



**Environmental Authorisation Application for the
proposed accommodation pods for tourism
purposes within Nkomazi Game Reserve,
Mpumalanga Province.**

Draft Basic Assessment Report

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CORE Environmental Services

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EXECUTIVE SUMMARY

Nkomazi Game Reserve (Pty) Ltd is proposing to construct 15 self-catering accommodation pods for tourism purposes, within the boundaries of the reserve. These pods will be approximately 100 – 150m² in size and will each have their own bathroom and small kitchen facilities.

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), and the National Water Act 36, of 1998, an Environmental Authorisation (EA) and Water Use License (WUL) is required before these activities can commence.

Nkomazi Game Reserve (Pty) Ltd subsequently appointed **Core Environmental Services** to apply for the EA and WUL by means of conducting a Basic Environmental Authorisation and Water Use Licensing process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

The construction and operational activities are likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity.*
- *Generation of dust.*
- *Generation of waste.*
- *Impact on soil.*
- *Impact on water resources.*
- *Impact on heritage resources.*
- *Socio-economic impact.*

The table below summarises the impacts identified and assessed for the establishment of the project:

| IMPACT | SIGNIFICANCE BEFORE MITIGATION MEASURES | SIGNIFICANCE AFTER MITIGATION MEASURES |
|---|---|--|
| Construction Phase Impacts | | |
| Loss of Vegetation | Low | Very Low |
| Loss of Important Species | Low | Very Low |
| Loss and Fragmentation of Habitat | Low | Very Low |
| Impact on Riparian Zones and Aquatic Biodiversity | Low | Very Low |
| Generation of Dust | Low | Very Low |
| Generation of Waste | Low | Very Low |
| Erosion | Low | Very Low |
| Soil Pollution | Low | Very Low |
| Impact on Water Resources | Low | Very Low |
| Water Pollution | Low | Very Low |

| | | |
|---|------------|------------|
| Impact on Heritage Resources | Medium | Low |
| Job opportunities | Medium (+) | Medium (+) |
| Health and Safety | Low | Very Low |
| Operational Phase Impacts | | |
| Generation of Waste | Low | Very Low |
| Erosion | Medium | Low |
| Water Resource Use | Medium | Low |
| Impact on Water Resources, Sedimentation | Medium | Low |
| Impact on Heritage Resources | Medium | Low |
| Job opportunities | Medium (+) | Medium (+) |

The assessment of the possible impacts associated with the construction and operational activities concluded that most of the impacts on the surrounding environment is of **low significance** after the implementation of mitigation measures. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within **Section 7** and also the Draft Environmental Management Plan attached.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

TABLE OF CONTENTS

| | |
|--|-----------|
| EXECUTIVE SUMMARY | 2 |
| TABLE OF CONTENTS..... | 4 |
| 1. OVERVIEW OF THE PROJECT..... | 7 |
| 1.1 Introduction | 7 |
| 1.2 Location..... | 7 |
| 1.3 Details of the EAP | 11 |
| 1.4 Policy, Legal and Administrative Framework | 11 |
| 1.5 National Environmental Management Act 107 of 1998..... | 13 |
| 1.6 National Water Act 36 of 1998..... | 14 |
| 1.7 Description of the project..... | 14 |
| 1.7 Need and Desirability..... | 15 |
| 2. PUBLIC PARTICIPATION PROCESS | 17 |
| 3. CONSIDERATION OF ALTERNATIVES | 18 |
| 3.1 Alternative Selection | 18 |
| 3.1.1 Location alternatives..... | 18 |
| 3.1.2 Layout alternatives..... | 18 |
| 3.1.3 No-Go alternative..... | 18 |
| 4. DESCRIPTION OF THE AFFECTED ENVIRONMENT | 19 |
| 4.1 Topography..... | 19 |
| 4.2 Climate..... | 19 |
| 4.3 Ecology | 19 |
| 4.4 Surface and Groundwater..... | 29 |
| 4.5 Land use | 30 |
| 4.6 Socio-Economic Environment..... | 30 |
| 4.7 Heritage..... | 30 |
| 5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT. 37 | |
| 6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS..... | 39 |
| 7. ENVIRONMENTAL IMPACT ASSESSMENT | 42 |
| 7.1 Impacts during the construction process..... | 42 |
| 7.1.1. Impact on Biodiversity..... | 42 |
| 7.1.2. Generation of Dust..... | 44 |
| 7.1.4 Generation of Waste..... | 45 |
| 7.1.5 Impact on Soil | 46 |
| 7.1.6 Impact on Water Resources | 48 |
| 7.1.7 Impact on Heritage Resources | 49 |
| 7.1.8 Socio-economic Impact | 51 |
| 7.2 Operational Phase Impacts | 52 |
| 7.2.1. Impact on Soil | 53 |
| 7.2.2. Impact on Water Resources | 55 |
| 7.2.3. Impact on Heritage Resources | 56 |
| 7.2.4. Socio-economic Impact | 57 |
| 7.3 Environmental Impact Statement | 59 |
| 8. CONCLUSION AND WAY FORWARD..... | 60 |

| | |
|---------------------------------------|-----------|
| 8.1 Assumptions and Limitations | 60 |
| 8.2 Conclusion | 60 |
| 8.2 Way Forward..... | 60 |
| 9. REFERENCES..... | 61 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1: locality map – | 9 |
| Figure 2: Terrestrial ecology map according to Mpumalanga Biodiversity Sector Plan, 2014..... | 20 |
| Figure 3: Map of vegetation & threatened ecosystems | 26 |
| Figure 4: SANBI Land Cover Map..... | 27 |
| Figure 5: Freshwater ecology map according to Mpumalanga Biodiversity Sector Plan, 2014..... | 29 |
| Figure 6: The LIA circular stone wall present at the Pod 5 site. | 31 |
| Figure 7: The LIA stone walls at the Pod 6 site. | 32 |
| Figure 8: The prominent stone wall at the Pod 9 site. | 33 |
| Figure 9: The indistinct remains of LIA stone walls observed in the middle and towards the south and east of the Pod 12 site..... | 34 |
| Figure 10: Prominent LIA stone walls near the Pod 13 site..... | 35 |
| Figure 11: large circular LIA stone walls identified next to the access road, near the Pod 15 site. | 36 |

LIST OF TABLES

| | |
|--|----|
| Table 1: Legislation applicable to the project..... | 11 |
| Table 2: Terrestrial Animal Species | 28 |
| Table 3: Assessment criteria for the evaluation of impacts | 39 |
| Table 4: Definition of significance ratings | 40 |
| Table 5: Definition of probability ratings..... | 41 |
| Table 6: Definition of confidence ratings..... | 41 |
| Table 7: Definition of reversibility ratings | 41 |
| Table 8: Significance of Biodiversity Impact | 43 |
| Table 9: Dust Generation | 45 |
| Table 10: Waste Generation | 46 |
| Table 11: Impact on Soil..... | 47 |

| | |
|---|----|
| Table 12: Impact on water resources..... | 48 |
| Table 13: Impact on heritage resources | 50 |
| Table 14: Socio-Economic Impact | 52 |
| Table 15: Waste Generation | 53 |
| Table 16: Impact on Soil..... | 54 |
| Table 17: Impact on water resources..... | 56 |
| Table 18: Heritage Resources..... | 57 |
| Table 19: Socio-economic Impact..... | 58 |
| Table 20: Environmental Impact Statement..... | 59 |

APPENDICES

Appendix A: Locality Map

Appendix B: Site Photos

Appendix C: Public Participation Process

Appendix D: Specialist Assessments

Appendix E: Environmental Management Plan

ABBREVIATIONS

| | |
|-------|---|
| BA | Basic Assessment Report |
| CBA | Critical Biodiversity Area |
| EA | Environmental Authorisation |
| GNR | General Notice Regulation |
| I&AP | Interested and Affected Party |
| LIA | Late Iron Age |
| NEMA | National Environmental Management Act, 1998 (Act No. 107 of 1998) |
| NHRA | National Heritage Resources Agency |
| PPP | Public Participation Process |
| SACAA | South African Civil Aviation Authority |

1. OVERVIEW OF THE PROJECT

1.1 Introduction

Nkomazi Game Reserve (Pty) Ltd is proposing to construct 15 self-catering accommodation pods for tourism purposes, within the boundaries of the reserve. These pods will be approximately 100 – 150m² in size and will each have their own bathroom and small kitchen facilities.

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), and the National Water Act 36, of 1998, an Environmental Authorisation (EA) and Water Use License (WUL) is required before these activities can commence.

Nkomazi Game Reserve (Pty) Ltd subsequently appointed **Core Environmental Services** to apply for the EA and WUL by means of conducting a Basic Environmental Authorisation and Water Use Licensing process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

1.2 Location

The Nkomazi Game Reserve is located east of the small town of Badplaas (eManzana) and west of Tjakastad, in the south-eastern part of the Mpumalanga Province and close to the South African-Swaziland border. The reserve is approximately 15000ha in extent. The accommodation pods are proposed on the following farms, all located within the Nkomazi Game Reserve.

- **PODS 1 – 10** are situated on the *farm Cambalala 765-JT*, at the base of a small hill, in the southwestern part of the Nkomazi Game Reserve.
- **PODS 11 - 15** are situated on the *farm Nkomazi 722JT*. Pod 11 & 14 are situated next to, and south of the Nkomazi River (Komati) and Pods 12, 13 & 15 are situated in the south-eastern section of the Reserve.

