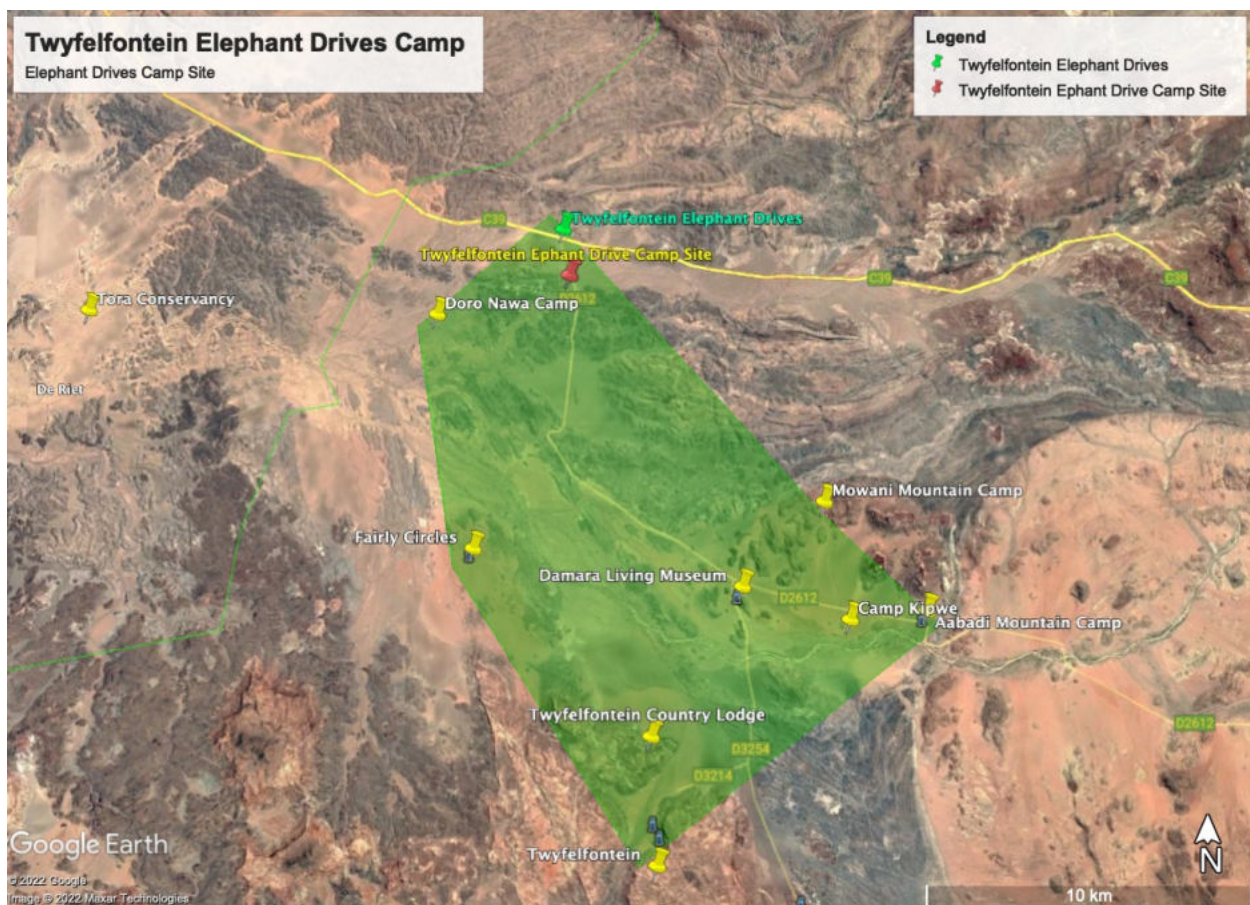




RED-DUNE CONSULTING CC

REF: 221018000136 / APP 000136

Environmental Management Plan For Twyfelfontein Elephant Drives and Safari Camp Site, Located At Twyfelfontein Area, Khorixas Constituency, Kunene Region



CONSULTANT:

Mr. Ipeinge Mundjulu (BSC, MSc)

