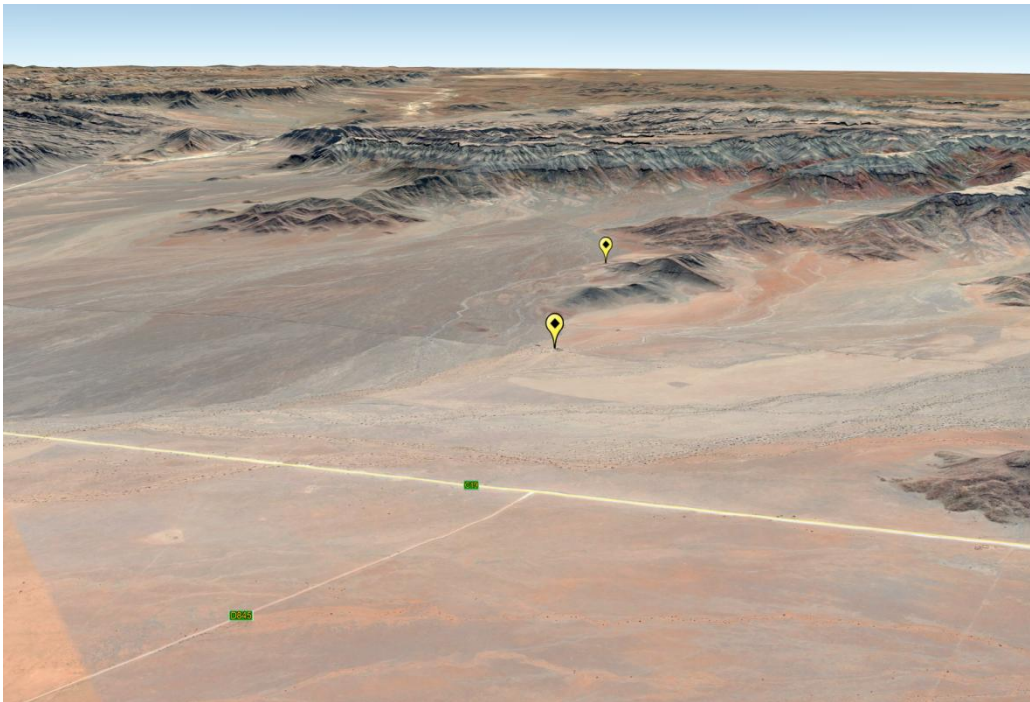


APP-001274

ENVIRONMENTAL SCOPING ASSESSMENT

PROPOSED NEW LUXURY SAFARI HOUSE, COTTAGE AND GLAMPING CAMP UNITS ON FARM SHANGRI-LA NO. 190, HARDAP REGION



CONSULTANT:

Matrix Consulting Services
P.O. Box 25824 Windhoek
Tel: +264-61 224 197
Fax: +264-61 212 165
info@matrixconsultingcc.com



PROPONENT:

Infinity Nature Holdings (Pty) Ltd
P.O. Box 90392, Klein Windhoek
Tel: +264-81 129 3962
nam0610@mweb.com.na

March 2020

**INFINITY NATURE
HOLDINGS (PTY) LTD**

EXECUTIVE SUMMARY

An Environmental Scoping Assessment (ESA) has been commissioned by Infinity Nature Holdings (Pty) Ltd, for the construction and operations of a new luxury Safari house, cottage and glamping camp units on Farm Shangri-La No.190, in the Hardap Region.

Considering the nature of the proposed development and its activities, the ESA has been undertaken in accordance with the requirements of existing national legislations, of which the National Environmental Assessment Policy (1995), the Environmental Management Act (2007) and its regulations of 2012, and other relevant legislations and regulations pertaining to Environmental Assessments and protection of the environment in the Republic of Namibia are considered most important. Some existing international policies are also taken into account and are used as guidelines.

Impacts identified from baseline studies, site visits and stakeholder consultation process have been assessed making use of a comprehensive assessment methodology as provided by the Department of Environmental Affairs (DEA) of Namibia. This included looking at impact significance through, its nature, extent, duration, probability and intensity.

Major issues or impacts identified are soil, surface and ground water impacts; air quality (including dust pollution); ecological impacts; risk of fires and explosions; hygiene and health impact; heritage impacts; generation of waste; traffic safety, especially during construction; noise pollution; safety and security; and cumulative impacts. These impacts are assessed in each of the three stages of project development namely, construction, operation and decommissioning phases.

Socio-economic impacts amongst others include creation of part-time and permanent employment opportunities and economic spin-offs for the local businesses and suppliers. Waste generation during the construction activities is eminent; however implementation of proper management strategies should address these issues. Minor surface spillages during the operations of the facility may result in a collective long-term significant impact on surface and groundwater.

Cumulative impacts expected as a result of the proposed development include, dust and exhaust emissions from vehicles frequenting the project sites during all phases of the development, coupled with the existing emissions from vehicles in the surrounding areas, the air quality will be impacted.

In general, impacts are expected to be low to medium, mostly short lived and site specific. Mitigation options recommended in the Environmental Management Plan (EMP) will guide and ensure that the impacts of the construction work are minimised.

All environmental risks can be minimised and managed through implementation of preventative measures and sound management systems. Environmental audits should be carried out to ensure compliance of the EMP and environmental regulations of Namibia.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
GLOSSARY OF TERMS	5
1. BACKGROUND AND INTRODUCTION	7
1.2 Project Rationale.....	7
1.3 Project Phases.....	9
2. TERMS OF REFERENCE	9
3. ENVIRONMENTAL STUDY REQUIREMENTS	10
4. DESCRIPTION OF ALTERNATIVES	10
4.1 No-Go Alternative.....	10
5. SCOPE	11
6. METHODOLOGY	11
7. STATUTORY REQUIREMENTS	11
8. PROPOSED DEVELOPMENT	18
9. GENERAL ENVIRONMENT OF THE STUDY AREA	20
9.1 Location and Land Use.....	20
9.2 Topography and Drainage.....	20
9.3 Climatic Conditions.....	21
9.4 Hydrogeology of the Study Area.....	21
9.4.1 Geological Structures	22
9.4.2 Surface- and Groundwater Pollution Monitoring	22
9.5 General Ecology.....	25
9.6 Socio-Economic Aspects.....	27
9.6.1 Regional information.....	27
9.6.1.1 Economic activities	27
9.6.1.2 Employment (Job Opportunities)	28
9.6.1.3 Livelihoods	28
9.6.1.4 Procurement	29
9.6.1.5 Tourism	29
9.6.1.6 In - Migration	29
9.6.1.7 HIV & Prostitution	29
9.6.1.8 Infrastructure & Increased Traffic	30
10. STAKEHOLDER PARTICIPATION	30
11. ENVIRONMENTAL IMPACT EVALUATION	32
11.1 Pre-Construction Activities	32
11.1.1 Compliance Requirements.....	32
11.1.2 Public Consultation	33
11.1.3 Environmental Awareness	33
11.1.4 Health and Safety Aspects	33
11.2 Construction Phase	33
11.2.1 Erosion and Sedimentation	33
11.2.2 Dust Pollution and Air Quality.....	34
11.2.3 Noise Impact	34
11.2.4 Safety & Security	35
11.2.5 Traffic.....	36
11.2.6 Groundwater	36
11.2.7 Surface Water	37
11.2.8 Generation of Waste	38
11.2.9 Fires and Explosions	39
11.2.10 Nuisance Pollution	39
11.2.11 Heritage Impacts.....	40
11.2.12 Ecological Impacts	40
11.2.13 Socio-Economic Aspects	40
11.3 Operational Phase	41
11.3.1 Spillages	41
11.3.2 Air Quality	42
11.3.3 Noise Pollution	42
11.3.4 Fire and Explosion Risks	43
11.3.5 Generation of Waste	44



11.3.6	Surface and Groundwater	44
11.3.7	Health and Safety	46
11.3.8	Traffic.....	46
11.3.9	Ecological Impacts	47
11.3.10	Socio-Economic Aspects	47
11.4	Possible Decommissioning Phase.....	47
12.	CUMULATIVE IMPACTS.....	47
13.	ENVIRONMENTAL MANAGEMENT PLAN.....	48
14.	CONCLUSIONS.....	48
15.	REFERENCES.....	50

List of Tables

Table 1.	List of activities identified in the EIA Regulations.....	10
Table 2.	General Fauna Diversity (Atlas of Namibia)	27
Table 3.	Impact Evaluation Criterion (DEAT 2006)	32

List of Figures

Figure 1.	Project location	8
Figure 2:	Environmental Assessment Procedure of Namibia (<i>Adapted from the Environmental Assessment Policy of 1995</i>)	14
Figure 3.	Existing base camp site and proposed glamping camping units.....	18
Figure 4.	Proposed layout plan of the Safari house and Cottage.....	19
Figure 5.	Contoured water level elevations (<i>Sarma, 2018</i>).....	23
Figure 6.	Hydrogeological map of Study Area.....	24
Figure 7.	Vegetation map of study area.....	26

Appendices

Appendix A	Environmental Management Plan
Appendix B	Background Information Document
Appendix C	Proof of Public Consultation
Appendix D	Lead Consultant Resume
Appendix E	Layout Drawings

List of Abbreviations

EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMA	Environmental Management Act
EMS	Environmental Management System
ESA	Environmental Scoping Assessment
I&Aps	Interested and Affected Parties
PPPPs	Projects, Plans, Programmes and Policies
SANS	South African National Standards



PROJECT DETAILS

TEAM MEMBERS

NAME	POSITION	COMPANY
M. Shippiki	Environmental Practitioner / Hydrogeologist	Matrix Consulting Services
D. Bille	Geologist	Matrix Consulting Services

CLIENT: **Infinity Nature Holdings (Pty) Ltd**
P.O. Box 90392, Klein Windhoek

ENVIRONMENTAL CONSULTANT Matrix Consulting Services
Mize Shippiki (Environmental Hydrogeologist)
P.O. Box 25824 Windhoek
Tel: +264-61 224197
Fax: +264-61 212165

REPORT STATUS: **FINAL**

CLEARANCE ISSUED TO: Please note that the environmental certificate should be made out to the proponent:

Infinity Nature Holdings (Pty) Ltd

The Managing Director
P.O. Box 90392, Klein Windhoek
Tel: +264-81 129 3962
nam0610@mweb.com.na

However, please forward the clearance certificate to consultant:

Matrix Consulting Services

P.O. Box 25824
Windhoek
Tel: +264-61 224197
Fax: +264-61 212165



GLOSSARY OF TERMS

Project area - Refers to the entire study area encompassing the total area as indicated on the study area map.

Project site - Refers to the geographical setting (piece of land) on which the proposed development is to be located.

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Alternatives - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The “no-go” alternative constitutes the ‘without project’ option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

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.

Evaluation – means the process of ascertaining the relative importance or significance of information, the light of people’s values, preference and judgements in order to make a decision.

Environment – Is the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life. As defined in the Environmental Policy and Environmental Management Bill of Namibia - *“land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values”*.

Environmental Impact Assessment (EIA) – process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Interested and Affected Party (I&AP) - any person, group of persons or organization interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Proponent (or Developer) – The client (an individual or group), whom is responsible for the planning, funding and development of the 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.

Environmental Clearance Certificate - This Certificate obtained from the Ministry of Environment and Tourism (Directorate of Environmental Affairs) approving the EIA study and providing clearance to the proponent to initiate work.

Environmental Assessment Practitioner - A person designated by a proponent to manage the assessment process.

Contractor - For the purposes of this document, the term 'Contractor' refers to the main contractor(s) appointed to undertake the construction of the project, or portion of the construction of the project. The Contractor(s) are required to adhere to the EMP and are responsible for ensuring that all Sub-Contractors, suppliers and staff appointed by them also adhere to the conditions of the EMP.

Contractor's camp or construction camp - Means the area designated for all the Contractor's temporary offices, storage areas, plant parking areas, staff welfare facilities etc.

1. BACKGROUND AND INTRODUCTION

Infinity Nature Holdings (Pty) Ltd. has commissioned an Environmental Scoping Assessment (ESA) for the proposed construction and operations of a new luxury Safari house, cottage and glamping camp units on Farm Shangri-La No.190, in the Hardap Region. See Figure 1.

Shangri-La has been used as a sheep farm in the past, whereas the farm will be converted into a tourism enterprise by the new owners.

Matrix Consulting Services was appointed to undertake the Environmental Impact Assessment of the proposed new Safari house, cottage and glamping camping development on Farm Shangri-La and apply for an environmental clearance certificate. This study will enable decision makers to make an informed decision regarding the development and make sure it does not have significant impacts on the environment and that they are mitigated. The environmental impact assessment was conducted to comply with Namibia's Environmental Assessment Policy and the Environmental Management Act.