The proposed study areas as well as recommended alternative sites, are indicated by the GPS co-ordinates:

| GPS CO-ORDINATES | | | |
|----------------------|-----------------|-----------------|-----------|
| FARM CAMBALALA 765JT | | | |
| Location | South | East | Elevation |
| POD 1 | S 25° 57' 58.1" | E 30° 42' 33.0" | 997m |
| POD 2 | S 25° 57' 56.6" | E 30° 42' 29.0" | 993m |
| POD 3 | S 25° 57' 50.9" | E 30° 42' 32.0" | 979m |
| POD 4 | S 25° 57' 47.6" | E 30° 42' 32.8" | 969m |

| | | | |
|------------------------------|------------------------|------------------------|-------------|
| POD 5 | S 25° 57' 45.06" | E 30° 42' 31.93" | 960m |
| POD 6 | S 25° 57' 44.6" | E 30° 42' 29.5" | 967m |
| Alternative for Pod 6 | S 25° 57' 41.0" | E 30° 42' 25.7" | 953m |
| CAMP SITE (Existing) | S 25° 57' 43.2" | E 30° 42' 26.8" | 960m |
| POD 7 | S 25° 57' 41.7" | E 30° 42' 24.0" | 957m |
| POD 8 | S 25° 57' 39.6" | E 30° 42' 21.3" | 949m |
| POD 9 | S 25° 57' 40.6" | E 30° 42' 19.0" | 952m |
| Alternative for Pod 9 | S 25° 57' 40.8" | E 30° 42' 19.4" | 947m |
| POD 10 | S 25° 57' 43.8" | E 30° 42' 14.6" | 955m |
| FARM NKOMAZI 722JT | | | |
| POD 11 | S 25° 56' 52.87" | E 30° 44' 58.6" | 903m |
| POD 12 | S 25° 57' 12.55" | E 30° 46' 07.34" | 930m |
| POD 13 | S 25° 59' 6.71" | E 30° 45' 57.76 " | 985m |
| POD 14 | S 25° 59' 10.92" | E 30° 45' 32.53" | 893m |
| POD 15 | S 25° 58' 49.58" | E 30° 44' 38.21" | 979m |

Please refer to the locality map below, Figure 1.



FIGURE 1: LOCALITY MAP: NKOMAZI GAME RESERVE WITHIN ALBERT LUTHULI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

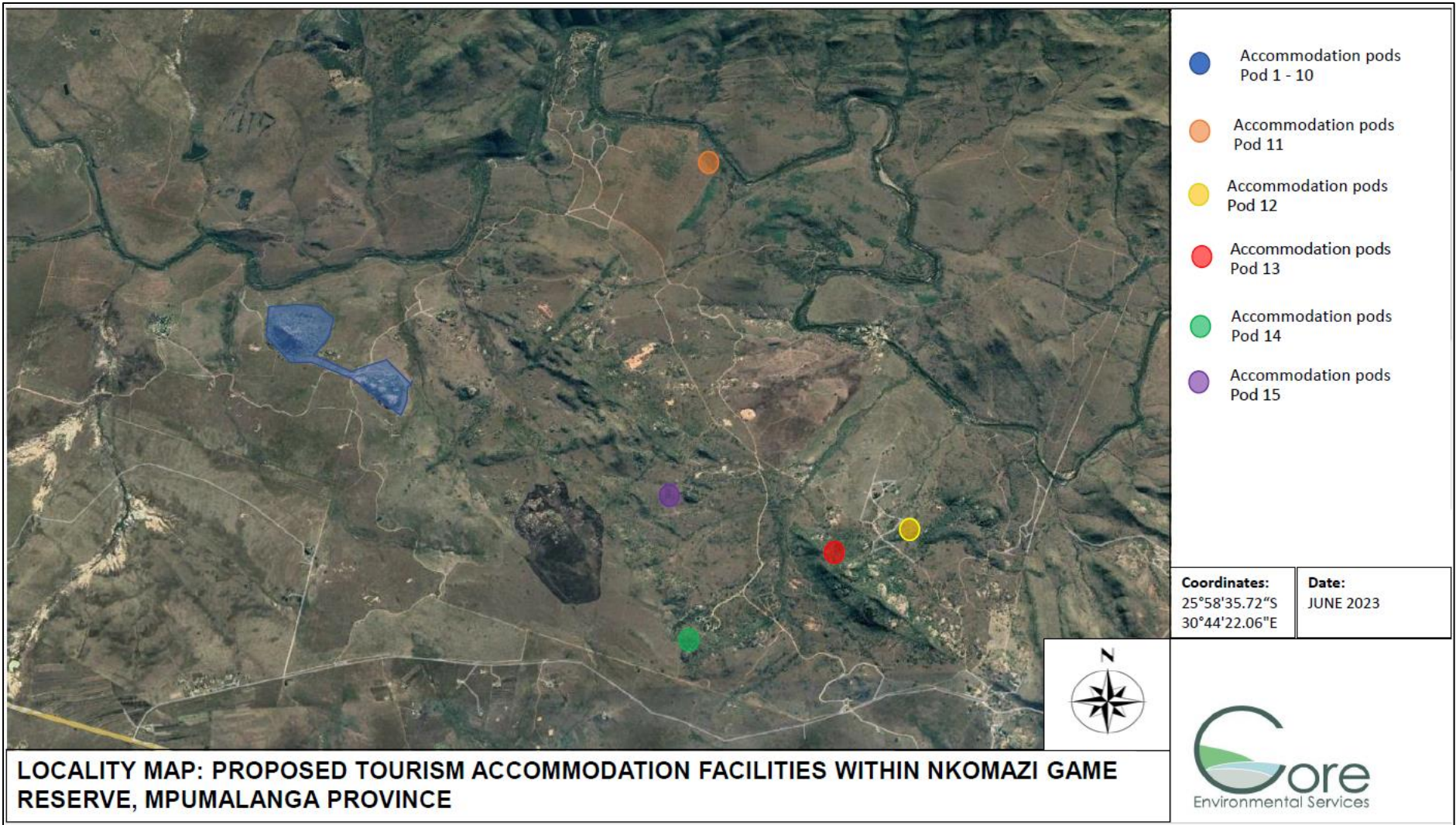


FIGURE 2: LOCALITY MAP: PROPOSED ACCOMMODATION PODS WITHIN NKOMAZI GAME RESERVE, MPUMALANGA

1.3 Details of the EAP

Ms Anne-Mari Hitge is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science in Environmental Management at the University of South Africa (UNISA) in 2007. Ms. Hitge is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) as well as the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

1.4 Policy, Legal and Administrative Framework

The following acts, regulations and policies must be taken into consideration during the construction and operational phases of the proposed development.

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

| Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered | Project application and type (permit/licence/authorisation/comment) |
|--|---|
| The Constitution of South Africa Act, 1996 (No. 108 of 1996) | <p>Nkomazi Game Reserve (Pty) Ltd will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented.</p> <p>As per Section 25 of the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.</p> |
| National Environmental Management Act, 1998 (No. 107 of 1998) | Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR982 of 2014 (as amended in 2017). |
| National Environmental Management: Protected Areas Act, 2003 (No. 57 of 2003) | The development will take place inside the Nkomazi Game Reserve which is classified as a protected area. |
| National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004) | The act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species |

| | |
|---|---|
| | <p>and ecosystems that warrant national protection; the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resource; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p> <p>The BA process for the project will involve the identification, protection and management of species, ecosystems and areas of high biodiversity value.</p> |
| National Environmental Management: Air Quality Act, 2004 (No. 39 of 2004) | <p>The act regulates air emissions generally, including air emissions resulting from various construction activities. In this regard, dust pollution is of relevance.</p> <p>The project will consist of the development of infrastructure. The development phase will produce dust pollution that must be controlled and kept to a minimum.</p> |
| National Environmental Management: Waste Act, 2008 (No. 59 of 2008) | <p>The project will endeavour to implement the waste hierarchy principles that the Waste Act introduces, to minimise and reduce waste created from the project, whilst encouraging the recycling and reuse of any suitable waste generated to prevent increased disposal at local landfills.</p> |
| Occupational Health and Safety Act, 1998 (No. 85 of 1998) | <p>The Act provides for the health and safety of people at work and the health and safety of people using plants and machinery.</p> <p>During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.</p> |
| National Heritage Resources Act, 1999 (No. 25 of 1999) | <p>This legislation aims to promote good management of the national estate and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.</p> <p>A Heritage Impact Assessment was undertaken to investigate the proposed sites in terms of any heritage and/or cultural significance. The findings of the Heritage Impact Assessment Report is described in Section 7.1.7 as is also Attendance as Appendix D.</p> |

| | |
|--|--|
| | <p>Should any items of significance be discovered during establishment, a Heritage Specialist must be contacted immediately, and work must cease until confirmation from the Specialist is received. For this reason, the applicant must adhere to the regulations stipulated within the National Heritage Resources Act, 1999.</p> |
| <p>National Water Act, 1998 (No. 36 of 1998)</p> | <p>The Act recognises that water is a scarce and unevenly distributed national resource which occurs in many different forms, which are all part of a unitary, interdependent cycle.</p> <p>Although water is a natural resource, it belongs to all people, and everyone should have equal access to water and use of water resources.</p> <p>The Act acknowledge the National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters.</p> <p>The ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users; the protection of the quality of water resources is necessary to ensure the sustainability of the nation's water resources in the interests of all water users.</p> <p>Recognising the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level to enable everyone to participate.</p> |

1.5 National Environmental Management Act 107 of 1998

As per the National Environmental Management Act 107 of 1998 (NEMA 107, 1998), GNR 985 of 2014 (as amended in 2017), the following listed activities will be triggered by the proposed project and will require approval before commencement:

GNR 985, Activity 6:

The development of resorts, lodges, hotels and tourism or hospitality facilities that sleep 15 people or more, (f) within Mpumalanga, (i) Outside Urban Areas (aa) a protected area identified in terms of NEMPAA, excluding conservancies, (gg) Areas within 10km from national parks or world

heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation.