Red-Dune Consulting CC

P O Box 27623 Windhoek

Cell: +264 81 147 7889

PROPONENT

Mr. Eddy P. Rhyn

Twyfelfontein Elephant Drives

P O Box 411, Arandis



RED-DUNE CONSULTING CC

DOCUMENT INFORMATION

DOCUMENT STATUS	Final
APPLICATION NO:	REF: 221018000136 / APP 000136
PROJECT TITLE	Environmental Management Plan For Twyfelfontein Elephant Drives and Safari Camp Site
CLIENT	Twyfelfontein Elephant Drives
PROJECT CONSULTANT	Mr. Ipeinge Mundjulu
LOCATION	Twyfelfontein Area, Khorixas Constituency, Kunene Region
DATE	17 October 2022

Table of Contents

1. The Environmental Management Plan	1
1.1. Purpose of the EMP	1
1.2. Compliance to the EMP	1
1.3. Roles and Responsibility	1
1.3.1. Proponent.....	1
1.3.2. Site Manager	2
1.3.3. Employees	2
1.3.4. Environmental Compliance Officer.....	2
1.4. Non-Compliance	2
2. Policy, Legal and Legislative Frameworks.....	3
3. The EMP table.....	6
3.1. Construction Phase.....	6
3.1.1. Social Impacts Mitigation Measures.....	6
3.1.2. Bio-Physical Impact Mitigation Measures	10
3.1.3. Waste Generation	13
3.2. Campsite Operational Phase.....	14
4. Closure and Rehabilitation Plan	17
5. Conclusion and Recommendations.....	17
5.1. Conclusions	17
5.2. Recommendations.....	17

List of Tables

Table 1. Regulatory framework applicable to the project.....	3
---	----------

1. The Environmental Management Plan

1.1. Purpose of the EMP

This Environmental Management Plan (EMP) is a risk strategy that contains logical framework, monitoring programme, mitigation measures, and management control strategies to minimize environmental impacts. It further stipulates the roles and responsibility of persons involved in the project. These strategies are developed to reduce the levels of impacts during planning, construction and operation of the Twyfelfontein Elephant Drives and Safari Camp Site.

1.2. Compliance to the EMP

This EMP is a legally binding document as provided for under provisions of the Environmental Management Act, 2007 (Act No. 7 of 2007). Twyfelfontein Elephant Drives and Safari and its contractors should adhere to the framework of this document

1.3. Roles and Responsibility

1.3.1. Proponent

The proponent, Twyfelfontein Elephant Drives and Safari shall take overall responsibility for proper implementation of the EMP. It remains the responsibility of the proponent to appoint key personnel for the implementation of the EMP such as Site Manager and ensure that all employees and contractors are conversant with the EMP.

1.3.2. Site Manager

The Site Manager (SM) represents the proponent on site. He/she shall be responsible for daily activities in ensuring environmental protection. All communication with regard to the implementation of EMP must be channelled through the SM

1.3.3. Employees

It shall be responsibility of employees to adhere to the provision of EMP at all times when on site

1.3.4. Environmental Compliance Officer

Compliance to EMP is enforced by the environmental inspector as provided for under Environmental Management Act (No. 7 of 2007) (EMA)

1.4. Non-Compliance

This EMP is a legally binding document, non-compliance to the EMP is punishable in accordance to the provision of EMA

2. Policy, Legal and Legislative Frameworks

Table 1. Regulatory framework applicable to the project

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
The Namibian Constitution	The State shall actively promote and maintain the welfare of the people by adopting policies aimed at ... The 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	Protection of the environment and biodiversity
Environmental Management Act No. 7 of 2007	This act aims to promote the sustainable management of the environment and the use of natural resources and to provides for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters	The acts provide a list of activities that may not be undertake without an environmental clearance certificate to prevent environmental damages
Communal Land Reform Act, 2002 (Act No. 5 of 2002)	Provide for the allocation of rights in respect of communal land; to establish Communal Land Boards; to provide for the powers of Chiefs and Traditional Authorities and boards in relation to communal land; and to make provision for incidental matters.	The Proponent is required to obtain a Leasehold Certificate for the land parcel where the campsite will be established.