1.2 Project Rationale

Tourism in Namibia is a major industry, contributing substantially to the country's gross domestic product. Annually, over one million travellers visit Namibia, with roughly one in three coming from South Africa, then Germany and finally the United Kingdom, Italy and France. The country is among the prime destinations in Africa and is known for ecotourism which features the country's extensive wildlife.

As a result of the increasing development in the area, the need for a new lodge and tented camp establishment rose due to an increasing number of tourists frequenting the area and its surroundings. The C19 road in the area has always been a major and important tourist route through the nearby Namib-Naukluft National Park and provides access to major tourist attractions such as Solitaire, Sesriem and Sossusvlei. The facility aims at alleviating the overnight accommodation shortage experienced by the hospitality industry in the area. It will secure accommodation for tourists frequenting the area, even in the peak tourism or holiday periods.

The proposed development will also provide the much-needed luxury and modern services, leisure and comfort to people visiting the area.

Potential spin-offs:

- ❖ **Employment:** The creation of approximately 40 new jobs is expected. It is estimated that the new jobs will improve the livelihoods of the new workers and their families. Given the unemployment rate of 36% in the region, this in itself is regarded as a significant benefit to the socio-economic situation in the region (Census Regional Profile, Namibia Statistics Agency, 2011).

- ❖ Skills development: As the construction and operation of the development requires specialised work and skills it can be expected that experts will be training locals in certain skills during development and operation.
- ❖ Contribution to economic development (e.g. supply of materials and goods for construction purposes; new businesses, employment etc.).
- ❖ Technology transfer to Namibia: The new development includes state-of-the-art technology. The construction, operation, maintenance and support of these new technologies will expose local artisans and industries to these technologies. This can have a positive effect on the area.
- ❖ General enhancement of the quality of life of the communities in the surrounding areas.
- ❖ Contribution to the accommodation sector in the hospitality industry, and
- ❖ Expansion of trade and industrial activity in the area.

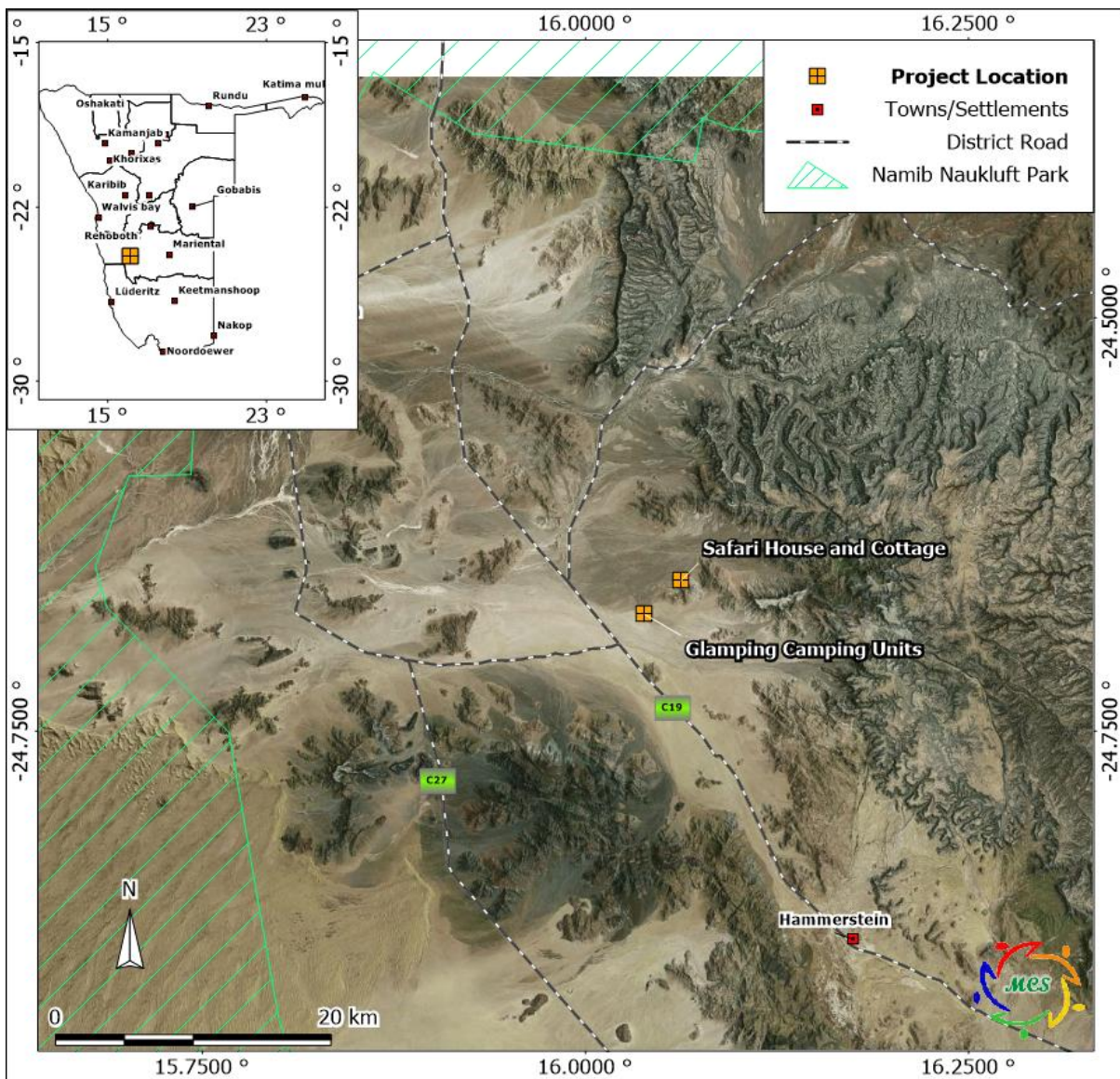


Figure 1. Project location

1.3 Project Phases

The project is made up of 3 phases, namely the pre-construction, construction and operation phase. Activities involved in all phases are as follows:

Pre-construction Activities

- ❖ Ensuring and maintaining environmental authorisations/permits/licences.
- ❖ Ensuring environmental awareness for all project personnel (i.e. contractors, sub-contractors and suppliers).
- ❖ Developing and implementing environmental emergency preparedness procedures for the project.

Construction Phase:

- ❖ Land clearing and preparation.
- ❖ Excavations for building foundations, electrical, water and sewer systems.
- ❖ Transport and installation of electrical and water lines; and all associated material.
- ❖ Transport and installation of septic tanks and associated sewer reticulation pipelines and relevant material.
- ❖ Excavation and construction of swimming pools.
- ❖ Excavation and construction of waterholes.
- ❖ Construction of associated buildings and other infrastructure.
- ❖ Construction of roads.

Operational Phase:

- ❖ Provide accommodation and leisure services to the general public.
- ❖ Operation and maintenance of the sewer, water and electrical infrastructure; buildings and roads.
- ❖ Progressive Rehabilitation.

2. TERMS OF REFERENCE

Infinity Nature Holdings (Pty) Ltd. has commissioned an Environmental Scoping Assessment (**ESA**) for the proposed development, on Farm Hebron No.190, in the Hardap Region.

Matrix Consulting Services was appointed to undertake the Environmental Impact Assessment of the proposed luxury Safari house, cottage and glamping camp units. This study will enable decision makers to make an informed decision regarding the development and make sure it does not have significant impacts and that they are mitigated. The environmental impact assessment was conducted to comply with the Environmental Assessment Policy (1995) and the Environmental Management Act (2007) and its regulations of 2012.



3. ENVIRONMENTAL STUDY REQUIREMENTS

According to the Environmental Management Act no. 7 of 2007, the proponent requires an environmental clearance from the Ministry of Environment and Tourism (Department of Environmental Affairs) to undertake of the construction of the lodge and tented camp development. The certificate means that the Ministry of Environment and Tourism is satisfied that the activity in question will not have an unduly negative impact on the environment. It may set conditions for the activity to prevent or to minimise harmful impacts on the environment.

The proposed development is listed as a project requiring an environmental assessment as per the following listed activities in the Environmental Management Act no 7 of 2007 and its Guidelines (06 February 2012):

Table 1. List of activities identified in the EIA Regulations which apply to the proposed project

Activity Description:	Description of Activity	Activities
Activity 8.9 Water Resource Developments	Construction and other activities within a catchment area.	The project entails activities that will be undertaken within a catchment area.
Activity 6 Tourism Development Activities	The construction of resorts, lodges, hotels or other tourism and hospitality facilities	The project entails the construction of a Safari house, cottage and Glamping camp units.
Activity 10.1 (a) (Infrastructure)	The construction of – Oil, water, gas and petrochemical and other bulk supply pipelines	The proposed project includes the installation of bulk services.
Activity 11.2 Other Activities	Construction of camping, leisure and recreation sites.	The project entails the construction of camps units.

4. DESCRIPTION OF ALTERNATIVES

4.1 No-Go Alternative

The no-development alternative is the option of not establishing the luxury Safari house, cottage and glamping camp units. Should the proposed development not take place, development in the area and the region at large is hindered due to the lack of accommodation facilities, and it could impact tourism activities in the area. The proposed development will help alleviate shortage of overnight accommodation in the area.

The proposed development will also provide the much-needed luxury and modern hospitality establishment with all its associated services. The No-development option is thus not considered to be a feasible alternative at this stage.

4.2 Site Alternative

The project site is generally suitable for this type of operation. The possible impacts at the project location, both environmental and socio-economic, are of such a nature that they can be mitigated through good practice and compliance to the EMP.

5. SCOPE

The scope of the ESA aims at identifying and evaluating potential environmental impacts emanating from the construction and operations of the development. Relevant data have been compiled by making use of secondary sources and from project site visits. Potential environmental impacts and associated social impacts will be identified and addressed in this report.

The environmental impact assessment report aims to address the following:

- a) Identification of potential positive and negative environmental impacts.
- b) Provide sufficient information to determine if the proposed project will result in significant adverse impacts.
- c) Identification of “hotspots” which should be avoided where possible due to the significance of impacts.
- d) Evaluation of the nature and extent of potential environmental impacts
- e) Identify a range of management actions which could mitigate the potential adverse impacts to required levels.
- f) Provide sufficient information to the Ministry of Environment to make an informed decision regarding the proposed project.
- g) Conduct a public participation exercise.
- h) Present and incorporate comments made by stakeholders.

6. METHODOLOGY

The following methods were used to investigate the potential impacts on the social and natural environment due to the construction and operation of the Safari house, cottage and glamping camp units:

- a) Information about the project site and its surroundings was obtained from existing secondary information and site visits.
- b) Neighbours, interested and affected Parties (I&APs) were consulted and their views, comments and opinions are presented in this report.

7. STATUTORY REQUIREMENTS

The ESA process is undertaken in terms of Namibia’s Environmental Management act no. 7 of 2007 and the Environmental Assessment Policy of 1995, which stipulates activities that may have significant impacts on the environment. Listed

activities require the authorisation from the Ministry of Environment and Tourism (DEA). Section 32 of the Environmental Management Act requires that an application for an environmental clearance certificate be made for the listed activities. The following environmental legislation is relevant to this project:

A. The Namibian Constitution

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.

B. Environmental Management Act No.7 of 2007

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term “*environment*” as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment.

Line Ministry: Ministry of Environment and Tourism

C. Water Resources Management Act of Namibia (2004)

This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia. This Act ensures that Namibia's water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

Line Ministry: Ministry of Agriculture, Water Affairs and Forestry

D. Environmental Assessment Policy of Namibia (1995)

Environmental Assessments (EA's) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA's) is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

All listed policies, programmes and projects, whether initiated by the government or the private sector, should be subjected to the established EA procedure as set out in Figure 2.