GNR 985, Activity 12:

The clearance of an area of 300 square meters or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan, within (f) Mpumalanga. (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.

1.6 National Water Act 36 of 1998

In terms of Section 21 of the National Water Act 36 of 1998, a Water Use License (WUL) will also be required as some of the accommodation pods will be located within 500m of a wetland and will therefore fall within the water regulatory area. Each pod will also be serviced with a septic tank for the disposal and treatment of effluent. Application for a WUL will therefore be made for the following activities:

- Section 21 (c) – Impeding or diverting the flow of water within a watercourse.
- Section 21 (i) – Altering the bed, banks, flow or characteristics of a watercourse.
- Section 21 (g) – Disposing of waste in a manner which which may have a detrimental impact on a water resource

1.7 Description of the project

Nkomazi Game Reserve (Pty) Ltd is applying for Environmental Authorisation and WUL by means of conducting a Basic Environmental Authorisation Application process, for the proposed construction of 15 self-catering accommodation pods for tourism purposes, within the boundaries of the reserve. The proposed construction activities include the following:

- Construction of 15 self-catering accommodation pods.
- Installation of septic tanks for each pod.
- Limited vegetation clearing.

The proposed accommodation pods are illustrated in Figure 3 below:



FIGURE 3: ILLUSTRATION OF THE PROPOSED ACCOMMODATION PODS

Water for the operation of the pods will be sourced from boreholes located on the property.

In terms of wastewater treatment, each pod will have a septic tank installed to ensure efficient treatment of sewage and prevent surface and ground water pollution.

All litter/waste generated at the pods will be disposed of as per the current waste disposal practises for the luxury tented camp on Nkomazi Game Reserve. Recycling of household waste is promoted, and any temporary waste storage area will be fenced to prevent any animals from accessing the temporary area.

1.7 Need and Desirability

Nkomazi Game Reserve currently has luxury tented accommodation along the Komati River which is mostly being utilised by international tourists. Nkomazi Game Reserve therefore sought an opportunity to also cater for local tourism market, by means of providing luxury self-catering accommodation facilities which would be more affordable for the local market. For this reason, the applicant is proposing to construct 15 self-catering accommodation pods which would have multiple

benefits resulting in financial gain, economic growth, and community upliftment. Other need and desirability aspects includes the following:

- The tourism industry is at an all-time high and still growing, this creates a need for additional and varied products to accommodate the increasing number and wide array of tourists. The proposed operation will focus mostly on the local market, seeking affordable luxury get-aways.
- There is an opportunity for financial gain, not just for Nkomazi Game Reserve, but also for the local community. The reserve will employ local staff members and support them, their families and the community through job creation and skill upliftment.
- The Nkomazi Private Game Reserve is a highly sought-after holiday destination for international as well as local tourists. Attracting more tourists to South Africa through creating a new and exciting safari product, benefits the local economy, as well as the national economy by creating a larger demand for all tourism services.

2. PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g., directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1**.

To engage with potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all registered I&APs, proof of which is attached in **Annexure C.2**.
- Placement of media advert in a local newspaper (The Lowvelder) on 29 June 2023 (see **Annexure C.3**).
- The placing of a notice at the proposed site took place on 3 July 2023 (see **Annexure C.4**).

The draft Basic Assessment Report will be made available for public review from September - October 2023.

To date, no comments have been received by I&AP's.

3. CONSIDERATION OF ALTERNATIVES

The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, the type of activity to be undertaken, the design of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative). The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

3.1 Alternative Selection

3.1.1 Location alternatives

The applicant, Nkomazi Game Reserve (Pty) Ltd, has taken various aspects into consideration upon selecting the specific sites for the construction of the pods. These aspects included, existing game viewing routes travelled by game view vehicles, the view from the proposed pods, distance from other proposed pods, the distance from the existing luxury tented camp, as well as ecological and heritage sensitivities. The new accommodation pods (pods 1 to 10) are proposed to be positioned in order to ensure that the pods either have magnificent views of the Private Reserve or is secluded and located between large rocky outcrops.

As all of the above aspects had to be considered in selecting the proposed sites, the proposed sites were the only feasible sites proposed for the development of the pods.

3.1.2 Layout alternatives

An Ecological Impact Assessment and Heritage Impact Assessment was conducted as part of the Environmental Impact Assessment process to identify any sensitivities within the proposed project areas. As some sensitivities were identified within the perimeter of some of the proposed locations, some alternatives were investigated to ensure that the sensitivities are protected from development. The sensitivities identified are noted within the Draft BA Report and mitigation measures are included within the Draft Environmental Management Plan.

3.1.3 No-Go alternative

The no-go alternative would be to not authorise the application for the construction of the self-catering pods. Should this alternative be favourable, the construction activities will not take place. However, the impacts associated with the proposed construction were not found to be so severe for the no-go alternative to be further investigated. The additional accommodation facilities will have a positive impact on tourism within the reserve as the accommodation pods would also cater for the local tourism market, increasing revenue for the Nkomazi Game Reserve as well as the surrounding community with the additional jobs being created.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, and site visits to the area and is used to understand the possible effects of the proposed project on the environment.

4.1 Topography

The Komati River is the main topographic feature across the Nkomazi Game Reserve and several rocky outcrops and low hills are visible. The topography of the proposed Lodge sites and tourism facilities, vary between approximately 900 - 1000m, and are all located south of the Nkomazi River. Most of the accommodation pods are proposed at the foot of the rocky outcrop located within the south-eastern section of the reserve, while two accommodation pods are proposed south of the Komati River. The sites at the Komati River is relatively flat.

4.2 Climate

Mpumalanga is a province where the climate varies due to its topography. The project site is located within the Lowveld Region of the eastern escarpment of South Africa. Temperatures vary between -4°C and 45°C and frost is infrequent. The study area experiences humid and hot weather during the summer seasons. Approximately 65 - 70% of the area's rainfall occurs during the summer months between October and March, in the form of conventional thunderstorms and showers, and measures from 800 - 1000 mm per year.

4.3 Ecology

Terrestrial Ecology

According to the Mpumalanga Biodiversity Sector Plan of 2014 (MBSP; Figure 2), the project area falls within a Protected Area (National Parks and Nature Reserve). Protected areas must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity:

- All operational aspects of managing these areas must be subject to their main purpose, which is to protect and maintain biodiversity and ecological integrity and should be governed by a formally approved management plan and land-use activities that support the primary function of these areas as primary sites for biodiversity conservation.

Swaziland Sour Bushveld SVI14: Mainly found in Mpumalanga and Swaziland from Badplaas eastwards to Piggs Peak and Manzini. Conservation status: Not Threatened. Altitude 400-1100m. Open to closed tree layer with well-developed (closed) grass layer. Very hilly with moderate to steep slopes. Grey soils, derived from Randian granites and Swazian granites and gneiss. Soils are dark, and very clayey: Sterkspruit, Valsrivier and Swartland soil forms. Summer rainfall with dry winters. MAP: 700-1350mm. Frost is infrequent to occasional at higher altitudes. Approximately 21% transformed into cultivation and forestry. According to the SANBI Land cover map, all the sites are located in natural areas (Figure 4).

Proposed sites, accommodation pods 1 – 10, is located at the foot of one of the outcrops located within the south-western section of the reserve. This outcrop is classified as a sensitive environment as it provides habitat for plants and refuge from natural drivers such as fire, it also provides niche habitats for many types of animals. The general terrestrial biodiversity on the outcrop will be high, however, the proposed sites are positioned at the foot of the outcrop where their positions and operational activities will have a reduced impact on ecological functions, biodiversity and natural occurring species. Please refer to figure 4 below, indicating the proposed locations for the accommodation pods at the foot of the rocky outcrop (Proposed accommodation pods 1 – 10).



FIGURE 5: PROPOSED ACCOMMODATION POD LOCATIONS AT THE FOOT OF THE ROCKY OUTCROP (PODS 1 – 10)



FIGURE 6: PROPOSED SITE FOR ACCOMMODATION POD 11

The site is situated to the east of the Komati River, outside of the Komati River on an historic impact footprint:

- An historic structure is visible and the vegetation and habitat has been modified.
- No sensitive features can be observed except the Komati River and the riparian zone (off-site).