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
Draft Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as providing for general waste management	To protect the Environment from possible pollution
Traditional Authorities Act 25 of 2000	To provide for the establishment of traditional authorities and the designation, election, appointment and recognition of traditional leaders; to define the powers, duties and functions of traditional authorities and traditional leaders; and to provide for matters incidental thereto	The area is within the jurisdiction of the traditional authorities, customary laws should be observed and respected
Environmental Policy framework (1995)	This policy subjects all developments and project to environmental assessment and provides guideline for the Environmental Assessment.	Consideration of all possible impacts and incorporate them in the development stages
National Solid Waste Strategy	The strategy to control and manage solid waste in Namibia	To ensure adequate handling of solid waste
Regulations Related to the Health and Safety of Employees at Work. Reg No. 156	Promotes the Safety and Health of employees at the work place	To ensure a healthy working environment
Public Health Act No. 1 of 2015	To Protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge	To ensure public health

REGULATORY FRAMEWORK	SUMMARY	APPLICABILITY
	any nuisance or other condition liable to be injurious or dangerous to health.	
Labour Act No. 11 of 2007	This Act outlines the labour laws which encompass protection and safety of employees at work.	Ensure that employees at work place are protected
Water Resource Management Act No.11 of 2011	Provide for the management, protection, development, use and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.	Possibility of surface and groundwater contamination.
National Heritage Act No.27 of 2004	The Act gives provision of the protection and conservation of places and objects with heritage significance.	To ensure precaution and protection of Heritage Resources.

3. The EMP table

The EMP is divided into three components; Social and Biophysical Environment in accordance with the project phases.

3.1. Construction Phase

3.1.1. Social Impacts Mitigation Measures

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Employment	To ensure that locals benefit from the employment opportunities to be created during construction and operation of the project.	<ol style="list-style-type: none"> 1. Ensure that all general work is reserved for local people unless in circumstances where specialized skills are required. 2. Fair compensation and labour practises as per Namibian Labour Laws must be followed 3. Ensure skill transfer to the locals 4. Use local suppliers for goods and services where possible 	<ul style="list-style-type: none"> • Employees record Labour unrest over unfair compensation • Induction minutes, reports and attendance registers 	Site Manager
HIV/AIDS, Alcohol and Drug Abuse	To sensitise employees about the dangers of	<ol style="list-style-type: none"> 1. Provide awareness to the employees on dangers of HIV/AIDS, alcohol and drug abuse 2. Provide condoms on site 	Awareness meeting minutes	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
	alcohol, drugs and HIV/AIDS			
Health	To ensure good health and safety of the employees and public	<ol style="list-style-type: none"> 1. Abide to the Occupational Health and Safety and Labour Act of Namibia and other statutory requirements such as International Labour Practise (Organization?) (ILO) 2. Ensure adequate first aid kit 3. Supervisors must undergo an occupational health and first aid course 4. Train employees on the possible health hazards to avoid potential risks 5. Provide appropriate Personal Protective Equipment (PPE) 6. Employees must NOT be exposed to noise levels above the required -85dB (A) limit over a period of 8 hours 7. Adhere to the Labour Act which stipulates that non-toxic human dust exposure levels may not exceed 5mg/m³ for respiratory dust and 15mg/m³ for total dust. 8. Supply clean drinking water to the site 	<ul style="list-style-type: none"> • Training minutes • Complaints of health issues by employees • Employees fitness certificates • First aid kit available 	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Safety	To ensure good health of the employees	<ol style="list-style-type: none"> 1. Ensure that every employee goes through an induction course about safety; 2. Employees must be equipped with all necessary Personal Protective Equipment (PPE). These includes, Helmet, Overall, Safety Shoes, Safety Glasses, Gloves, Earmuff etc; 3. During construction, minor accidents are eminent, hence there must be a first aid kit; 4. Only qualified and licenced personnel must be allowed to operate machinery and vehicles; 5. Adequate safety signs must be displayed on site; 6. Put all appropriate safety signages 	<ul style="list-style-type: none"> • PPE for all employees • Safety policy/plan in place • Training minutes • Licensed personnel operation specialized equipment • Safety signs on site 	Site Manager
Visual Impact and preservation of natural view of the environment	To prevent litter/waste scattered all over and preserve aesthetic value	<ol style="list-style-type: none"> 1. Maintain good house keeping 2. Excavated heaps and construction material must be stored well 3. Trenches must be rehabilitated (backfilled and compacted) 4. Where possible and to a larger extent, use are stone to construct various component of the campsite such as fireplace, shower, and toilet etc. 	<ul style="list-style-type: none"> • Scattered litter, visual inspection • Construction site levelled and compacted 	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		5. Avoid high rise bright lights, all lights must be short and facing down		
Archaeology/ Heritage Resources/ Artefacts	Preserve Heritage	<ol style="list-style-type: none"> 1. Employee must be trained on the possible find of Heritage Resources in the area; 2. Implement a chance find and steps to be taken during Heritage material findings (rock painting and drawings, human remains or artefacts) are unearthed by; <ol style="list-style-type: none"> i. Stopping the activity immediately ii. Informing the operational manager or supervisor iii. Cordoned of the area with a danger tape and manager to take appropriated pictures. <p>Manager/supervisor must report the finding to the National Museum (+264 61 276800) or the National Forensic Laboratory (+264 61 240461).</p>	<ul style="list-style-type: none"> • Sighting reports of heritage resources/artefacts 	Management or Site Manager