Line Ministry: Ministry of Environment and Tourism

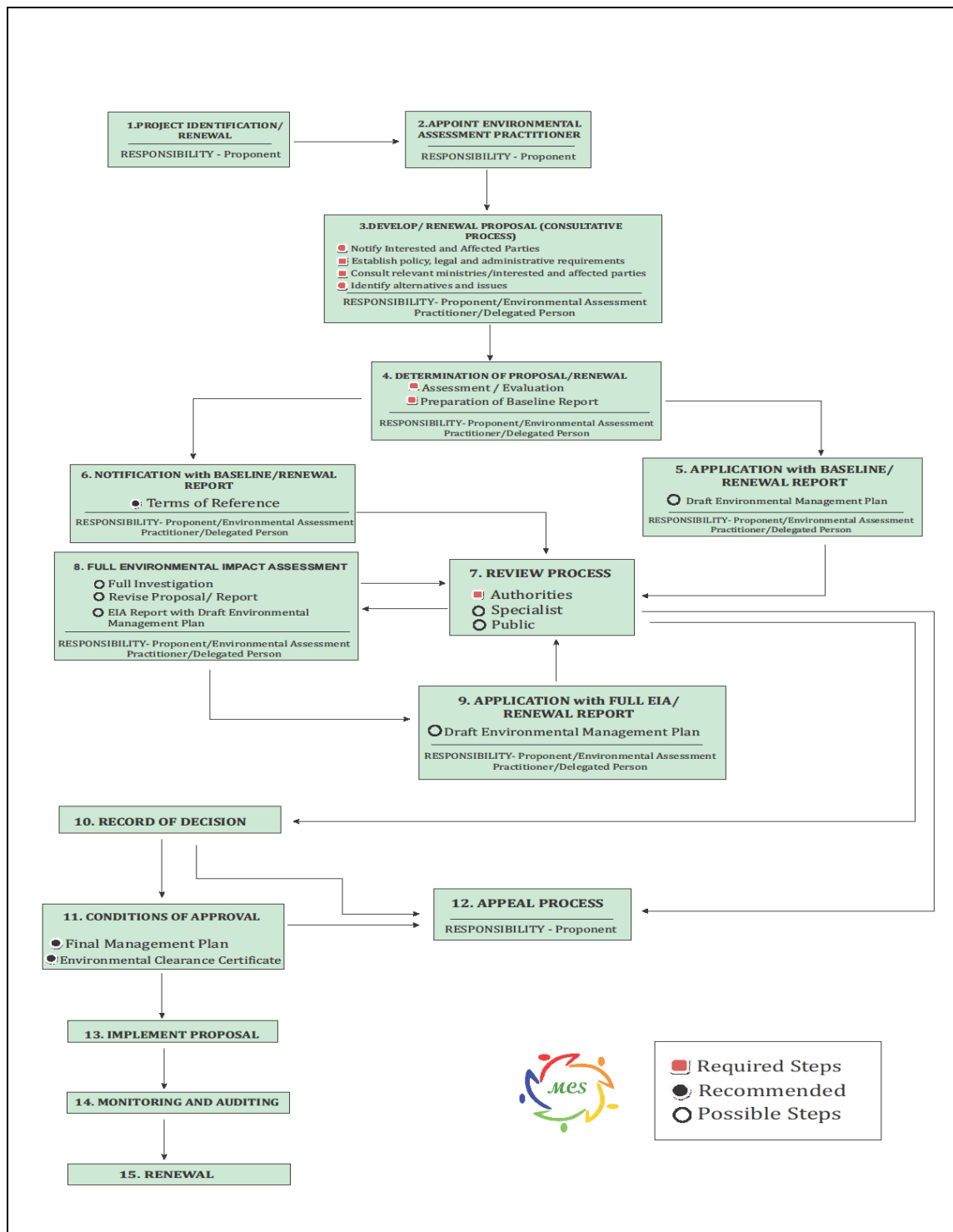


Figure 2: Environmental Assessment Procedure of Namibia (Adapted from the Environmental Assessment Policy of 1995)

Apart from the requirements of the Environmental Assessment Policy, the following sustainability principles need to be taken into consideration, particularly to achieve proper waste management and pollution control:

✓ **Cradle to Grave Responsibility**

This principle provides that those who manufacture potentially harmful products should be liable for their safe production, use and disposal and that

those who initiate potentially polluting activities should be liable for their commissioning, operation and decommissioning.

✓ **Precautionary Principle**

There are numerous versions of the precautionary principle. At its simplest it provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

✓ **The Polluter Pays Principle**

A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

✓ **Public Participation and Access to Information**

In the context of environmental management, citizens should have access to information and the right to participate in decisions making.

E. Draft Pollution Control and Waste Management Bill

The proposed development, only applies to Parts 2, 7 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

F. Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976)

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

Line Ministry: Ministry of Health and Social Services

G. Hazardous Substances Ordinance No. 14 of 1974



The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Line Ministry: Ministry of Health and Social Services

H. Labour Act No.11 of 2007

The purpose of the Act is to “consolidate and amend the labour law; to establish a comprehensive labour law for all employers and employees; to entrench fundamental labour rights and protections; to 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’ organisations; to regulate collective labour relations; to provide for the systematic prevention and resolution of labour disputes; to establish the Labour Advisory Council, the Labour Court, the Wages Commission and the labour inspectorate; to provide for the appointment of the Labour Commissioner and the Deputy Labour Commissioner; and to provide for incidental matters.”

The following aspects, within the framework of Health and Safety, are regulated in Namibia (as per Regulations Relating to the Health and Safety of Employees at Work; Labour Act, 1992):

- Rights and Duties of Employers (Chapter 1);
- Welfare and Facilities at Work-Places(Chapter 3);
- Safety of Machinery (Chapter 4);
- Hazardous Substances (Chapter 5);
- Physical Hazards and General Provisions (Chapter 6);
- Medical Examinations and Emergency Arrangements (Chapter 7);
- Construction Safety (Chapter 8); and
- Electrical Safety (Chapter 9).

I. National Heritage Act No 27 of 2004

The Act calls for the protection and conservation of heritage resources and artefacts. Should any archaeological material, e.g. old weapons, coins, bones found during the construction, work should stop immediately and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material.



J. Forestry Act (No.12 of 2001)

This Act makes provision for the protection various plant species. Harvesting permits are required from the Directorate of Forestry to clear certain protected vegetation species from the site.

Line Ministry: Ministry of Agriculture, Water Affairs and Forestry

(Contact: Mr. Andries Uugwanga, Tel: 062-501925)

K. Soil Conservation Act (No.76 of 1969).

The Act advocates for the Prevention and combating of soil erosion, conservation, improvement and manner of use of soil and vegetation, and protection of water resources.

Line Ministry: Ministry of Environment and Tourism

(Contact: Ms. Saima Angula, Tel: 061-284 2713, e-mail: saima@met.na)

L. Public Health Act 36 of 1919 and Subsequent Amendments

The Act, with emphasis to Section 119 prohibits the presence of nuisance on any land occupied. The term nuisance for the purpose of this ESA is specifically relevant specified, where relevant in Section 122 as follows:

- ✓ any dwelling or premises which is or are of such construction as to be injurious or dangerous to health or which is or are liable to favour the spread of any infectious disease;
- ✓ any area of land kept or permitted to remain in such a state as to be offensive, or liable to cause any infectious, communicable or preventable disease or injury or danger to health; or
- ✓ any other condition whatever which is offensive, injurious or dangerous to health.
- ✓ Potential impacts associated with the upgrade and operations are expected to include dust, air quality impacts, noise nuisance and smoke emissions.

Line Ministry: Ministry of Health and Social Services

8. PROPOSED DEVELOPMENT

The developer has set out to build an eco-tourism attraction with the smallest carbon footprint possible by developing;

- one (1) luxury Safari house,
- one (1) cottage, and
- four (4) glamping camp units.

The **Safari house and cottage** are nestled against the background of the natural rocky outcrops on the farm. The house and cottage makes best use of the natural rocks and stones in the area, which allows the development to camouflage well in its natural environment. Colours, materials and textures used for the development are deliberately chosen to blend and match the natural colours and rocks of the area. Rocks are locally hand-picked and used as building material for the house and cottage.

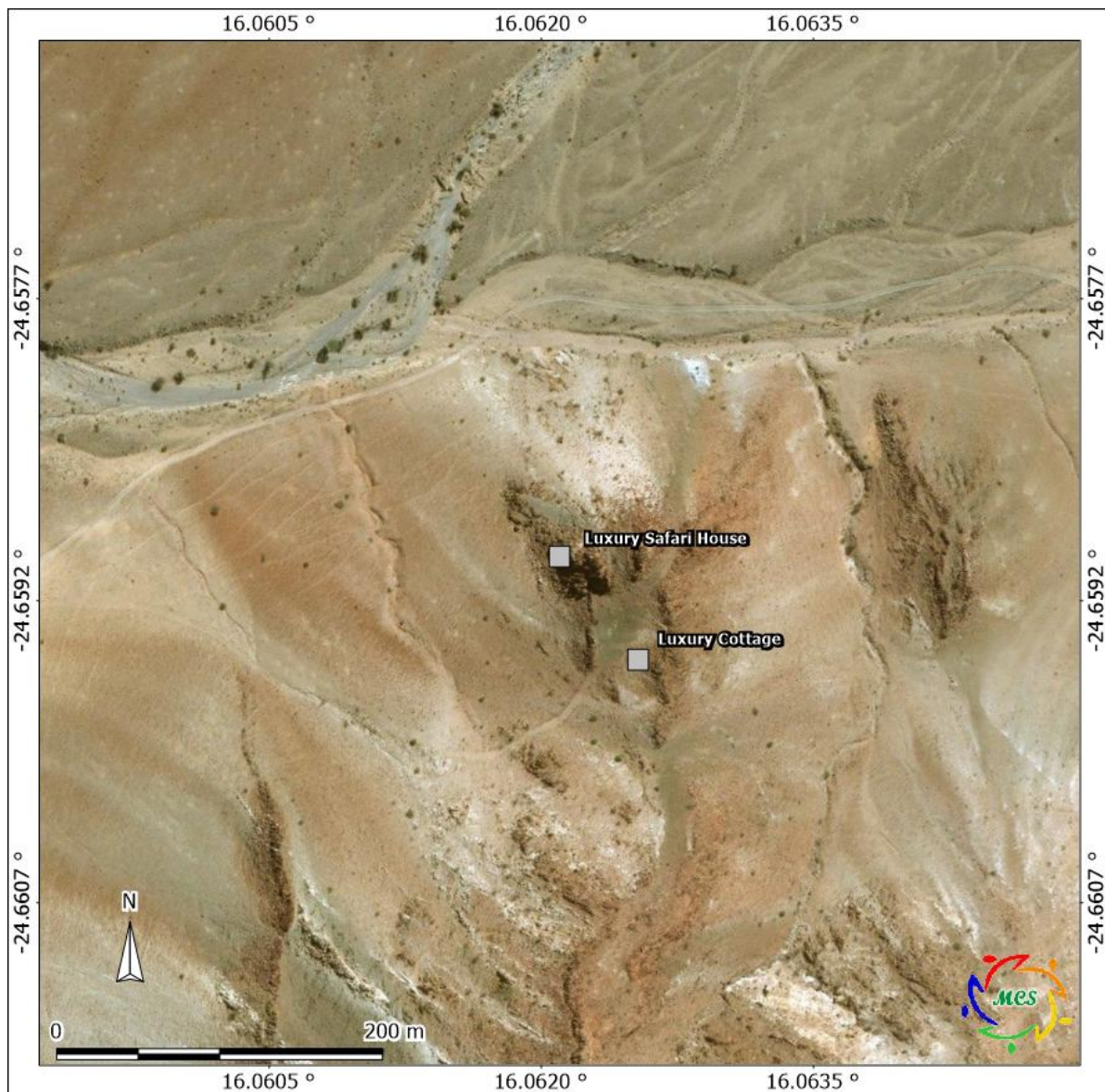


Figure 3. Proposed layout plan of the Safari house and Cottage

The Safari house, cottage and camping units are simple in form and deliberately separated to lessen any impact on the environment. The elevated platformed structures at the Safari house and cottage; and the internal roads and walkways between all components of the development connect well without overpowering the natural environmental setting.

The development is set to offer a full range of modern facilities, such as an on-request chef for the Safari house; outdoor pool and showers and adequate parking areas. The development will rely purely on solar power for all its operations. See Figure 3 for Safari house and cottage layout plan.

The four **Glamper camp units** are self-catering units that provide guests with eco-friendly luxury accommodation. Each unit has a private entrance with its own ensuite bathroom and an outside shower, toilet and washbasin. All units are equipped with a shaded veranda, barbeque area, lights, and fitted power points. All rooms are decorated with the colours of the Namib Desert.