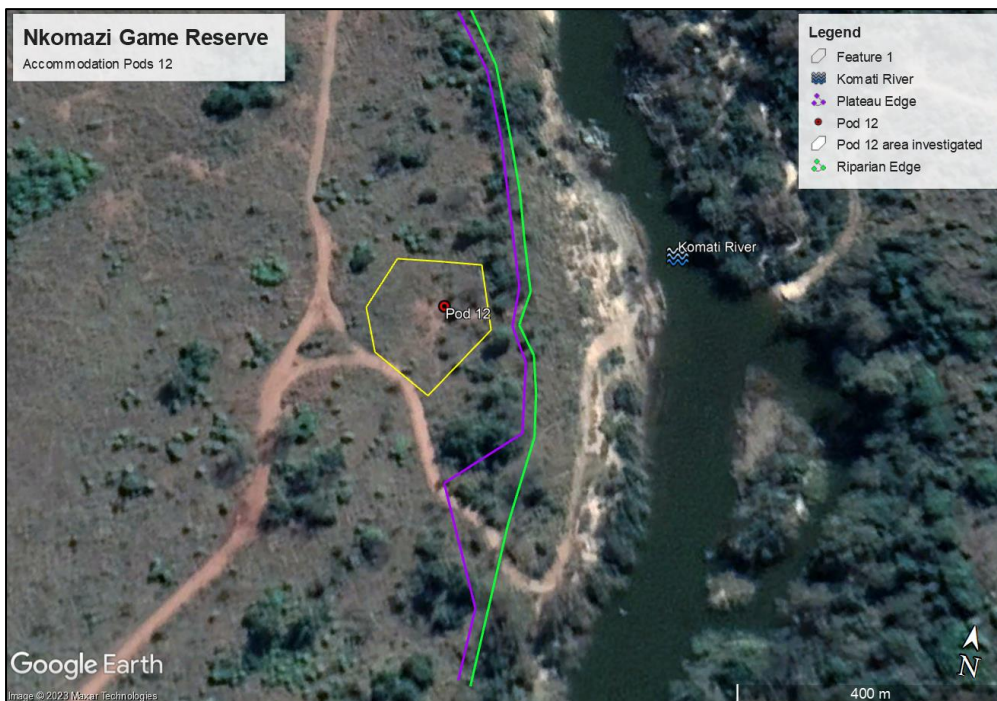


FIGURE 7: PROPOSED SITE FOR ACCOMMODATION POD 12

The site is situated to the east of the Komati River, outside of the Komati River on a plateau elevated above the river:

- Vegetation is limited to grass cover, forbs and shrubs.
- An access track for vehicles is visible.
- No sensitive features can be observed except the Komati River and the riparian zone (off-site).



FIGURE 8: PROPOSED SITE FOR ACCOMMODATION SITE 13

The site is situated to the north of an outcrop on a grass covered plain:

- Solitary large trees are present.
- An access track for vehicles is visible.
- No sensitive features can be observed except the extent of the outcrop (off-site).

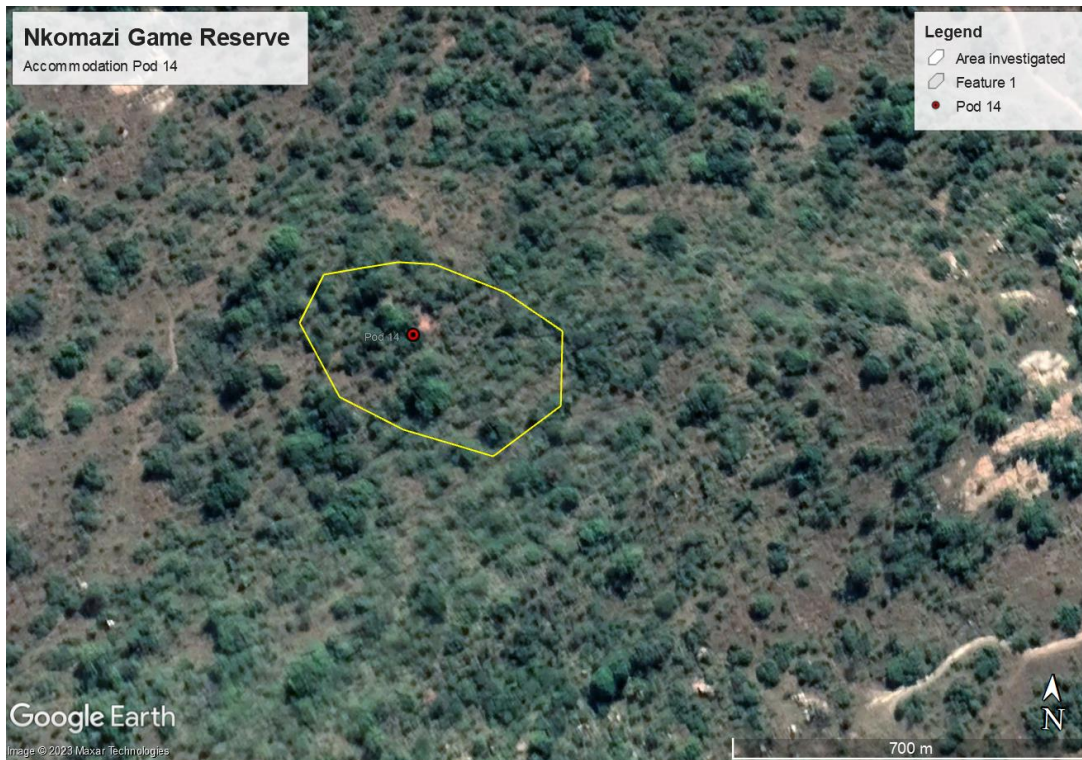


FIGURE 9: PROPOSED ACCOMMODATION SITE 14

The site is situated on the neck in between two outcrops:

- Solitary medium sized trees are present as well as grass cover and shrubs.
- An access track for vehicles is visible.
- No sensitive features can be observed except the extent of the outcrop (off-site).



FIGURE 10: PROPOSED ACCOMMODATION SITE 15

The site is situated to the north of an outcrop on a grass covered plain:

- Solitary medium sized trees are present.
- No sensitive features can be observed except the extent of the outcrop (off-site).
- An access track for vehicles is visible.
- No sensitive features can be observed except the extent of the outcrop (off-site).

The specialist report indicated that plant diversity on all the sites is low, and no SCC plants were recorded on any of the sites. Except for sites 7, 11 and 14, the site vegetation is natural, and all the sites have been selected so that no trees will be removed. The vegetation on the existing camp site footprint and site proposed for pod 11 has been largely disturbed in the past. There are no large trees of protected species that will be affected negatively on any of the sites.