3.1.2. Bio-Physical Impact Mitigation Measures

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Impact on Flora	To ensure sustainable conservation of the vegetation	<ol style="list-style-type: none"> 1. Unless inevitable mature trees must not be cut down 2. Do not plant alien trees 3. Plant local trees within the area to improve the aesthetic view of the area 4. Vehicle movements must be confined within the site 	Physical inspection	Site Manager
Impact on Fauna	To ensure protection of animals especially wild animals	<ol style="list-style-type: none"> 1. Do not kill animals if found on site (unless it is an eminent danger to human life) 2. Do not allow employee to carry weapon or snares or any type of animal traps that may lead into poaching. 	Records of animals killed	Site Manager
Land Pollution / Surface and Ground Water Pollution	To prevent water pollution and manage fuels, oils and lubricants leakages from vehicles and machinery to prevent pollution	<ol style="list-style-type: none"> 1. Fueling of vehicles on site must be well coordinated at designated places 2. Stationary vehicles must be provided with drip tray to capture oil, lubricants and hydraulic fluid leakages 3. All vehicles and machinery must be well serviced to 	Physical inspections	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<p>avoid leakages</p> <p>4. Provide and train on oil spill emergency response</p> <p>5. Servicing of vehicles and machinery must take place at designated sites</p>		
Land Degradation / Soil Erosion	To prevent soil erosion	<p>1. Movement of heavy vehicles must be coordinated and restricted to be on access roads</p> <p>2. After completion of construction, spray water where the soil has been loosen and apply minimal compaction that will allow revegetation of grasses</p>	Physical inspection	Site Manager
Waste Generation	To ensure good housekeeping and prevent littering	<p>1. Develop a waste management strategy</p> <p>2. Provide skip bins to collect waste and be disposed of at an approved disposal site</p> <p>3. Provide mobile toilets at the site</p> <p>4. Do not burry waste on site</p> <p>5. Used oil, grease and lubricants cans must be collected in appropriate drums and disposed of at an approved site.</p>	<p>Waste bins on site</p> <p>Physical inspection</p>	Site Manager
Air Pollution / Dust pollution	To prevent / minimize all source of air pollution	1. Movement of vehicles must strictly be restricted within the site;	Physical inspection	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<ol style="list-style-type: none"> 2. Adhere to the minimum speed limit of 30 or 40km/hour; 3. Do not excavate and/or offload sand during heavy winds; 4. Vehicles carrying sand must be covered, 5. Sand stockpiles must be covered or regularly water sprayed with water; 6. On site where soil is loosened by vehicle movement, apply dust a suppression method such as water spraying, 7. Where possible cement and concrete must be mixed with concrete mixers and not manually in the open, 8. Cement bags must be stored and disposed of properly and may not be shaken in the open 		
Noise Impacts	To prevent noise pollution from flying aircraft	<ol style="list-style-type: none"> 1. Heavy vehicles must be well serviced 2. Switch off engine off vehicles when not in use 3. Drive at 30 km/h while on site 	Complaints from farmers and members of public	Site Manager

3.1.3. Waste Generation

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Building rubbles	To prevent litter	<ol style="list-style-type: none"> 1. Provide a skip bin to store all general solid waste 2. Maintain good housekeeping, do not let loose bags of cement and other containers to be blow away by wind 3. Dispose of waste at appropriate waste disposal site, i.e Khorixas waste disposal site 	Physcial Inspection Waste bins Record of waste disposal	Site Manager
Household waste	To manage household generated waste	<ol style="list-style-type: none"> 1. Supply house waste bin 2. Provide two toilets for the workers 	Toilet onsite Household Waste Bins	Site Manager