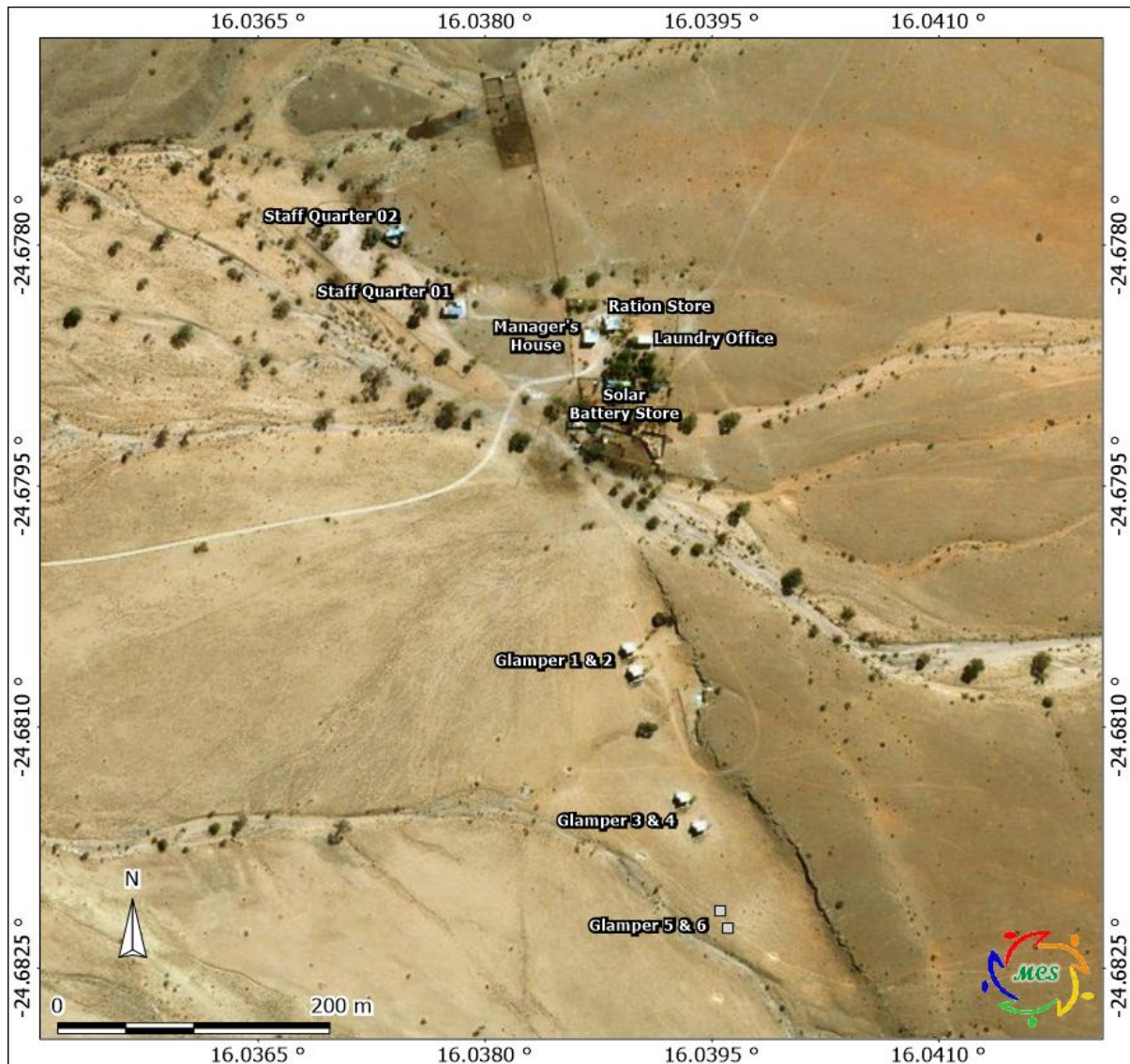


Figure 4. Existing base camp site and proposed glamping camping units



A base camp consisting of staff quarters, laundry house, workshop and other maintenance and administrative facilities is situated approximately 200m north of the glamping camping units. See Figure 4.

Solar power will provide all of the development's energy requirements. Water supply will be sourced from boreholes on the farm and will be reticulated via pipelines to all functions of the development. Suitable 3-chamber septic tanks with a greywater system will be installed at the development. The development strives to become an eco-tourism attraction, in order to reduce its environmental footprint and achieve sustainable economic growth and development. This eco-retreat destination aims at striking the perfect balance between providing a good safari experience while treating the environment with respect.

In general, the proposed development is expected to have a significantly low environmental footprint on the natural environment, due to the size and nature of its operations.

9. GENERAL ENVIRONMENT OF THE STUDY AREA

This section lists the most important environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

9.1 Location and Land Use

The proposed development is situated along the C19 road on Farm Shangri-La No.190, in the Gibeon Constituency of the Hardap Region. See Figure 1. The two sites are situated approximately 3.6km apart and are surrounded by farm land.

- ◆ Safari House and Cottage (24.65904°S; 16.06224°E), and
- ◆ Glamping Camping Units (24.67934°S; 16.03861°E)

9.2 Topography and Drainage

The landscape in the area is classified as Namib Plains, which is characterised by sand-drifts and prominent inselbergs largely of mid-palaeozoic age. The eastern boundary as well as part of the farm lies on the Tsaris plateau, while the western boundary follows the plains controlled by the Hebron fault zone. Drainage is predominantly from the east and the south to the northwest towards the Tsauchab River. The site is located within the catchment of the Tsauchab River, an ephemeral river draining in a westerly direction.

The relief of nearby dry small rivers in the area remains intact and supports surface water drainage towards the Tsauchab River. These streams normally flow during the rainy seasons and remain dry throughout the year. Water in these streams is often used for both human and wildlife consumption.

Proper drainage systems (e.g. erection of culverts) should be developed at the project location, in order to control the flow of surface water run-off from the in the area. Storm water management systems should form part of the engineering designs.

9.3 Climatic Conditions

Classification of climate:	Semi-arid area
Average rainfall:	Rainfall in the area is averaged to be between 100 mm-150 mm per year.
Variation in rainfall:	Variation in rainfall is averaged to be 50-70 % per year.
Average evaporation:	Evaporation in the area is averaged to be between 3400-3600 mm per year.
Precipitation:	The highest summer rains are experienced in February. Irregular and unpredictable, high intensity, highly localised storm events between October and April does occur. The variation in the precipitation between the driest and wettest months is 52 mm.
Water Deficit:	Water deficit in the area is averaged to be between 2301-2500 mm per year.
Temperatures:	The temperatures are highest in January with an average of 22.6°C. The lowest average temperatures of 10.8°C occur in July during the year. During the year, the average temperatures vary by 11.8°C.
Wind direction:	Wind directions in the area are predominantly easterly winds.

9.4 Hydrogeology of the Study Area

The geology in the area consists mainly of rocks of intrusive and metamorphic origin, with a limited area in the western half where a significant thickness of tertiary sedimentary rocks occurs.

The Neuhof Formation is about 1800 million years old and consists of paragneiss and metasedimentary rocks (Stratigraphy of South Africa, Handbook 8, Part 1). This Formation covers most of Shangri-La. The Gamsberg Granite is intrusive into the Neuhof Formation, mostly in the eastern portions of the farm. The intrusives are about 1160 million years in age. The granites are significantly displaced against the Neuhof Formation by the "Hammerstein"-Fault in area. Quaternary valley fill

deposits and sediments (calcrete, conglomerates and calcrete-cemented boulder beds) in the area reach significant thicknesses towards the west.

All of the underlying formations are classified as hard rock formations. Groundwater flow would be mostly along fractures, faults (secondary porosity) and other geological structures present within the formations.

Groundwater flow from the site can be expected in a southwesterly direction; however local drainage patterns may vary due to groundwater abstraction in the area. According to the Department of Water Affairs (DWA) database, no known boreholes exist within a 2km radius of the project sites, however the consultant recorded 5 boreholes on the farm during the field visit. The discrepancy is presumably due to the outdated nature of the DWA database. All boreholes observed on the farm supply water to the development and the farm at large. Depth to water table in the area is between 45 and 70m below ground level (mbgl).

Water levels vary considerably from south to north, as well as from east to west. Contoured water level elevations are shown in Figure 5. In general, groundwater level gradient follows the topographical slope and surface drainage from northeast to southwest within the farm.

This area does not fall within water control area; however groundwater belongs to the government of the Republic of Namibia. This means that groundwater remains the property of the government of Namibia and controls the exploration and usage of it. See Figure 6 below, for the hydrogeological map.

9.4.1 Geological Structures

The Structural features associated with faulting are important targets for groundwater exploration in the area. Major northwest trending Hebron Fault zone of regional extent is present in the area. The Hebron Fault in SW Namibia is associated with a <1 m to 9.6 m high scarp displacing Proterozoic basement and Middle to Late Pliocene crystalline conglomerates. Aerial photographic lineaments and similar fault scarps identified NW and SE of the study area are interpreted as extensions of the same fault structure.

The presence of these sensitive geological structures present in the area could form preferential pathways for contamination (if any) to the underlying aquifer. In order to protect these groundwater resources, pollution to these structures should be avoided at all cost.

9.4.2 Surface- and Groundwater Pollution Monitoring

Surface and groundwater systems are connected in most landscapes. Streams interact with groundwater in three basic ways, i.e. *streams gain water from inflow of groundwater through the streambed, streams lose water by outflow through the streambed, or they do both depending upon the location along the stream.* It is the groundwater contribution that keeps streams flowing between precipitation events.

A surface and groundwater pollution monitoring programme must form an integral part of the Environmental Management Plan (EMP). Surface water pollution on site can be mitigated by the construction of proper surface water run-off drainage systems. Visual inspection of surface water pollution should be adopted, with support of water sampling at specific locations as guided by visual inspections.

Groundwater pollution should be monitored in the existing boreholes on the farm. Water samples will be collected from these monitoring holes regularly and send to laboratories for chemical of concern analysis. Baseline water samples should be collected from the boreholes before commencement of operations, in order to represent baseline conditions in the area. As such, they can be important in forecasting potential environmental impacts during the operational phase of the development, and can become measurements against which future changes are compared.