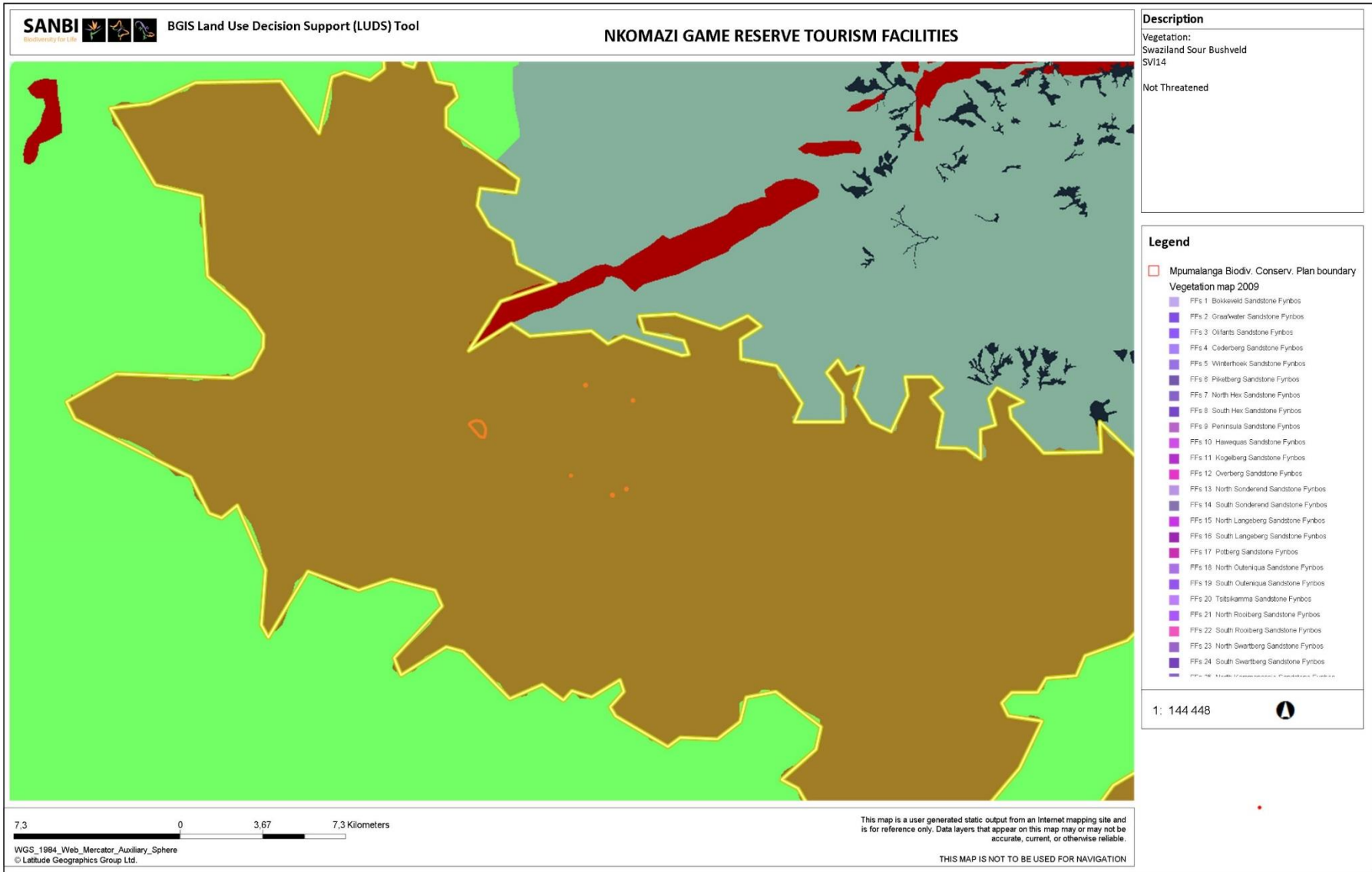


FIGURE 11: MAP OF VEGETATION & THREATENED ECOSYSTEMS

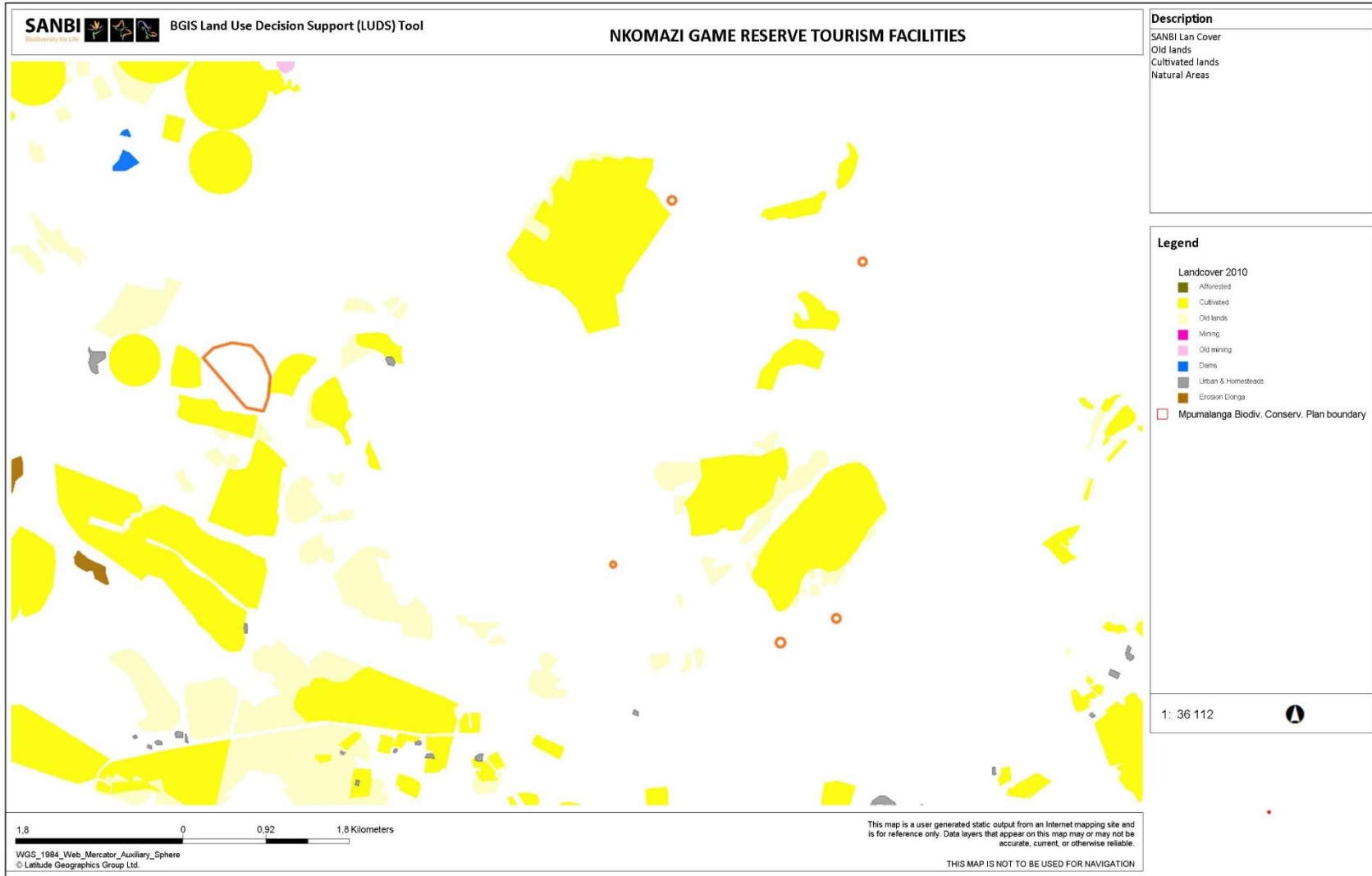


FIGURE 12: SANBI LAND COVER MAP

Potentially Occurring Threatened and Near-threatened Fauna Species

The specialist finding is that the site is of low sensitivity for animal species. This is in contrast to the screening tool which suggests high sensitivity. This discrepancy is attributed to the limitations of the screening tool that was not developed for a site-level investigation. No species of concern (SCC) animals were recorded on the site and the potential presence of the SCC species indicated by the screening tool was verified via literature review and on-site verification by the specialist. The findings are that these species may be present on the larger extent of the Game Reserve but the site investigation found that it is extremely unlikely for any one of these species to be permanently present on any of the sites, see Table 2:

TABLE 2: TERRESTRIAL ANIMAL SPECIES

| Sensitivity | Feature(s) | Verification |
|-------------|---|--|
| High | Aves- <i>Geronticus calvus</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Aves- <i>Podica senegalensis</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Aves- <i>Stephanoaetus coronatus</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Aves- <i>Aquila rapax</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Mammalia- <i>Crociodura maquassiensis</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Mammalia- <i>Lycaon pictus</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Mammalia- <i>Ourebia ourebi ourebi</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |
| Medium | Invertebrate- <i>Clonia lalandei</i> | May be present on the larger extent of the PA. Not recorded on any of the sites. |

Freshwater Ecology

The Komati River is the main topographic feature across the site and several rocky outcrops and low hills are visible. Potential wetland zones are visible in the larger study area. The area is classified as an Ecological Support Area - Important Sub catchment (Figure 5). The MTPA requirements for an Ecological Support Area (important sub-catchment) are quoted as follows: This sub-category includes National Freshwater Ecosystems Priority Areas (NFEPAs) sub-catchments and Fish Support Areas. A river NFEPAs is the river reach that is required for meeting biodiversity targets for river ecosystems and

threatened fish species. In managing the condition of a river FEPA, it is important to manage not only the river itself but also the network of streams and wetlands as well as land-based activities in the sub-catchment that supports the river FEPA. A proportion of tributaries and wetlands need to remain healthy and functional for the river FEPA to be kept in a good ecological condition. This requires that management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