3.2. Campsite Operational Phase

During operation, eminent impact will be solid and liquid waste management, health and safety of the people / tourist,

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Employment	To ensure that locals benefit from the employment opportunities to be created during construction and operation of the project.	<ol style="list-style-type: none"> 1. Ensure that all general work is reserved for local people unless under circumstances where specialized skills are required. 2. Fair compensation and labour practises as per Namibian Labour Laws must be followed 3. Ensure skill transfer to the locals 4. Use local suppliers for goods and services where possible 5. All employees must go through an induction course for the provision of the EMP 	<p>Employee records Labour unrest over unfair compensation</p> <p>Induction minutes, reports and attendance register</p>	Site Manager
HIV/AIDS, Alcohol and Drug Abuse	To sensitise employees about the danger of alcohol, drugs and HIV/AIDS	<ol style="list-style-type: none"> 1. Provide awareness to the employees on danger of alcohol, (HIV/AIDS) and drug abuse 2. Provide condoms on site 	Awareness meeting minutes	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
Health	To ensure good health and safety of the employees and public	<ol style="list-style-type: none"> 1. Maintain hygiene and sanitation by ensuring that there are user friendly toilets and showers designated for males and females 2. Ensure that the toilet are well maintained and clean all the time 3. Ensure that the campsite is free of hard, such as broken glasses, sharp objects 4. Ensure that fireplace are not connected to grasses and that there must be a fire hydrant at each and every fire place to prevent wild fires 5. The camp site must be guarded by security personnel to ensure safety of the tourist 6. Install appropriate site notices such as be aware of baboons and warn tourist / visitors of insect bites 7. Install elephant / rhinos / lions deterrents 	<p>Induction Minutes</p> <p>Valid driver licenses for heavy vehicles</p> <p>Complain of health issues by employees</p> <p>PPE registers all employees</p>	Site Manager
Safety	To ensure good health of the employees and public	<ol style="list-style-type: none"> 1. There must be an automatic fire alarm system installed at the site 2. Firefighting equipment must be on site 24hours and regularly inspected to ensure that they are functional 	<p>Health complaints from employees</p> <p>Employees fitness certificates</p>	Site Manager

Environmental / Social Impact	Objectives	Proposed Mitigation Measures	Monitoring Indicator	Party Responsible
		<ol style="list-style-type: none"> 3. Emergency response numbers must be on clear and visible space 4. There must be clear hazard signage reading “NO OPEN FIRE” “NO SMOKING” and “SWITCH ENGINE OFF” 5. wall (in case there is bush/veld fire outbreaks) 6. Provide personnel with full protective clothing such as full-face air supplied or self-contained breathing apparatus, overalls, thermal insulated gloves, splash-proof goggles and non-sparking boots. 7. Ensure that fireplace are not connected to grasses and that there must be a fire hydrant at each and every fire place to prevent wild fires 8. The camp site must be guarded by security personnel to ensure safety of the tourist 9. Install appropriate site notices such as be aware of baboons and warn tourist / visitors of insect bites 10. Install elephant / rhinos / lions deterrent 	<p>No signs of live fire (ashes)</p> <p>No source of ignition</p> <p>Fire policy in place</p> <p>Automatic fire detecting system</p> <p>Firefighting equipment</p> <p>Clear warning site</p> <p>Training minutes</p> <p>PPE for fire fighting</p>	

4. Closure and Rehabilitation Plan

The operation of the campsite is envisioned to be a generational business. In case of eminent closure, the following measure are recommended.

The following is a systematic decommissioning plan

1. Prior to decommissioning, the proponent must inform the office of the Environmental Commissioner;
2. All work must be supervised by qualified and competent engineers;
3. It is recommended that an environmental specialist must monitor any possible contamination during decommissioning;
4. There must be clear signs to the public about the closure of the project;
5. The contractor must use the right tools and equipment;
6. Workers must be provided with all necessary PPE;
7. All wasted generated must be disposed of at approved sites.

5. Conclusion and Recommendations

5.1. Conclusions

The environmental assessment for this scoping study has successfully identified all possible impact during planning, construction and operation of the camp site. The developed mitigation measures has lowered all impacts to low levels. Most of the impacts will be short term during construction, site specific and insignificant. The Environmental Management Plan must should be used as the logical framework for the project to mitigate environmental threats at all times.

5.2. Recommendations

It is recommended to the approving authority that an environmental clearance certificate be issued for project.