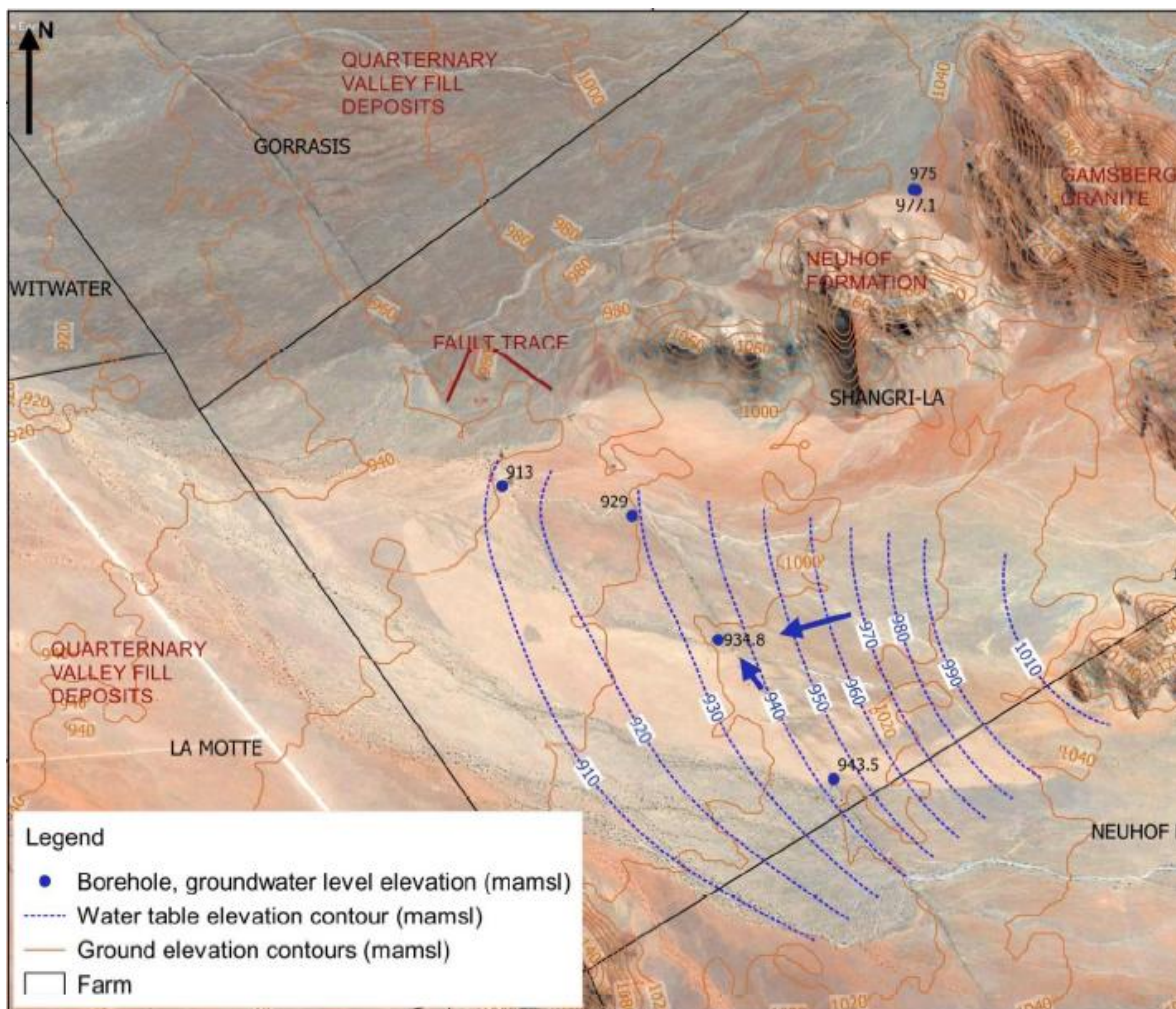
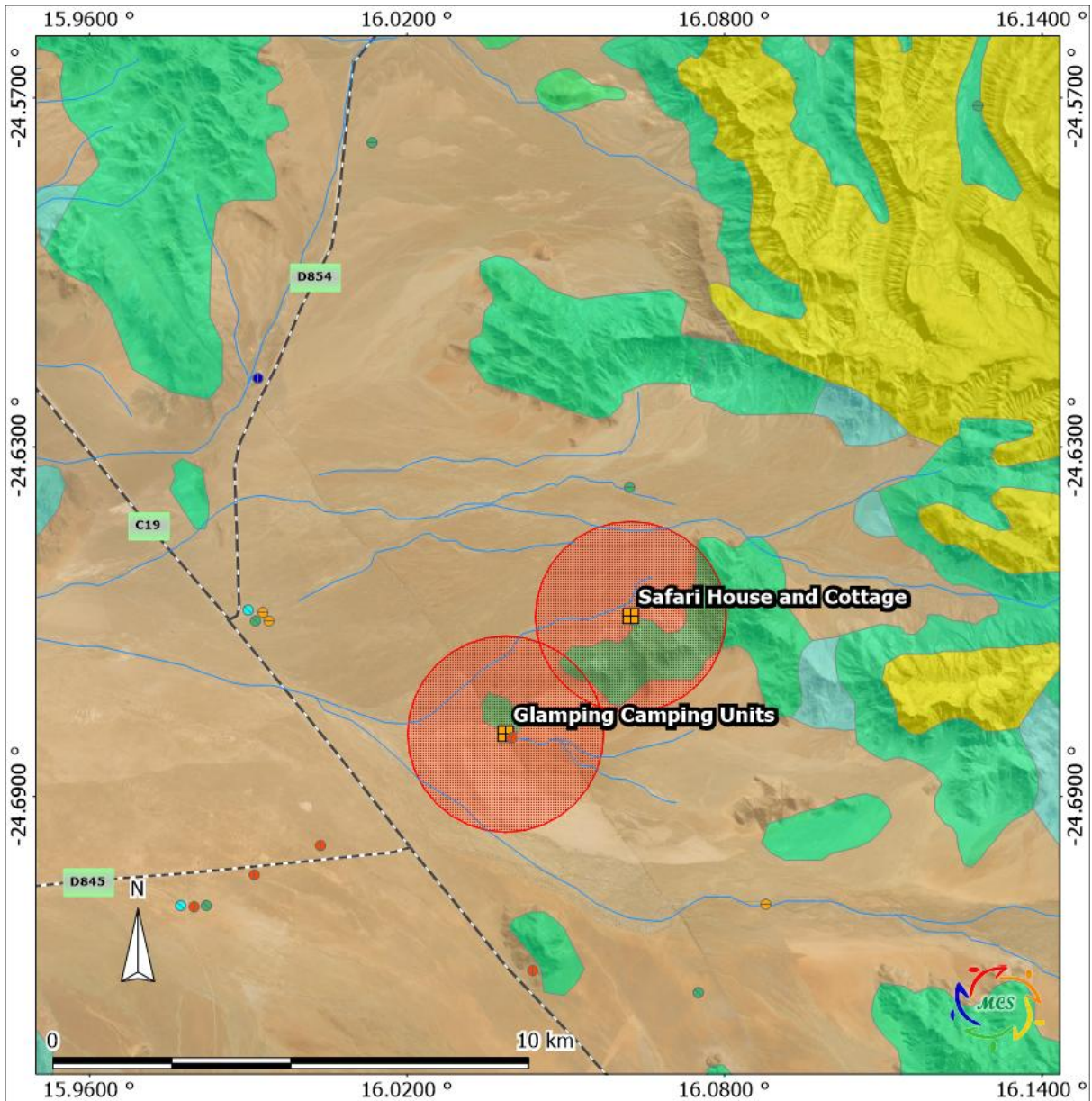


Figure 5. Contoured water level elevations (Sarma, 2018)



	Project Location				
	2km Radius				
	Main Rivers				
General Geology					
	Quaternary Sediments		No Data		No Data
	Neuhof Formation		0...20		0...0.5
	Gamsberg Suite		20...50		0.5...1
			50...100		1...5
			100...200		5...10
			>200		>10

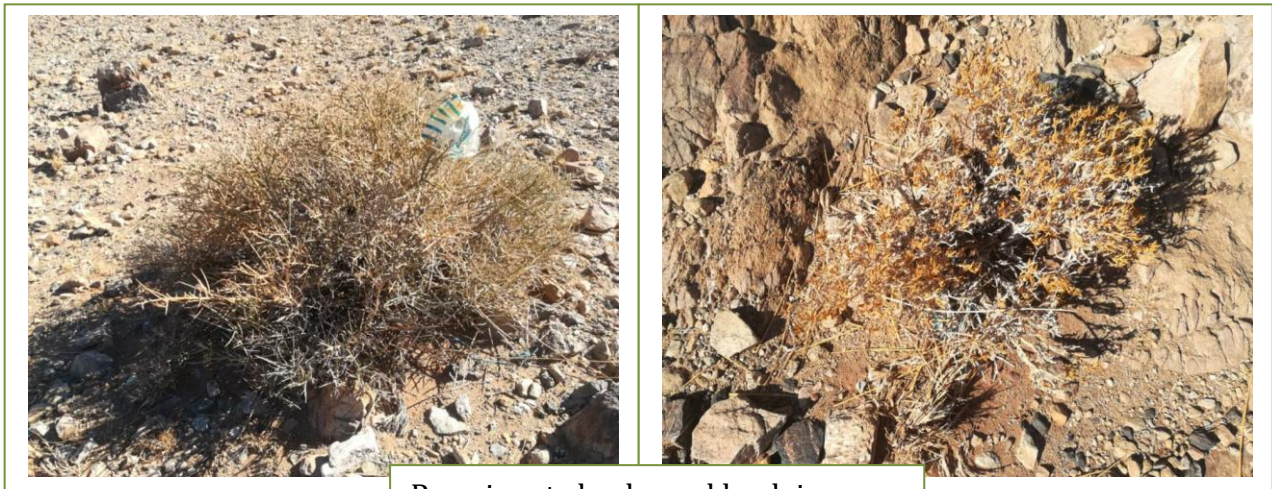
Figure 6. Hydrogeological map of Study Area

9.5 General Ecology

The site falls within the Nama Karoo biome, which is characterised by Semi-desert and savanna transition type vegetation. The vegetation structure type is classified as Sparse grassland and shrubland.

The project location itself has been subjected to minimal disturbance of the landscape and natural vegetation. The area generally consists of little vegetation (i.e. low shrubs, bush and grasses) with the exception of lichens found in the gravel plains, and in dry river beds where plants grow. Most of this vegetation is deciduous and are sparsely distributed in the area.

The following photo illustrates the typical vegetation on site.



Prominent shrubs and bush in area

Disturbance to vegetation outside the designated construction sites should be avoided in the area, in order to promote a green development and natural physical environment at the project location.

The diversity of plant species in the area is limited, but the populations may be large in good seasons. Only highly adapted species are able to persist in this environment as perennials, either herbaceous or as dwarf shrubs. Especially on the Namib plains within the sand sea, ephemeral annual plants and bulbs can appear in huge numbers after good rainfall. Only in exceptional years will there be new plant growth on the sand dunes themselves, as witnessed at Sossusvlei in 2006. The most representative family is the Poaceae (grasses) and single species of the Aizoaceae, Geraniaceae and Pedaliaceae also occur. While most floristic groups show relationships with other areas of the world, these narrow endemics do not.

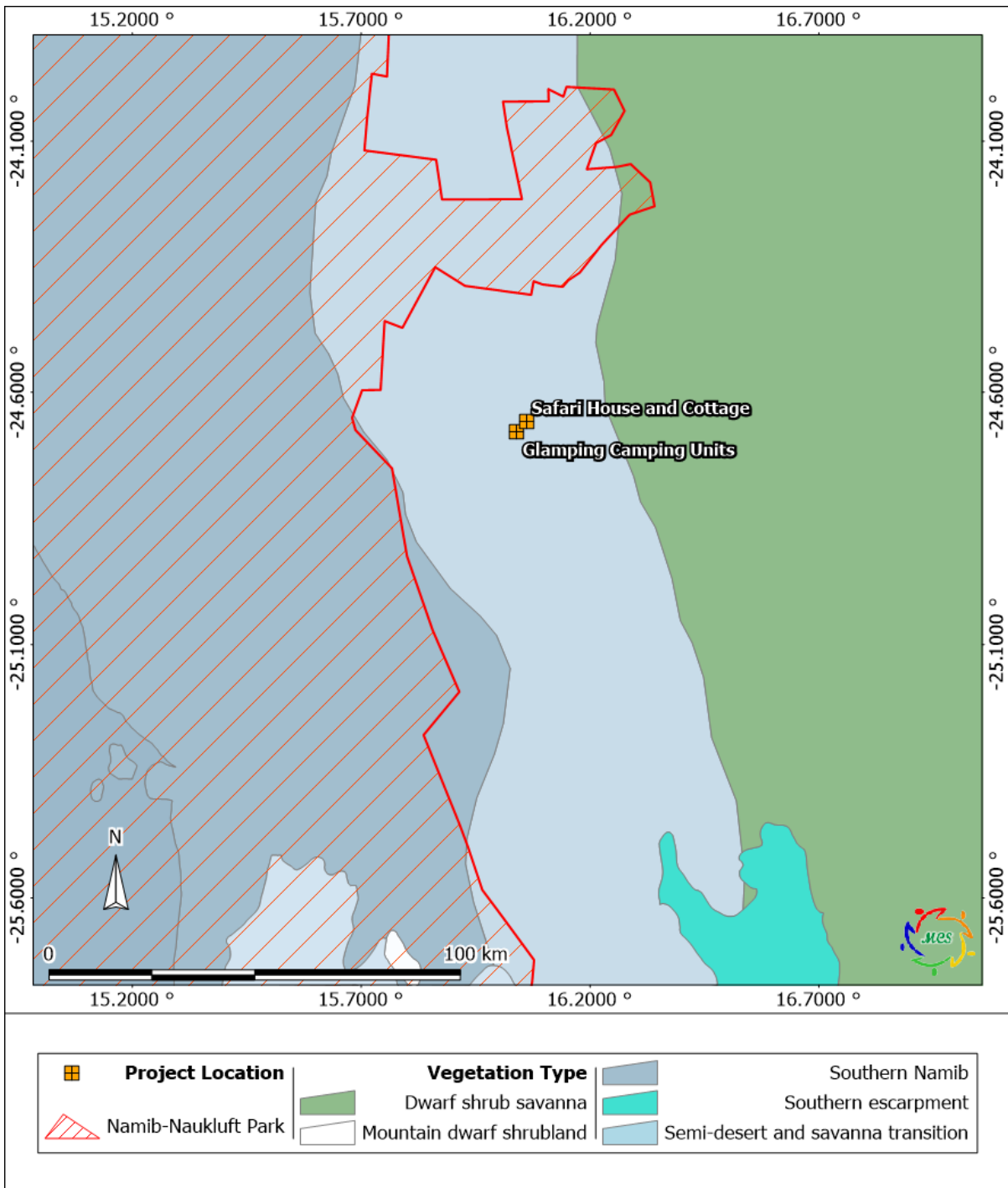


Figure 7. Vegetation map of study area

Some of the species found on the few isolated mountains and hills that occur in the main Namib sand sea, for example the Hauchab and Uri-Hauchab, are associated with Highland Group further east in Namibia (Craven 2009), where the altitude increases and more habitats are available to the plants. This differs from Burke et al. (1998) in that endemics for that ecosystem were differentiated from the others found there because of other habitats within the sand sea. The Tsauchab and Tsondeb Rivers extend a part of the Namib plains westwards into the sand sea.

These rivers disappear under the sand and never reach the sea. A number of plant species are associated with these water courses, but are not limited to the sand sea.