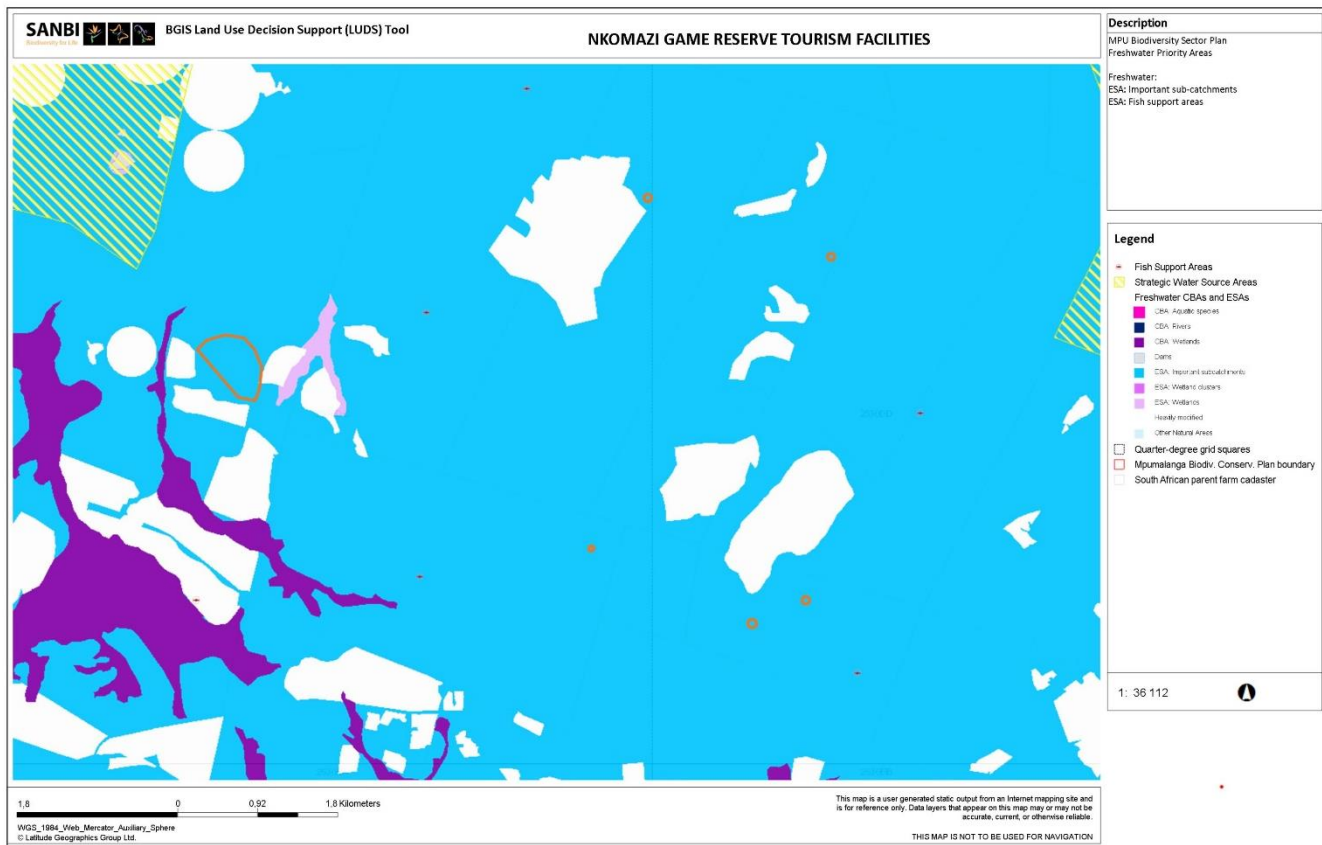


FIGURE 13: FRESHWATER ECOLOGY MAP ACCORDING TO MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014

4.4 Surface and Groundwater

The Komati River flows from west to east through the central section and the Seekoeispruit tribute to the Komati River on the property. These watercourses have well-defined channels with smaller tributaries present from north to south. Other hydrological features include wetlands and severely eroded drainage channels. Several prominent rocky outcrops are present, and these are largely in a natural state. The riparian habitat is found in the valley bottoms alongside the Komati River and Seekoeispruit. These are perennial watercourses and as such the availability of water and fertile alluvial soils presents excellent conditions to maintain riparian vegetation. The riparian zones provide an important refuge and corridor for fauna and flora and have a high ecological sensitivity rating. Buffer zones are recommended to protect the riparian zones. Several prominent valley bottom wetlands are present as well as associated seepage zones and artificial wetlands, these include NFEPA (National Freshwater Ecosystem Priority Areas) wetlands.

4.5 Land use

According to the Mpumalanga Biodiversity Sector Plan of 2014, the proposed project area falls within a Protected Area. The project area is currently utilised for game farming and tourism purposes and forms part of the Nkomazi Game Reserve. The project site also forms part of the Barberton Makhonjwa Mountains World Heritage site.

4.6 Socio-Economic Environment

Tjakastad is located within the Gert Sibande District, east of the Nkomazi Game Reserve. The population consist of 12711 individuals who live in peri-urban and rural areas. Gert Sibande District currently has an unemployment rate of 29.7% with 45.1% of the people living below the poverty line. The levels of skill and qualifications of the population are also fairly low which is problematic for future economic development. The socio-economic context of the surrounding environment can therefore be described as a community with a low percentage of education and a high unemployment rate.

4.7 Heritage

A Heritage Impact Assessment was conducted to determine whether the proposed activities will have any impact on heritage resources or artefacts. No significant archaeological or historical features were observed within the areas proposed for **Pods 1, 2, 3 4, 7, 8, 10, 11 and 12**. Distinct and indistinct Late Iron Age stonewalls (LIA) were however identified within **Pods 5, 6, 9,13, 14 and 15** and alternative sites were investigated and proposed (see GPS co-ordinates for alternative sites in **section 1.2**).

The 1968 topographical map indicates several footpaths and hut settlements within the Nkomazi Game Reserve although none of the hut settlements which were indicated within the proposed development sites. A number of the original hut settlements were destroyed by extensive agricultural activities. Some of the hut settlements were established at/on the Late Iron Age sites. No graves were identified at any of the proposed Pods during the field investigation.

Pod 5: A clear circular stone wall (S 25° 57' 45.01" E 30° 42' 31.03") is visible within the footprint of the proposed site. It is recommended that the site be moved towards the north, between two boulders, where no archaeological features were observed.



FIGURE 14: THE LIA CIRCULAR STONE WALL PRESENT AT THE POD 5 SITE.

Pod 6: The LIA stone walled settlement at Pod 5 is extending towards the west into Pod 6 and two distinct stone walls are visible within the footprint. The site is at an elevation, with a terrace wall (S 25° 57' 44.82" E 30° 42' 30.38") at its perimeter and another circular stone wall (S 25° 57' 43.50" E 30° 42' 31.92" towards the north (outside of the footprint). Two lower grinders (S 25° 57' 43.99" E 30° 42' 28.60") were also identified at Pod 6. An alternative site is proposed which is situated towards the west and outside of the stone walled settlement.



FIGURE 15: THE LIA STONE WALLS AT THE POD 6 SITE.

Pod 9: Two distinct LIA stone walls (S 25° 57' 40.86" E 30° 42' 18.12") were identified within the footprint of proposed Pod 9. One is a terrace wall. There are also recent features within this site. The recent features are of no significance, but the stone walls will be impacted by the proposed development. An alternative site was investigated, slightly towards the north, and is therefore proposed as the new site for Pod 9.



FIGURE 16: THE PROMINENT STONE WALL AT THE POD 9 SITE.

Pod 12: Several recent features as well as some indistinct LIA stone walls (S 25° 59' 07.22" E 30° 45' 57.46" & S 25° 59' 04.26" E 30° 45' 57.26") were identified at the site for Pod 12. The recent features are of no significance. The grass was dense at the time of the field investigation, and the LIA stone walls were not very clear. It is therefore suggested that the proposed area for development move towards the west, away from where the stone walls were observed. The western section of this site has no archaeological features.



FIGURE 17: THE INDISTINCT REMAINS OF LIA STONE WALLS OBSERVED IN THE MIDDLE AND TOWARDS THE SOUTH AND EAST OF THE POD 12 SITE.

Pod 13: An extensive LIA stone-walled settlement (S 25° 59' 12.03" E 30° 45' 36.06" & S 25° 59' 11.04" E 30° 45' 35.03" & S 25° 59' 11.07" E 30° 45' 36.00") was identified outside / but adjacent to the proposed accommodation pod 13. Mitigation measures are proposed as the stone-walled settlement is still in fairly good condition and must not be impacted by the development activities. Access to the site should move to the south of the proposed development and development activities should avoid the LIA settlement completely.



FIGURE 10: PROMINENT LIA STONE WALLS NEAR THE POD 13 SITE.

Pod 15: No archaeological or historical features were identified within the proposed footprint of accommodation pod 15. However, the current access road towards the site is located in the middle of the LIA stone-walled settlement (S 25° 58' 48.94" E 30° 44' 42.90"). This settlement is still in very good condition and must not be negatively impacted by the development activities. Mitigation measures are recommended to avoid further impact on the LIA stone-walled settlement. The topography does not allow for a new road to be constructed to give access to the proposed lodge, and therefore care must be taken not to disturb the LIA site during access, or by activities for the proposed development.



FIGURE 11: LARGE CIRCULAR LIA STONE WALLS IDENTIFIED NEXT TO THE ACCESS ROAD, NEAR THE POD 15 SITE.

Co-ordinates of all the Late Iron Age stone walls and sites that are of heritage importance (Refer to Layout Maps - Appendix A).

5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

- Visual Impact Assessment

The project area forms part of the Barberton Makhonjwa Mountains World Heritage Site which is a popular tourist attraction, however, the sites proposed for the accommodation pods are all located on a private nature reserve and is isolated (hidden in the surrounding natural bush environment). These accommodation pods will therefore not be visible to neighbouring landowners or be visible from the existing luxury tented camp located within the reserve. These accommodation pods are also designed to blend in with the surrounding environment and therefore the visual impact will be minimal. For this reason, no visual impact assessment was undertaken.

- Heritage and Palaeontological Impact Assessment

As the Nkomazi Game Reserve is located within the perimeter of a World Heritage Site, a Heritage Impact Assessment was undertaken on all of the sites proposed for the accommodation pods, to identify any possible artefacts or structures which could be of heritage or cultural significance. The findings of the investigation were discussed in Section 4.7 above and the Heritage Impact Assessment is attached as Appendix D. Should the developer adhere to the mitigation measures as set out in the report, the development may continue in the areas as indicated in the report.

In terms of palaeontology, it must be noted that the footprint of these accommodation pods are restricted to wooden stilts affecting the subsurface (approximately 1.5m deep). The accommodation pods are proposed to be constructed on these stilts to ensure movement of fauna underneath these structures. The impact on the soils surface is therefore minimal and for this reason, no palaeontological assessment is undertaken.

- Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

The accommodation pods are all proposed within the boundaries of the Nkomazi Game Reserve which is classified as a Protected Area in terms of MBSP, 2014. For this reason, an Ecological Impact Assessment was undertaken on the areas proposed to identify any ecologically sensitive areas. The findings of the investigation are discussed in Section 4.3 above and the specialist report is attached as Appendix D. Provided the recommendations suggested in the BA report are followed, and the developer complies with all relevant legislation pertaining to the development activities, the impact on terrestrial biodiversity within the study area, can effectively be mitigated.

