied and dried. They must be returned to the Lodge clean and dry.

A. Waste Management

General

- Make collaborative arrangements with neighbouring establishments (e.g. the local community or nearby lodges) to streamline waste management and improve economies of scale.
- All chemicals used on the site (e.g. for cleaning and polishing) should be of the biodegradable type.
- Compile a purchasing policy that emphasises:
 - Organic, biodegradable products or with non-toxic ingredients
 - Buying in bulk
 - Using containers that can be re-used
 - Minimal packaging
 - Avoiding disposable items which add to the amount of waste that must be recycled or disposed of.

B. Water Management

Minimise water consumption

Aim to keep water consumption average to below the combined water consumption of 15m³ (15,000 litres) per day. Adopt the following strategies:

- Install low-flow shower heads.
- Insert aerators in showers and taps – these add air to the water and reduce the amount of water that flows through.
- Install minimal-water flushing devices in the toilets (e.g. dual-flush toilet systems). Do not install any automatic flushing devices anywhere.
- Place a prominent notice in each room and in all staff quarters informing users about the importance of saving water. Specifically request guests to:
 - Take short rather than long showers
 - Turn taps off after washing
 - Use towels more than once before asking for them to be laundered
 - Not wash their vehicles whilst at the Lodge
 - Only flush the toilet when necessary
- Water reuse/recycling methods should be implemented as far as practicable

B. Water Management

- Do not create any lawns or large gardens that need to be watered (a small vegetable garden using grey water (if possible) is permitted).
- Ensure that pools are covered when not in use.
- Wash vehicles with a bucket, not a hose.
- Clean driveways and parking areas with a broom, not with water.
- Ensure that all pipes are well maintained and that leaks are repaired immediately.
- Ensure that all taps are turned off after use.
- Install water metres at places where consumption can be usefully monitored. Keep a register of water consumption (daily / weekly measurements) so that trends can be monitored. Use this information to gradually improve consumption levels.
- Create incentive schemes for staff to reduce their water consumption.

Prevent water pollution

See waste management notes above.

C. Energy Management

Promote renewable energy

Use as much renewable energy as possible and limit the use of fossil fuels in the generation of energy. This can be achieved by:

- Generators should be used as little as possible.
- The solar energy systems should be well maintained so that they remain efficient.
- Where fires are used for creating ambience in the Lodge, or for warmth (during winter), use wood that comes from bush encroaching species, if possible. Ensure that there are no significant negative environmental impacts associated with the supply of wood (e.g. over-exploitation of a certain non-encroaching species or cutting of protected species).
- The site generator(s) should be automatically switched on once every week so that it is / they are not idle.

Reduce energy consumption, avoid energy wastage

Lights:

- Install only power-saving bulbs (e.g. compact fluorescents or LEDs (light emitting diodes). LED lighting products produce light up to 90% more efficiently than incandescent light bulbs.

C. Energy Management

- Use daylight switches on all outside lights that must be on at night (so that they switch off during the day).
- Use movement-activated lights outside as much as possible.
- Instruct staff to switch off lights and air-cons if guests do not do so when leaving their rooms.

D. Tourist Management

At the Lodge

Place information materials in each guest room, in which tourists are informed about:

- The importance of conserving water.
- How to be energy-efficient.
- The rules regarding feeding of animals.
- Appropriate pest control (e.g. swot a fly rather than spray insecticide).
- Not placing foreign objects down the toilet.
- Avoiding unguided walks or wandering around the Lodge in the night (risk of dangerous wildlife roaming around the Lodge. Therefore, for safety reasons, tourists/guests should stay in their rooms or safe place onsite at night).
- Respecting the rights of other guests (e.g. refraining from making a noise, playing radios, musical instruments, etc.).

On game drives with the Lodge vehicle

When tour guides see wild animals such as lions and elephants away from the roads, they might drive off the existing road tracks leading to damaging of soils and grass. The following measures are recommended to manage the impacts related to off-road driving:

- The Proponent should implement strict protocols and provide training to their guides pertaining to off-road driving in order to minimise the impact on off-road areas.
- The tour guides should be instructed to limit the vehicles tracks to existing road as far as possible.
- The guide may only take guests to sensitive sites (e.g. ecologically, archaeologically etc.) if arrangements have been made beforehand and if there is agreement on what the guests may see and do when at these sites.
- The guide must maintain an appropriate level of control during the drive – specifically:
 - No littering allowed (always have a refuse bag in the vehicle).
 - No noise.