Deducing from the Atlas of Namibia, the proposed site is within the area that is known to have 50 to 100 plant species and a low to medium diversity of higher plants (Mandelsohn et al (2003). With regards to fauna, the following mammals are likely to be seen: steenbok, springbok, oryx, kudu, mountain zebra, hyenas, chacma baboon, rock dassie and klipspringer.

Faunal species diversity is presented in the table below:

Table 2. General Fauna Diversity (Atlas of Namibia)

	Diversity	Endemism
Mammal	46 - 60 Species	5 - 6 Species
Scorpion	10 - 11 Species	3 - 4 Species
Bird	111 - 140 Species	1 - 3 Species
Reptile	41 - 50 Species	5 - 8 Species
Frog	1 - 3 Species	N/A
Lizard	28 - 31 Species	3 - 5 Species
Termite	1 - 6 Genera	N/A
Lizards	28 - 31 Species	3 - 5 Species
Snakes	20 - 24 Species	5 - 6 Species

9.6 Socio-Economic Aspects

This section provides an overview of socio-economic characteristics of the study area. It provides regional and local information on the, economic activities, population dynamics, vulnerability, and social services currently available in the area.

9.6.1 Regional information

The proposed development will be situated in the Hardap Region of Namibia. The total current population in the region is estimated to be 79,507 with 38,935 females and 40,572 males (NSA, 2011). Ninety-one percent of the population living in the Hardap Region over 15 years of age is literate (NPC, 2004). The estimated unemployment rate in Hardap region is 35% (NPC, 2001). The population density in the Hardap Region is 0.7 persons per km². The life expectancy in Hardap region is 53 years for females and 51 years in males (NPC, 2001). The Human poverty index (HPI) in Hardap Region is compared to 25.0 of the National HPI.

9.6.1.1 Economic activities

According to a Visitor Exit Survey Report (SIAPAC, 2003), nature-based tourism activities (nature and landscape touring – 51%, game viewing – 45%) are the top reasons most visitors come to Namibia. These are also the most commonly named leisure activities after shopping. This represents a change from 1997, when game viewing (73%) and bird-watching (62%)

were the most common leisure activities. However, respondents in the study rated nature-based tourism activities as the most important of those associated with leisure (nature/landscape touring – 32%, game viewing – 26%), followed by shopping (11%) and fishing (8%). Only 4% of respondents rated hunting as most important.

In terms of attractions, natural areas on communal or private land (such as Farm Hebron) and the nearby designated protected areas (such as Namib Naukluft Park) made up half of the locations which attracted 10% or more of visitors surveyed, the remainder being towns and cities. Economic activities in the area are mainly driven by the tourism industry and its attractions.

9.6.1.2 Employment (Job Opportunities)

Unemployment still hampers most of the developing world and the Hardap region at large is no exception. The proposed lodge and tented camp development is likely to increase the job opportunities nearby communities. The Construction phase of the project will provide job opportunities, of which 80% are expected to be unskilled and semi-skilled people and can be sourced from the unemployed labour force of the region.

The proposed development will require construction services which involve engineers, construction firms, equipment vendors, and utilities. All of this cost is spent locally for piping, construction, and operational personnel, contractors, providing additional economic benefits to the community through increased employment.

Some of the services in the operational phase will be outsourced e.g. maintenance of security services, waste removal etc. The outsourcing of these services will strengthen existing businesses operating in the area and provide employment to people.

9.6.1.3 Livelihoods

Farming for both subsistence and commercial gain are the most customary form of livelihood within the region. In particular, small stock farming predominates the freehold private farms, open communal areas as well as surveyed farms which are presently used communally.

Nonetheless, farming accounts the main source of household income for only 7% of households in the region. Formal employment with wages and salaries is the main source of household income for 64% of households in the region. Pension income represents 13% of households in the region.

The livelihoods of the local community are likely to be positively impacted therefore predicted to be better than before the development of the lodge and tented camp in the area.

9.6.1.4 Procurement

Local businesses are to benefit from the envisaged construction and operational activities. Infinity Nature Holdings (Pty) Ltd and/or its sub-contractors might need to procure services from these businesses e.g. domestic waste removal, transport, security services etc.

9.6.1.5 Tourism

Private game farms and conservancies in the study area offer protection to wildlife which then becomes an attraction to tourists and trophy hunters, in turn providing farm owners with alternate livelihoods as well as sources of income from game farming, hunting and ecotourism.

The nearby Namib Naukluft Park is one of Namibia's largest tourist attractions. The Park is a protected area in western Namibia and is one of the most significant ecologically protected areas. Today the Park covers an area of nearly 49,800 km². The area also boasts other tourist attractions like Sossusvlei, Deadvlei, Namib Desert, Sesriem Canyon and the Duwisib Castle.

The study area attracts a lot of tourists from all over the world. Excessive waste, dust, noise and vibrations can have negative impacts on the tourism industry in the area, as it can become a nuisance to tourists. Mitigation measures at the site must be put in place to reduce these impacts.

9.6.1.6 In - Migration

Due to enhanced employment opportunities that could be created by the envisaged development, some in-migration of job seekers to study area can be expected. Depending on the amount of in-migration, local communities may start experiencing overcrowdings, over use of infrastructure, local conflicts, increase of goods prices due to increased demand etc.

9.6.1.7 HIV & Prostitution

Namibia is one of the ten worst affected countries in terms of the HIV/AIDS epidemic. The HIV prevalence rate for the age group 15 to 49 is estimated at 21.3% for Namibia (UNDP, 2005). The HIV/AIDS prevalence rate in pregnant women aged 15 to 49 years in the Hardap Region is 14.9%.

The spending powers of locals working for Infinity Nature Holdings (Pty) Ltd. are likely to increase, and this might be a perfect opportunity for sex workers to explore. Migrant labourers from other regions and expatriates are normally vulnerable and may use the services rendered by the sex workers.

Construction camps often become a focal point for promiscuous sexual activities. Such activities, particularly when carried out without protection, can result in increases in sexually transmitted diseases (STDs) and

especially AIDS among neighbouring communities, construction workers and their partners.

Should the HIV prevalence increase, the following consequential issues could arise:

- ✓ Reduced workforce in the Hardap Region.
- ✓ Diversion of income expenditure to medical care.
- ✓ Increase in orphans and households headed by children.
- ✓ Increase in pregnancy related mortality.
- ✓ The current rate of 11,418 people per doctor could increase.

9.6.1.8 Infrastructure & Increased Traffic

The nearby C19 road at the project location is used as an important tourist route through the nearby Namib-Naukluft National Park and provides access to major tourist attractions in the region.

The traffic in the area is expected to increase slightly and it might contribute to heavy traffic during peak season and a higher number of car accidents in the area. This will mainly be attributed to slow traffic frequenting the lodge and tented camp development.

10. STAKEHOLDER PARTICIPATION

Consultation with the public forms an integral component of an ESA investigation and enables I&APs e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed development and to identify additional issues which they feel should be addressed in the ESA. The primary aims of public participation were:

- ❖ To initiate participation of Interested and affected parties (I&APs).
- ❖ To inform I&APs and key stakeholders about the proposed development.
- ❖ To identify issues and concerns of key stakeholders and I&APs with regards to the proposed development.
- ❖ To provide information to enable informed decision making.
- ❖ To develop a communication structure with stakeholder and I&APs.
- ❖ To promote transparency of the project.
- ❖ To ensure the public and stakeholders comments are considered for the development.
- ❖ To provide answers to I&APs queries.
- ❖ To encourage shared responsibility and sense of ownership.

A public participation poster notice (70cm x 50cm) was placed at Farm Shangri-La access gate, along the C19 road. The poster provided background information about the project and gave interested and affected parties an opportunity to forward their issues and comments about the project. See Photo below.



Public participation poster

Decision-making authorities were consulted throughout from the onset of the study, and have been engaged throughout the project process. Consultation with the department of Environmental Affairs (MET) included the environmental assessment procedure and application procedure.

Public participation notices were placed and run in two local newspapers on two different occasions, namely; (See Appendix C).

- ✓ The Namibian, 13 and 20 February 2020
- ✓ The Confidante, 13 and 20 February 2020

In the adverts an e-mail address, phone number and fax number was provided to the general public to register as interested and affected parties; and to request a background information document for the project. The adverts also invited interested and affected parties for comments and concerns.

Background information documents (BID) were sent to neighbouring properties. See Appendix C. No comments or responses were received from any I&APs regarding the proposed project.

11. ENVIRONMENTAL IMPACT EVALUATION

The Environmental Impact Assessment sets out potential positive and negative environmental impacts associated with the proposed development. The following assessment methodology will be used to examine each impact identified, see Table 3.

Table 3. Impact Evaluation Criterion (DEAT 2006)

Criteria	Rating (Severity)	
Impact Type	+VE	Positive
	0	No Impact
	-VE	Negative
Significance of impact being either	L	Low (Little or no impact)
	M	Medium (Manageable impacts).
	H	High (Adverse impact).

Probability:	Duration:
5 - Definite/don't know	5 - Permanent
4 - Highly probable	4 - Long-term (impact ceases)
3 - Medium probability	3 - Medium-term (5-15 years)
2 - Low probability	2 - Short-term (0-5 years)
1 - Improbable	1 - Immediate
0 - None	
Scale:	Magnitude:
5 - International	10 - Very high/don't know
4 - National	8 - High
3 - Regional	6 - Moderate
2 - Local	4 - Low
1 - Site only	2 - Minor
	0 - None

11.1 Pre-Construction Activities

11.1.1 Compliance Requirements

The proposed development is listed as a project requiring an environmental assessment as per the listed activities in the National environmental requirements. The following must be completed;

- ✚ Conduct an environmental impact assessment (ESA) to comply with the requirements of the Environmental Management Act (2007) and its regulations of 2012.
- ✚ Identify and address all environmental and social issues.
- ✚ Ensure that all persons involved in the project are aware of, and are familiar with, the environmental requirements for the project.
- ✚ Ensure that all contractors, sub-contractors, suppliers, etc. are familiar with, understand and adhere to the EMP.
- ✚ A pre-construction meeting is recommended in order to reach agreement on specific roles of the various parties and penalties for non-compliances with the EMP.

11.1.2 Public Consultation

Consultation with the public forms an integral component of an environmental impact assessment. Initiate participation of Interested and affected parties (I&APs). Inform I&APs and key stakeholders about the proposed development. Identify issues and concerns of key I&APs with regards to the proposed development. Develop a communication structure with the I&APs.

The Safari house, Cottage and Glamping camping units development is to be constructed on private farm. No resettlement or land acquisition issues are to be addressed.

11.1.3 Environmental Awareness

Ensure that all persons involved in the project are aware of, and are familiar with the environmental requirements for the project. Develop and implement environmental emergency preparedness procedures.

11.1.4 Health and Safety Aspects

Establish personnel protection standards and mandatory safety practices and procedures for the development. Establish the lines of communication among contractors and subcontractors involved in work operations for safety and health matters.

Conduct HIV/AIDS Awareness Programme for all operations of the development for not less than 90% of workers. Provide and maintain condom dispenser. Provide and maintain HIV/AIDS awareness posters. Provide information regarding the voluntary testing of construction workers and counselling, support and care.




11.2 Construction Phase

11.2.1 Erosion and Sedimentation

The constant movement of heavy construction vehicles during the construction phase tend to compact the soil surface, which can reduce infiltration capability, and increase surface water runoff.

Vegetation clearance and creation of impermeable surfaces could result in erosion at the project location. The clearance of vegetation will further reduce the capacity of the land surface to slow down the flow of surface water, thus decreasing infiltration, and increasing both the quantity and velocity of surface water runoff. The particles in suspension will be transported west to south-westward and could increase the sedimentation in the streams flowing in the downstream.

Proposed Mitigation Measures

-  Avoid unnecessary removal of topsoil cover during construction.
-  Ensure stockpiles are located within the boundary of the project site and are protected from erosion.
-  Stabilise cleared areas as soon as possible to prevent and control surface erosion.

- ✚ Limit clearing of vegetation to those areas within the footprint of construction.
- ✚ Minimise open areas and reduce the frequency of disturbance.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Erosion and Sedimentation	-VE	1	2	4	2	M	L

11.2.2 Dust Pollution and Air Quality

Dust will be generated during the construction and installation of buildings, bulk services and all associated infrastructure of the development. Problems thereof are however expected to be site specific and should not impact any third party or neighbouring land / farms. Dust is expected to be worse during the winter months when strong winds occur.

The release of various other particulates at the site during the construction phase and exhaust fumes from vehicles and machinery related to the construction activities are also expected. Dust is regarded as a nuisance as it reduces visibility, affects the human health and retards plant growth.