- Aquatic Biodiversity Assessment / Hydrological Assessment

None of the proposed accommodation pods are located within any watercourse or drainage area. At minimum, all structures are proposed at least 30m from the edge of a watercourse/drainage area. As

no activities are proposed within any watercourse/drainage line, no aquatic biodiversity or hydrological assessment was undertaken.

- Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, some additional job opportunities will be created during the construction phase of the project, which will have a positive impact on the local community. As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required.

6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** (time scale) would be described, as shown in **Table 3**. These criteria are then used to determine the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and define each of the rating categories.

TABLE 3: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS

| Criteria | Category | Description |
|--|--------------------------|--|
| The extent or spatial influence of impact | Regional | Beyond a 30km radius of the candidate site. |
| | Local | Within a 30km radius of the candidate site. |
| | Site-specific | On-site or within 100 m of the candidate site. |
| Magnitude of impact (at the indicated spatial scale) | High | Natural and/ or social functions and/ or processes are <i>severely</i> altered |
| | Medium | Natural and/ or social functions and/ or processes are <i>notably</i> altered |
| | Low | Natural and/ or social functions and/ or processes are <i>slightly</i> altered |
| | Very low | Natural and/ or social functions and/ or processes are <i>negligibly</i> altered |
| | Zero | Natural and/ or social functions and/ or processes remain <i>unaltered</i> |
| Duration of impact | Long-term | More than 10 years after construction |
| | Medium-term | Up to 5 years after construction |
| | Construction-term | Up to 3 years |

The **SIGNIFICANCE** of an impact is derived by taking into account the magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings are shown in Table 4.

TABLE 4: DEFINITION OF SIGNIFICANCE RATINGS

| Significance ratings | Level of criteria required |
|----------------------|--|
| High | <ul style="list-style-type: none"> • High magnitude with a regional extent and long-term duration • High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration • Medium magnitude with a regional extent and long-term duration |
| Medium | <ul style="list-style-type: none"> • High magnitude with a local extent and medium-term duration • High magnitude with a regional extent and construction period or a site-specific extent and long-term duration • High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration • Medium magnitude with any combination of extent and duration except site-specific and construction period or regional and long-term • Low magnitude with a regional extent and long-term duration |
| Low | <ul style="list-style-type: none"> • High magnitude with a site-specific extent and construction period duration • Medium magnitude with a site-specific extent and construction period duration • Low magnitude with any combination of extent and duration except site-specific and construction period or regional and long-term • Very low magnitude with a regional extent and long-term duration |
| Very low | <ul style="list-style-type: none"> • Low magnitude with a site-specific extent and construction period duration • Very low magnitude with any combination of extent and duration except regional and long-term |
| Neutral | <ul style="list-style-type: none"> • Zero magnitude with any combination of extent and duration |

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in Table 5 and Table 6. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in Table 7.

TABLE 5: DEFINITION OF PROBABILITY RATINGS

| Probability ratings | Criteria |
|----------------------------|---|
| Definite | Estimated greater than 95 % chance of the impact occurring. |
| Probable | Estimated 5 to 95 % chance of the impact occurring. |
| Unlikely | Estimated less than 5 % chance of the impact occurring. |

TABLE 6: DEFINITION OF CONFIDENCE RATINGS

| Confidence ratings | Criteria |
|---------------------------|--|
| Certain | A wealth of information on and sound understanding of the environmental factors potentially influencing the impact. |
| Sure | Reasonable amount of useful information on and a relatively sound understanding of the environmental factors potentially influencing the impact. |
| Unsure | Limited useful information on and understanding of the environmental factors potentially influencing this impact. |

TABLE 7: DEFINITION OF REVERSIBILITY RATINGS

| Reversibility ratings | Criteria |
|------------------------------|---|
| Irreversible | The activity will lead to an impact that is in all practical terms permanent. |
| Reversible | The impact is reversible within 2 years after the cause of the impact is removed. |

7. ENVIRONMENTAL IMPACT ASSESSMENT

The biophysical and social environment will be impacted during the establishment and operational phases of the proposed project. For this reason, the impacts below are assessed for both phases.

7.1 Impacts during the construction process

The construction activities are likely to result in various environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity.*
- *Generation of dust.*
- *Generation of waste.*
- *Impact on soil.*
- *Impact on water resources.*
- *Impact on heritage resources.*
- *Socio-economic impact.*

7.1.1. Impact on Biodiversity

Description of the potential impact

According to the Mpumalanga Biodiversity Sector Plan, 2014, the site falls within a Protected Area (National Parks and Nature Reserve). The total loss of land for habitats is highly unlikely as the accommodation pods are proposed on wooden stilts. Any loss of vegetation will be localised.

As the proposed activity sites are small (100m²) it can be assumed that potential impacts on the relevant protocols and themes will be limited to the extent of the sites. The anticipated activity will include site preparation, which includes limited vegetation clearing, levelling and excavations for the wooden stilts. The activity sites have been selected at the foot of the outcrop so as not to encroach into the sensitive outcrop habitat.

Significance of the impact

The biodiversity assessment concluded that plant diversity within the proposed project areas were low, and no SCC plants were recorded on the site. With the exception of sites 7, 12 and 15, the site vegetation is natural, and all the sites have been selected so that no trees will have to be removed.

The vegetation on sites 7 and 11 have been largely disturbed and no large, protected trees will be affected negatively at any of the selected sites. The magnitude of vegetation loss is therefore **low** as most of the area surrounding the site, as well as the site itself, will be able to sustain the vegetation in its natural state. Impacts will be site-specific and temporary and therefore the impact would be of **very low** significance post-mitigation.

There are no terrestrial biodiversity themes or features present on site and the significance of negative impacts on terrestrial biodiversity by the proposed activities will be **low**. No SCC animals were recorded on the sites, but they are present on the large extent of the Game Reserve. However, the planned activity will not directly impact the biology of any animals and it will not constrain the movement of animals. It is expected that the significance of negative impacts on animal species by the proposed activities will be **very low** with mitigation measures implemented.

The proposed development on the project site will not result in a change of land-use and will not further contribute to large-scale fragmentation and loss of faunal habitats. Impacts will be temporary during the construction phase of the project and site-specific, with mitigation measures implemented, the impacts may be reduced to very **low**.

Aquatic biodiversity is limited to the Komati River and wetlands on the larger Game Reserve. These features will not be directly affected by the proposed activity. The proposed activity and site alternatives have been planned and designed to be of low-impact significance on the biophysical environment, including the aquatic biodiversity. There are no aquatic biodiversity themes or features present at the selected sites and the significance of negative impacts on aquatic biodiversity by the proposed activities will be **very low** post mitigation.

TABLE 8: SIGNIFICANCE OF BIODIVERSITY IMPACT

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--|-------------------|---------------|-------------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Loss of Vegetation [NEGATIVE] | Low | Site-specific | Long-term | Probable | Low | Very Low |
| Loss of important species [NEGATIVE] | Low | Site-specific | Long-term | Unlikely | Low | Very Low |
| Loss and fragmentation of habitat [NEGATIVE] | Medium | Site-specific | Construction-term | Probable | Low | Very Low |

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--|-------------------|-----------------|-------------------|-----------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Impact on riparian zones and aquatic biodiversity [NEGATIVE] | Low | Unlikely | Short-term | Unlikely | Low | Very Low |

Mitigation measures

- The naturally occurring plant species should be retained where possible, and succulents that need to be moved may be done so and transplanted carefully. Large and protected trees should be conserved.
- Permits are required for removal, relocation and pruning of protected plant species (permits can be obtained from MPTA or DAFF).
- Implement an alien invader vegetation control program.
- Waste material may not be pushed into natural habitats.
- Ecosystem functions may not be modified, and no significant physical modifications will be conducted on the sites such as removal of rocks and boulders.
- Development within riparian zones must be limited to non-permanent infrastructure such as wooden decking supported by buried poles.
- Where infrastructure is to be erected the layout should take cognizance of the natural features and thus allow for relative free movement of fauna. Ecological corridors are to be incorporated into the design.
- Construction vehicles should comply with the relevant legislation of the reserve and should be restricted in terms of speed to protect animals within the park.
- Conserve all the watercourses, riparian habitats and natural habitats with High sensitivity.
- Eroded areas should be rehabilitated to prevent siltation and erosion.
- Storm water discharge points must be designed to reduce the energy of discharged water.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.1.2. Generation of Dust

Description of the potential impact

Construction activities are likely to result in the increased production of windblown dust and heavy-moving vehicles could generate dust.

Significance of the impact

Fortunately, there are no nearby neighbours which could be affected by the generation of dust during the construction phase and as the generation of dust will be of short duration and local extent, the impact is regarded to be of low significance prior to the implantation of mitigation measures. With mitigation measures implemented, the significance of this potential impact will be reduced from **low to very low**.

TABLE 9: DUST GENERATION

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--------------------------------------|-------------------|--------------|-------------------|-----------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Dust generation [NEGATIVE] | Low | Local | Short-term | Probable | Low | Very Low |

Mitigation measures

- Dust generation can be limited by using dust suppression methods such as water spraying.
- The use of delivery trucks during construction should be limited to travelling during the times stipulated by the reserve.
- Trucks should comply with the relevant legislation and should be restricted in terms of speed within the reserve.
- Building material and sand should be covered during transport to and from the sites.