D. Tourist Management

- No throwing of objects at wildlife.
- No throwing of burning objects off the vehicle (e.g. cigarette butts).

While the Lodge has no control over what people do when they are in their own vehicles, they can encourage good behaviour by providing guidelines. These should be set of 'dos and don'ts' that people can take with them on their drive. The guideline should strongly discourage:

- Off-road driving (off-road driving promotes wildlife criminal activities such as creating additional roads for poachers' easy escape).
- Littering.
- Harassing of wildlife.
- Speeding.
- Excessive noise (e.g. hooting, revving the engine, etc. as this has an impact on rhino behaviour, i.e., stress). Similar to the recommendations made under the construction phase, the following should be carried through the operational phase to mitigate noise:
 - Movement of vehicle and machinery should be restricted to existing roads and tracks, and should be restricted to daylight hours only, to prevent unnecessary disturbance to plants and animals.
 - Aircraft traffic should be kept to a minimum and should follow defined routes that are set to cause least disturbance to large animals (e.g. rhinos, elephants, large antelope, and bustards) that are stress sensitive when fleeing in the heat of the day.
- Throwing of burning objects off the vehicle (e.g. cigarette butts).
- Going to the toilet in the veld.

E. Pest Management

Since the Lodge is located in a conservation area, it is to be expected that various species of wildlife will be attracted to the Lodge, and some (e.g. birds, lizards) may even live in the Lodge. It is important that the right balance be maintained in ensuring the comfort and safety of staff and guests, while at the same time accepting that the presence of wildlife is inevitable and, in some cases, desirable. Specific management safeguards are:

- Never feed wildlife (except birds, and then place food in hanging bird feeders).
- Never leave food uncovered or in a place where it is accessible to wildlife.
- Manage waste properly, so that it does not attract scavengers.
- Try non-poisonous remedies or direct hitting for insect control, before using insecticides.

E. Pest Management

- Use traps for rodents and not poison.
- Capture and remove dangerous snakes, rather than killing them.
- Never kill useful animals, such as chameleons, lizards, bats, etc. which will help the Lodge to control unwanted insects such as flies and mosquitoes.
- Maintain high levels of cleanliness, especially in the kitchen.
- Install fly gauze doors and fly screen over selected windows to reduce the numbers of flies and other insects entering buildings.
- Switch off lights when they are no longer needed (lights attract insects).
- Supply mosquito nets.
- Do not have lawns or beds of exotic plants, as these often require intensive pest control.
- At least one or two members of staff should receive training on how to handle snakes. This will ensure that snakes can be safely removed from site when necessary as opposed to being killed.

F. Maintaining Sense of Place

Sense of place is a vague term and can be interpreted differently by different people. It means a number of things, including atmosphere, vibe, style and general ambience. While it is difficult to define exactly, it becomes very obvious when a Lodge loses its sense of place. This usually happens if the Lodge is badly designed in the first place (see instructions to Architect), but it can also happen as a result of bad management.

Management must not cause the Lodge to lose its sense of place, by specifically avoiding:

- Inappropriate furniture (plastic tables and chairs, etc.).
- Shabbiness – dirty linen, dust, dirt, poorly-dressed or unclean staff, untidiness, unemptied ash-trays, etc.
- Disrepair – dilapidated infrastructure creates a very poor impression.
- Noise – no radios, TVs, hi-fi's, noisy staff, "revving" vehicles, rattling air conditioners, low-flying aircraft, motorcycles, quad bikes, etc.
- Smells – make sure that waste is properly managed so that people do not smell the rubbish bins. Also keep drains etc. clean so that these are not smelly. However, avoid the use of highly potent cleaners – guests do not want to smell detergents either.
- Over development – do not have too many signs, or any other objects that detract from the natural beauty of the area. Visitors to the area want a nature experience, with an uncluttered atmosphere.