Proposed Mitigation Measures

- ✚ Ensure measures are in place to minimise dust generated during the construction phase.
- ✚ Use appropriate dust suppression measures when dust generation is unavoidable, e.g. dampening with water, particularly during prolonged periods of dry weather.
- ✚ Avoid excavation, handling and transport of materials which may generate dust under high wind conditions.
- ✚ Locate stockpiles of construction materials in sheltered areas where they are not exposed to erosive effects of the wind.
- ✚ Ensure all vehicle, plant and equipment are in good condition.
- ✚ Encourage reduction of engine idling.
- ✚ Plan construction activities for months with poor wind conditions.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust	-VE	1	1	6	3	L	L

11.2.3 Noise Impact

An increase of ambient noise levels at the construction sites are expected due to the construction activities. Noise pollution due to heavy-duty equipment and machinery will be generated. It is not expected that the noise generated during construction will impact any third parties or neighbouring land; however it may interfere with the wildlife on the farm.



Excessive noise pollution has a negative impact on wildlife species by reducing habitat quality, increasing stress levels, and masking other sounds. Chronic noise exposure is especially disruptive for species that rely on sound for communication or hunting. Animals that use noise for hunting, such as bats and owls, and prey species that rely on noise to detect predators may have decreased patterns of foraging, reducing growth and survivability.

Proposed Mitigation Measures

- + Ensure the use of construction vehicles and equipment that emit reduced noise levels.
- + Ensure proper maintenance is conducted on vehicles to ensure the reduction of noise emission.
- + Ensure that all mufflers on vehicles and machinery are in full operational order.
- + The construction staff should be equipped with ear protection equipment.
- + Audio equipment (if any) should not be played at levels considered intrusive by others.
- + Construction activities will be limited to a period between 07h00 and 19h00.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Noise	-VE	1	1	4	3	L	L

11.2.4 Safety & Security

Safety issues could arise from the construction vehicles, earthmoving equipment and tools that will be used at the construction sites. This increases the possibility of injuries and the contractor must ensure that all staff members are made aware of the potential risks of injuries on site. Construction sites usually house construction building material and equipment on site which may attract criminal activities.

Proposed Mitigation Measures

- + Provide suitable emergency and safety signage on site (manufactured of durable, weatherproof material). The signage signs should be placed at strategic locations to ensure awareness.
- + Demarcate and barricade any areas which may pose a safety risk (including hazardous substances, deep excavations etc). These notices must be worded in English and local Nama language.
- + Enforce the use of appropriate Personal Protective Equipment (PPE) for the right task or duties at all times.
- + Prevent illegal access to construction sites by implementing appropriate security measures. These measures should not pose a threat to any human or wildlife at the project location.
- + Should a construction camp be necessary, it should be located in such a way that it does not pose a risk to human and wildlife.



- ✚ Equipment housed on site must be placed in a way that does not encourage criminal activities.
- ✚ Sensitize operators of earthmoving equipment and tools to switch off engines of vehicles or machinery not being used.
- ✚ The contractor is advised to ensure that the team is equipped with first aid kits and that they are available on site, at all times.
- ✚ Proper barricading and/or fencing around the work sites should be erected to avoid entrance of unauthorized persons and local wildlife.
- ✚ Adequate lighting within and around the construction location should be erected, when visibility becomes an issue.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-VE	1	1	4	2	M	L

11.2.5 Traffic

Construction vehicles will access the project location from the C19 main road. Construction related activities are expected to have a minimal impact on the movement of traffic along this road, due to the fact that construction vehicles will frequent the site only periodically.

No diversion of traffic or closure of the road is expected, however a slight nuisance might be experienced by motorists using the same road. This will most likely be caused by slow moving vehicles frequenting the construction site. It is however expected to be short-lived.

Proposed Mitigation Measures

- ✚ Maintain official traffic signalling when approaching the farm access road in conjunction with local or national traffic regulations.
- ✚ Speed limit warning signs must be erected to minimise accidents.
- ✚ Construction vehicles and machinery must be tagged with reflective signs or tapes to maximise visibility and avoid accidents.
- ✚ Where feasible, Construction vehicles should not travel to and from the site during peak times, to minimise impacts on traffic along the C19.
- ✚ Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-VE	1	1	2	2	L	L

11.2.6 Groundwater

Groundwater quality could be impacted through leachate of petroleum, chemical, harmful and hazardous substances. In particular, oil leakages, diesel, lubricants and grease from construction vehicles, equipment and machinery utilised during the

construction phase may occur. Care must be taken to avoid contamination of soil and groundwater.

Any leaks, spills and/or overflow of portable toilets (if any) at the project location may transport the effluent to sensitive drainage lines; or areas where sensitive geological structures and formations are present. Inflow into these structures and formations would cause a pollution threat.

Proposed Mitigation Measures

- + Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel). Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles or equipment.
- + Any major servicing and maintenance of vehicles and equipment should be conducted on containment surfaces provided for this purpose. Removal of oil from machinery should be conducted on these surfaces.
- + All fuelling, storage and chemical handling should be conducted on containment surfaces provided for this purpose.
- + Spillage control procedures must be in place according to relevant SANS standards or better.
- + Should portable ablution facilities be necessary, adequate containment systems should be erected for these facilities.
- + Waste should be properly contained to avoid any leakages and/or spillages, and should regularly be disposed off at a suitable sewage disposal site. Run-off from these toilets due to overflows should be avoided at all cost.
- + Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater	-VE	2	2	4	2	M	L

11.2.7 Surface Water

Local drainage is well developed and runoff takes place towards the northwest, through the relief of nearby dry streams in the area. Contamination of surface water may occur through petroleum, chemical and other hazardous substances. Contaminants in the form of oil leakages, diesel, lubricants and grease from the construction equipment and machinery may occur during the construction phase.

Proposed Mitigation Measures

- + Use drip trays, linings or concrete floors when evidence of leaks are observed on construction vehicles or equipment.
- + Remove leaking vehicles from project location immediately.
- + Any major servicing and maintenance of vehicles and equipment should be conducted on containment surfaces provided for this purpose. Used oil must be disposed of by approved practices..



- ✚ Any spillage of hazardous substances including fuel, oil, paint or cleaning solvent must be cleaned up immediately, stored and transported off-site to a designated hazardous waste disposal facility.
- ✚ Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into the nearby streams and drainage lines.
- ✚ Properly secure all portable toilets (if any) to the ground to prevent them toppling due to wind or any other cause.
- ✚ Maintain toilets in a hygienic state and remove waste to a designated waste disposal facility.
- ✚ Ensure that no spillages occur when the toilets are cleaned or emptied.
- ✚ Contain contaminated water from batching operations and allow sediments to settle before being disposed of as waste water.
- ✚ Stabilise cleared areas as soon as possible to prevent and control surface erosion; and also the impacts of sedimentation.
- ✚ Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.
- ✚ An emergency plan should be in place on how to deal with spillages and leakages during this phase.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface water	-VE	2	2	4	2	M	L

11.2.8 Generation of Waste

Waste material will be generated during the construction of the proposed development. Waste in the form of rock cuttings, pipe cuttings, electrical cuttings, oil spills or leakages of petroleum products might occur during the construction phase.

Proposed Mitigation Measures

- ✚ Ensure that sufficient weather- and vermin- proof bins / containers are present on sites for the disposal of solid waste. Waste and litter generated during this phase must be placed in these disposal bins.
- ✚ Empty bins regularly as required.
- ✚ The Contractor shall institute a waste control and removal system for the sites.
- ✚ All waste shall be disposed off-site at an approved landfill site.
- ✚ No disposal of /or burying of waste on site should be conducted.
- ✚ No waste should be burned on site.
- ✚ Separate hazardous wastes from general waste, clearly marked, and stored in appropriate containers. The protocols associated with handling of such hazardous wastes shall be known by all relevant staff members
- ✚ Solid and liquid hazardous waste shall be stored in separate containers.

- ✚ Regular inspection and housekeeping procedure monitoring should be maintained at all times.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste Generation	-VE	1	2	6	4	M	L

11.2.9 Fires and Explosions

Although explosions and fires are not the most common cause of construction site injuries, the impact of such incidents on worker health and safety can be devastating. Furthermore, an explosion or fire at a worksite tends to impact all workers present, and is likely to give rise to a third party liability claim.

Proposed Mitigation Measures

- ✚ Ensure that all fire fighting devices are in good working order and they are serviced.
- ✚ All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site.
- ✚ Exhaust from engine powered equipment must be kept a safe distance from combustible materials.
- ✚ No smoking may be allowed near fire hazards.
- ✚ Temporary buildings may not block any means of exit.
- ✚ Combustible materials must be stored so as to reduce the risk of catching fire, and to minimize the spread of fire internally and to permit convenient access for fire fighting.
- ✚ Regular inspections should be carried out to inspect and test fire fighting equipment by the contractor.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fires and Explosions	-VE	1	1	4	2	M	L

11.2.10 Nuisance Pollution

Aesthetics and inconvenience caused to persons using the C19 road. The construction activities would be partially visible from this road. The obstruction and slow movement of construction vehicles on the C19.

Proposed Mitigation Measures

- ✚ Maintain tidiness of construction site at all times.
- ✚ Take cognition when parking vehicles and placing equipment.
- ✚ Where feasible, Construction vehicles should not travel to and from the site during peak times, to minimise impacts on traffic along the road.



- ✚ Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Nuisance Pollution	-VE	1	1	2	2	L	L

11.2.11 Heritage Impacts

There are no known heritage areas envisaged to be impacted by the new development; however the contractor might come across archaeological features or objects that possess cultural values during construction activities.

Proposed Mitigation Measures

- ✚ If such remains or objects with cultural values (e.g. bones, weapons, ancient cutlery, graves etc) are uncovered at the project location or surrounding, it should be barricaded off, and
- ✚ The relevant authorities (i.e. the local police and National Heritage Council of Namibia) should be contacted immediately.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Heritage	-VE	1	1	2	2	L	L

11.2.12 Ecological Impacts

The project location consists generally of little vegetation (i.e. low shrubs, bush and grasses) with the exception of lichens found in the gravel plains, and in dry river beds where plants grow. The site is free of conservation worthy vegetation.

Proposed Mitigation Measures

- ✚ Limit clearing of vegetation to areas within the footprint of the construction sites and reduce the frequency of disturbance.
- ✚ Disturbance of areas outside the designated working zone is not allowed.
- ✚ No vegetation should be removed outside the designated project area.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	1	1	2	2	L	L

11.2.13 Socio-Economic Aspects

Temporary employment opportunities are anticipated to be created during construction, both directly through construction workers and indirectly through suppliers, service providers, and informal traders attracted to the project site.

Proposed Mitigation Measures

- ✚ Construction contractor(s) should be sourced from the area, or region at large (where feasible).



- ✚ Construction workers should be sourced from the area, or region at large (where feasible).
- ✚ Suppliers of construction materials should be sourced from the area, or region at large (where feasible).
- ✚ Locally source services required during the construction process, such as securities, rental of portable toilets, plant hire, etc.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Socio-economic	-VE	1	1	6	4	L	L

Summary of all potential impacts during the construction phase:

In general, impacts are expected to be low to medium, mostly short lived and site specific. Mitigation options recommended in the Environmental Management Plan (EMP) will guide and ensure that the impacts of the construction work are minimised. It is further advised that traffic signs and barricades be installed around any excavations to ensure safety. Proper storm water management plans must be in place to minimise the risk of flooding and pollution, and must form part of the engineering designs.

The appointed contractor should be made aware of the content and environmental requirements of this report through proper induction training.

11.3 Operational Phase

11.3.1 Spillages

Spillages are bound to occur during delivery and dispensing of fuel and other hazardous products over the operational phase of the Safari house, Cottage and Glamping camping development.

Proposed Mitigation Measures

- ✚ Risk of impact from this can be lowered through proper training of staff.
- ✚ Installation of suitable containment structures and installation of spill containment areas around the delivery and dispensing points.
- ✚ Staff must be provided with emergency response procedures which they should be familiar with.
- ✚ Detergents and fuel storage tanks / drums should be placed in suitable containment structures, such as bund walls.
- ✚ Staff should at all times be aware of the precautions associated with the handling of chemical / petroleum products as described in the relevant Material Safety Data Sheets.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Spillages	-VE	1	2	6	4	M	L

11.3.2 Air Quality

Vehicles that will be frequenting the development will generate dust; and contribute to the release of hydrocarbon vapours, carbon monoxide and sulphur oxides into the air. Possible release of sewer odour, due to sewer system failure or maintenance may also occur.

Refrigerant of ozone depleting sources for air conditioning devices at the development should be addressed. The coolants and refrigerants that the air conditioning units at the site rely on to cool the air in the rooms are chemical compounds that may leak out over time. This light substance head up into the atmosphere and can be dangerous to the environment.

Hydrocarbon vapours will be released during delivery and dispensing of fuel to the development, as liquid displaces the gaseous mixture in the tanks. Fuel vapours are a significant source of benzene, a known carcinogen for humans.

Proposed Mitigation Measures

- ✚ Use appropriate dust suppression measures when dust generation is unavoidable, e.g. dampening with water, particularly during prolonged periods of dry weather.
- ✚ Avoid handling and transport of materials which may generate dust under high wind conditions.
- ✚ The use of domestic air conditioning devices with zero ozone depleting substances.
- ✚ Ensure all fleet and equipment is in good condition.
- ✚ Encourage reduction of engine idling at the project location.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Air Quality	-VE	1	4	4	2	L	L

11.3.3 Noise Pollution

The project environment is generally quiet but there are certain areas where staff may be exposed to a noise hazard (i.e. workshops, generator etc.). Hearing loss may result from long-term exposure to hazardous noise levels. According to the Occupational Safety and Health Standards in Namibia, a person should not be exposed to noise levels exceeding 80dBA for 8 hours a day to prevent hearing loss. Where the permissible noise exposure level is exceeded, measures should be taken to lessen the noise exposure.

Excessive noise pollution may also has a negative impact on wildlife in the area by reducing habitat quality, increasing stress levels, and masking other sounds..

Proposed Mitigation Measures

- ✚ Audio equipment (if any) should not be played at levels considered intrusive by others.
- ✚ Maintenance activities will be limited to a period between 07h00 and 19h00.
- ✚ Ensure all project fleet and equipment is in good working condition.
- ✚ Construct suitable noise barriers.
- ✚ Line interior surfaces with sound absorbing materials.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Noise Pollution	-VE	1	4	4	2	L	L

11.3.4 Fire and Explosion Risks

The use of flammable substances such as liquefied petroleum gas (LPG) or high-pressure applications, like kitchens, laundries and boiler rooms are at risk for fire and explosion. The main hazards are gas leakage followed by ignition (when mixed with air it is highly flammable and potentially explosive). Improper usage or faulty electrical installations could also result in fires.

Proposed Mitigation Measures

- ✚ Emergency response procedures should be in place so as to alert the employees on how to react to fire and explosions incidents.
- ✚ Establish and maintain designated smoking areas at the development.
- ✚ Avoid smoking in areas that are close to fire hazard areas and environments, such as fuel storage areas and areas of dry vegetation.
- ✚ Ensure that sufficient fire-fighting equipment is available at the development. Fire fighting equipment is to be suitably maintained.
- ✚ Supply appropriate signage and relevant emergency contact details at the development and displayed outside the reception building.
- ✚ Do not allow informal cooking or warming fires at the development.
- ✚ Appoint a fire officer who shall be responsible for co-ordinating emergency response in the event of a fire according to the Emergency Response Plan.
- ✚ Gas pressure vessels should be inspected regularly as required by law.
- ✚ Staff, especially those working in the kitchens, should be taught on how to detect gas leakage. All staff to be sufficiently trained in the operation of fire-fighting equipment.



- ✚ It is highly recommended that electrical wiring of the development be installed and approved by a qualified electrician who will issue a Certificate of Compliance.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fire & Explosions	-VE	1	1	6	2	M	L

11.3.5 Generation of Waste

Waste in the form of solid waste from the proposed development will be generated. Waste will be removed by Infinity Nature Holdings (Pty) Ltd or its waste removal and disposed off at an approved waste disposal site. It is advisable that enough waste bins be availed along corridors, walkways, waterhole areas, leisure and accommodation areas.

Proposed Mitigation Measures

- ✚ All waste must be properly collected and disposed off at a suitable designated waste disposal site.
- ✚ Waste bins must be available in all key locations of the development at all times.
- ✚ The developer shall put in place a waste management plan aimed at minimising the production of all wastes.
- ✚ Where practical, the developer shall put measures in place to recycle waste materials generated by the development such as plastics, papers, cardboards and discarded metal.
- ✚ Contamination of soil should be prevented through the use of containment areas as provided. Any contaminated soil generated must be contained, disposed-off and/or bioremediated accordingly.
- ✚ Potentially hazardous wastes shall be stored separately from general waste, clearly marked.
- ✚ Ensure regular inspections of littering at the development (and surrounding land) and remove any littering observed.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste Generation	-VE	1	4	4	2	L	L

11.3.6 Surface and Groundwater

Spillages and leakages might occur from operational vehicles and equipment; and/or from general vehicles frequenting the site. Potential for hydrocarbon contamination of surface and groundwater especially from paved surfaces at the development.

The wastewater from the kitchen is normally loaded with oil and grease from the food and cooking activities.

Leakages may also occur due to failure of bulk services (i.e. sewer pipelines etc.) at the development; or during maintenance of these bulk services. This could have impacts on groundwater especially in cases of large sewer spills.

Proposed Mitigation Measures

- ✚ Use drip trays, linings or concrete floors when evidence of leaks are observed on construction vehicles or equipment.
- ✚ Where necessary, remove leaking vehicles from project location immediately.
- ✚ The presence of an emergency response plan and suitable equipment is advised, so as to react to any spillage or leakages properly and efficiently.
- ✚ Ensure the use of a grease trap for the removal of the oil and grease from the kitchen. The overflow from the grease trap will then be channelled to the septic tank.
- ✚ Ensure all stormwater drains or channels are clear of litter or obstructing material.
- ✚ Remove all excess sedimentation, rubble and any other waste material present in waterways and dispose of in a suitable manner to ensure proper drainage runoff.
- ✚ The residual grease accumulated in the grease trap shall be removed and appropriately disposed off-site.
- ✚ Avoid discharge of pollutants (such as cement, concrete, lime, chemicals, contaminated waste water or leachate) into stormwater channels and water courses.
- ✚ All hazardous wastes generated in the project area should be safely contained, transported and disposed / treated at a designated hazardous waste disposal or bioremediation facility.
- ✚ Ensure that stormwater management systems are regularly maintained and tested, and are in good working order.
- ✚ Regular inspections of the integrity (i.e. tank and pipeline pressure / tightness tests) of all bulk services and other relevant infrastructure are advised to eliminate the risk of impact on the environment due to leakage.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface and groundwater	-VE	1	2	6	3	M	L



11.3.7 Health and Safety

The operations of the development can cause health and safety risks to workers on site. Employees could be exposed through skin contact and inhalation with hazardous substances / hydrocarbon particulates during handling of such products.

Safety issues could also arise from the vehicles, equipment and tools that will be used on site during the operational and maintenance activities. This increases the possibility of injuries at the development and all project personnel must be made aware of the potential risks of injuries on site.

Proposed Mitigation Measures

- ✚ Staff must be properly trained and made aware of all the MSDS (Material Safety Data Sheets) sheets of all chemicals on site.
- ✚ Fire fighting equipment and first aid kit should be made available and must be serviced regularly.
- ✚ Employees are expected to be trained on how to use all equipment and how to handle petroleum products and other hazardous substances.
- ✚ Ensure contact details of emergency services in the area at strategic locations (i.e. reception, workshop etc.) of the development.
- ✚ Demarcate and place signage on any areas which may pose a safety risk (including trenches, excavations etc.).
- ✚ The project personnel are advised to ensure that proper personal protective gear and first aid kits are available, at all times.
- ✚ Staff should be properly trained in first aid and safety awareness.

Impact
Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Health & Safety	-VE	1	3	6	3	M	L

11.3.8 Traffic

Although negligible, a slight increase in traffic will be experienced along the C19 main road, the main access leading to the development; and the various service roads on the farm. This impact will be long-lived, as both local motorists and tourist vehicles will be frequenting the development.

Proposed Mitigation Measures

- ✚ Speed limits and road signs as set out by national traffic regulations should be adhered to in order to minimise accidents.
- ✚ Appropriate road signs should be erected to reduce these impacts and their spin-offs.
- ✚ No new tracks shall be established in areas considered to be environmentally sensitive (e.g. areas of sensitive natural undisturbed vegetation, water resources, etc).



- The proponent shall control the movement of all vehicles in areas without roads or tracks in order to reduce impact on the natural environment.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-VE	1	4	6	3	M	L

11.3.9 Ecological Impacts

The operations of the proposed development shall have minimal impacts on fauna and flora.

Proposed Mitigation Measures

- The operational activities would not exceed the demarcated areas of the development footprint.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	1	2	2	2	L	L

11.3.10 Socio-Economic Aspects

The creation of new employment opportunities is considered to be a positive impact. It is not clear as to exactly how many employment positions will be created, however at least 8 new jobs are envisaged for the development.

Proposed Mitigation Measures

- Employment creation should be targeted at the immediate communities in the project area, or region at large
- Suppliers of operational stock should be sourced from the area, or region at large (where feasible).
- Where feasible, locally source services required during the operational process, such as securities, rental of portable toilets, plant hire, etc.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Socio-economic	-VE	1	1	8	2	L	L

11.4 Possible Decommissioning Phase

The impacts associated with this phase will be similar to that of the construction phase. The Environmental Management Plan for this phase will have to be reviewed at the time of decommissioning to cater for changes made to the development.

12. CUMULATIVE IMPACTS

These are impacts on the environment, which results from the incremental impacts of the proposed development, when added to other past, present, and reasonably foreseeable future actions regardless of what person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant

actions taking place over a period of time. In relation to an activity, it 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 resulting from similar or diverse activities or undertakings in the area.

Possible cumulative impacts associated with the development includes, noise emissions, dust and air quality, land disturbance and ecological. This could collectively impact on the environmental conditions in the area. Cumulative impacts may occur in both the operational and the construction phase.

Impact Evaluation:

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cumulative impacts	-VE	1	3	4	3	L	L

13. ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) provides management options to ensure impacts of the proposed development are minimised. An EMP is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented, and the positive benefits of the projects are enhanced.

The objectives of the EMP are:

- ✓ to include all components of the development;
- ✓ to prescribe the best practicable control methods to lessen the environmental impacts associated with the construction of the development;
- ✓ to monitor and audit the performance of construction personnel in applying such controls; and
- ✓ to ensure that appropriate environmental training is provided to responsible construction personnel.

The EMP acts as a stand-alone document, which can be used during the various phases of the proposed development. All contractors taking part in the construction of the facility should be made aware of the contents of the EMP. An EMP for the construction and operational phase of the proposed development has been developed and is attached as Appendix A.

14. CONCLUSIONS

In general, the proposed development would pose limited environmental and social risks.

The site is generally suitable for the proposed Safari, Cottage and Glamping camp development. All environmental risks can be minimised and managed through implementing preventative measures and sound management systems. It is



recommended that this information be made available to the community on a regular basis.

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed development. Future environmental audits should be carried out to ensure compliance of the EMP and environmental regulations of Namibia. Parties responsible for non-conformances of the EMP will be held responsible for any rehabilitation that may need to be undertaken.

The environmental clearance is valid for 3 years only, as per the environmental management act No.7 of 2007, thus it is the responsibility of the proponent to commission an application for renewal of the permit by submitting an updated EIA/EMP document before it expires.

Matrix Consulting Services

M. Shippiki
Hydrogeologist / Environmental Practitioner
April 2020



15. REFERENCES

DEAT (2006) Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Department of Environmental Affairs and Tourism (DEAT), (2006): EIA Regulations.

Digital Atlas of Namibia, Ministry of Environment & Tourism.

Education Management Information System Education Statistics (2011)

Environmental Management Act guideline of Namibia.

Hardap Regional Poverty Profile (2007)

Hardap Census Regional Profile, National Planning Commission (2011)

Miller R.McG. (2008). Geology of Namibia

Mandelsohn J., Jarvis A., Roberts C. And Robertson T. (2003), Atlas of Namibia, Ministry of Environment and Tourism, David Phillip Publishers, South Africa.

Meteorological Services Department; Climate Data.

Burke, A., Jürgens, N. and Seely, M.K. 1998. Floristic affinities of an inselberg archipelago in the southern Namib desert - relic of the past, centre of endemism or nothing special? *Journal of Biogeography* 25:311–317.

National Planning Commission, (2003) 2001 Population and Housing Census, Hardap Region: Basic Analysis with Highlights. Central Bureau of Statistics, Windhoek.

SIAPAC. 2003. Visitor exit survey: Final report for the Directorate of Tourism, Ministry of Environment and Tourism, Namibia. Windhoek: Directorate of Tourism, Ministry of Environment and Tourism.

The Southern African Institute for Environmental Assessment, (2006) Authors (Brownlie S., Walmsley B. and P. Tarr): Guidance document on Biodiversity, Impact Assessment and Decision Making in Southern Africa. CBBIA – IAIA.