F. Maintaining Sense of Place

- Scrap – make sure there are no old vehicles or pieces of old equipment lying around.
- Sterility – whilst it is important to keep the Lodge clean, do not sterilize it – this is a Lodge, not a hospital.
- Too many people – this will quickly destroy sense of place. Guests to the Lodge want a certain degree of privacy. Also, there should not be people loitering around at the Lodge, whether visiting staff or looking for work.

G. Wildlife Management and Protection

Protection of wildlife against poaching

The presence of the Lodge may attract many people into the area, and that may not only attract tourists, but wildlife poachers as well. This would potentially lead to a loss of important wildlife in the area. The loss of wildlife would negatively affect the operations of the Lodge as well as the conservancies/JMA functions, because the wildlife presence would be the reason the tourists visit the area and accommodated in the Lodge. The following measures have been recommended to mitigate potential poaching in the area:

- No wild animals may be trapped or killed for any reason whatsoever.
- At least one or two members of staff should receive training on how to handle snakes. This will ensure that snakes can be safely removed from site when necessary as opposed to being killed.
- The mere presence of reputable and trusted tourism operators provides a deterrent against illegal wildlife-related activities. Therefore, with their experience in the industry, the Proponent should consider implementing stringent anti-poaching measures.
- Any suspected poaching activities should be reported to the nearest Police Station and the Proponent should work together with the nearest Police Station and/or anti-poaching unit in the area to combat this crime.
- Anti-poaching awareness should be raised among the site workers as well as the community to inform them of the impacts of poaching on Lodge operations, environment and eventually their own lives (e.g. income generated from their jobs).

Rhino protection

- The rhino tracking taking place from the Lodge should be coordinated with existing tracking activities for example from Camp Doros and Onduli Ridge so that less pressure is exerted on the rhinos through noise and other disturbances.

G. Wildlife Management and Protection

- Rhino tourism viewing protocols, as established at Desert Rhino Camp should be implemented during rhino tracking at all times. This includes zone rotation so as not to visit the same rhino on consecutive days.
- Plans to base a helicopter at Camp Onduli to ferry guests to the new Lodge should be thoroughly discussed with all stakeholders including conservancies and MEFT. The SRT is mindful of disturbance to rhinos from helicopters. Therefore, should MEFT approve the use of a helicopter in the area, this would need a very strong operational plan for pilots and Ultimate Safaris which focuses on minimising impact on rhinos. Likewise the use of a fixed wing to ferry guests will need to be tabled for more thorough discussions and lesson learning from existing camps (Desert Rhino Camp).

5.3.2 Monitoring

The role of the ECO – i.e. the person responsible for monitoring the implementation of the mitigation measures detailed above, might be carried out by a dedicated member of staff, or might form part of the Lodge Manager’s responsibilities. Either way, the ECO’s monitoring responsibility should be carried out on a regular basis (possibly monthly) during the operation phase. The monitoring findings should be incorporated into the 6-monthly environmental reports, which will be required when renewal of the ECC is needed after 3 years.

APPENDIX A: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

Areas of proposed project may be subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The “*chance finds*” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “*a person who discovers any archaeological objectmust as soon as practicable report the discovery to the Council*”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

The Project/Site Manager must report the finding to the following competent authorities:

- National Heritage Council (Head Office: 061 244 375 / Technical Office 061 301 903)
- National Museum (061 276 800), and
- National Forensic Laboratory (061 240 461).

Archaeological material must NOT be touched. Tempering with the materials is an offence under the heritage act and punishable upon conviction by the law.

Responsibility:

Operator: To exercise due caution if archaeological remains are found

Foreman: To secure site and advise management timeously

Superintendent: To determine safe working boundary and request inspection

Archaeologist: To inspect, identify, advise management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in immediate vicinity

Action by superintendent

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

- a) Inspect site and confirm addition to project GIS
- b) Advise NHC and request written permission to remove findings from work area
- c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

- a) Actions as above
 - b) Field inspection by archaeologist to confirm that remains are human
 - c) Advise and liaise with NHC and Police
 - d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.
-