7.1.4 Generation of Waste

Description of the potential impact

Construction waste is an on-going issue on a construction site during the construction phase. Accumulation of waste can lead to various health and safety hazards, especially within a Game Reserve, where wild animals can also be impacted negatively by the construction waste.

During construction, sanitation facilities will also be required for construction workers. Workers not making use of these facilities could also lead to an unhealthy environment.

In light of this, the accumulation, storage and disposal of waste could have a negative impact on the reserve if not managed accordingly.

Significance of the impact

The impacts associated with the generation of construction waste will be of a medium magnitude, site-specific and of short duration during the construction phase. Provided that mitigation measures are implemented, the significance of this potential impact is considered to be **very low** post-mitigation.

TABLE 10: WASTE GENERATION

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|---------------------------------------|-------------------|---------------|------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Waste generation [NEGATIVE] | Medium | Site-specific | Short-term | Probable | Low | Very Low |

Mitigation measures

- Dry chemical toilets must be made available at a ratio of 1:15 at the construction site and must be cleaned and serviced regularly.
- The contractor may not dispose of any waste and/or construction debris by burning or burying it. An adequate number of appropriate refuse bins must be provided at the construction site for refuse and solid waste. This waste should be removed regularly to a registered dumping site for disposal.
- All waste must be transported in an appropriate manner (e.g., plastic rubbish bags). A specific site should also be allocated for construction waste e.g., empty cement bags etc. A low temporary fence may be erected around such a site in order to contain the waste and assist in the effective removal thereof from the site.
- Hazardous waste will be removed and taken to a registered hazardous waste disposal facility.

7.1.5 Impact on Soil

Description of the potential impact

The construction process will disturb the soil surface and increase the possibility of soil erosion.

Other activities which could have an impact on soil during the construction phase, include any spillage of hazardous substances. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

Significance of the impact

During construction, soil could be impacted by the following:

- Erosion and sedimentation.
- Contamination with the use and possible spillage of hazardous substances.

Most of the project areas proposed for the accommodation pods are relatively flat. In addition to this, the project area to be impacted and area to be cleared of vegetation is restricted to the footprint of the accommodation pods and more specifically the wooden stilts to be erected. Due to the limited soil disturbance associated with the construction of these accommodation pods, the possibility of

erosion occurring is reduced. The magnitude of the impact is therefore low, with a site-specific extent and short term duration. The impact is therefore assessed to be of **very low** significance prior to the implantation of mitigation measures.

In terms of soil pollution, the possibility of the impact is increased with the operation of machinery and possibly, hazardous substances. The impact of soil pollution is of medium magnitude, site-specific and short duration and for this reason, the impact is rated to be of **low** significance before the implementation of mitigation measures.

TABLE 11: IMPACT ON SOIL

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|------------------------------|-------------------|---------------|------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Erosion [NEGATIVE] | Low | Site Specific | Short-term | Probable | Low | Very Low |
| Soil pollution [NEGATIVE] | Medium | Site-specific | Short-term | Unlikely | Low | Very Low |

Mitigation measures

- Access roads are to be monitored and managed for erosion prevention.
- Trampled or compacted areas should be ripped and re-vegetated by using locally indigenous plants when required.
- Eroded areas should be rehabilitated to prevent siltation and erosion.
- Vehicle movement should be restricted to designated areas and not venture into the buffer area. Watercourses must be avoided, and a buffer implemented.
- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and clearance of vegetative cover must be restricted to the proposed footprint.
- Measures to reduce the velocity of water must be taken in areas prone to erosion.
- Should there be any spillage of hazardous substances during the establishment phase, soil must be removed up to a depth of 300mm and disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.

7.1.6 Impact on Water Resources

Description of the potential impact

In terms of the freshwater ecological classification, the project area falls within an Ecological Support Area (important sub-catchment) and sub-categories include National Freshwater Ecosystems Priority Areas (NFEPA) as well as Fish Support Areas. This requires that management activities be focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment. The Nkomazi River (Komati) is situated in the middle of the entire study area and various wetland areas are also located within the perimeter of the area.

Water resources could be impacted by the following during the establishment phase:

- Removal of riparian vegetation.
- Activities within the identified wetland areas.
- Pollution of water resources.

Significance of the impact

If any activities were to take place within the river and the delineated wetland areas, water resources would be impacted negatively. All accommodation pods are however proposed outside any identified watercourse or wetland area; however, some are located within a relatively close proximity (30m from the edge of the watercourse). The magnitude of the impact is therefore regarded to be medium. The short duration and site-specific extent of the impact, reduces the significance of the impact to be **low** prior to the implementation of mitigation measures.

TABLE 12: IMPACT ON WATER RESOURCES

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--|-------------------|---------------|------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Impact on water resources [NEGATIVE] | Medium | Site Specific | Short-term | Probable | Low | Very Low |

Mitigation measures

- Vehicle movement should be restricted to designated areas and not venture into the buffer area. Watercourses and drainage lines must be avoided, and a buffer implemented.
- In the event of a breakdown or emergency repair, any accidental spillage must be cleaned up or removed immediately.
- All construction equipment and machinery must be maintained in good order. Regular checks must be undertaken for leaks, and any found must be repaired immediately.

- The Site Environmental Officer/Lodge Manager must ensure that reasonable precautions are taken to prevent the pollution of the ground and water resources on and adjacent to the sites during the construction phase.
- No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of clothes etc. All washing operations will take place at a location where wastewater can be disposed of in an acceptable manner.
- Buffer zones may be necessary to include maximum grassland habitat and to consider erosion-prone areas. These buffer zones should be implemented to protect the river and wetland areas within the project area.
- The contractor must maintain good housekeeping practices that ensure that all work sites are kept tidy and litter-free, ensuring no runoff of refuse into surrounding watercourses.
- All contaminated soil is to be excavated to the depth of contaminant penetration and disposed of at an appropriate landfill site.
- Water use must be monitored and used sparingly.
- Management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

7.1.7 Impact on Heritage Resources

Description of the potential impact

A Heritage Impact Assessment was conducted and revealed several Late Iron Age stonewalls within the study area. Most of the LIA stone walls have been impacted by road infrastructure and historical agricultural activities. The LIA are fairly intact although the walls are not in good condition. Some structures associated with recent farming activities were also observed but are of no significance. No archaeological, or cultural heritage features or graves were identified within the perimeter of the proposed accommodation pods 1, 2, 3, 4, 7, 8, 10, 11 and 12 and the development may continue as proposed within these identified areas.

Late Iron Age stone walls which could negatively be impacted by the proposed accommodation pods, or which will indirectly be impacted when the sites are accessed, are situated at accommodation pods 5, 6, 9, 13, 14 and 15.

Significance of the impacts

The indistinct LIA stone walls may have significance in terms of section 3(3) of the NHRA and have importance to a certain community in the history of South Africa. The LIA stone wall has the potential to yield information that will contribute to the understanding of South Africa's natural or cultural heritage or have a strong association with a particular community or cultural group for social, cultural or spiritual reasons.

The Late Iron Age stone walled settlements which were identified during the survey, are rated as of "Low significance" which means that they have local value or significance as specified by the NHRA.

These sites need to be protected from any activity which might negatively impact these sites, and it is recommended that they be preserved in situ. The following sites should be preserved:

Pod 5: A clear circular stone wall (S 25° 57' 45.01" E 30° 42' 31.03"). It is recommended that the site be moved towards the north, between two boulders, where no archaeological features were observed.

Pod 6: The LIA stone walled settlement with a terrace wall (S 25° 57' 44.82" E 30° 42' 30.38") at its perimeter and another circular stone wall (S 25° 57' 43.50" E 30° 42' 31.92" towards the north (outside of the footprint). Two lower grinders (S 25° 57' 43.99" E 30° 42' 28.60") were also identified. An alternative site is proposed which is situated towards the west and outside of the stone walled settlement.

Pod 9: Two distinct LIA stone walls (S 25° 57' 40.86" E 30° 42' 18.12") An alternative site is proposed as the new site for Pod 9.

Pod 13: Some indistinct LIA stone walls (S 25° 59' 07.22" E 30° 45' 57.46" & S 25° 59' 04.26" E 30° 45' 57.26") were identified at the site for Pod 13. It is suggested that the proposed area for development move towards the west, away from where the stone walls were observed.

Pod 14: An extensive LIA stone-walled settlement (S 25° 59' 12.03" E 30° 45' 36.06" & S 25° 59' 11.04" E 30° 45' 35.03" & S 25° 59' 11.07" E 30° 45' 36.00") was identified, Access to the site should move to the south of the proposed development and development activities should avoid the LIA settlement completely.

Pod 15: The current access road towards the site is located in the middle of the LIA stone-walled settlement (S 25° 58' 48.94" E 30° 44' 42.90"). This settlement is still in very good condition and must not be negatively impacted by the development activities. Mitigation measures are recommended to avoid further impact on the LIA stone-walled settlement, and therefore care must be taken not to disturb the LIA site during access, or by activities for the proposed development.

The magnitude of the impact on heritage resources is **medium**, however, with mitigation measures implemented, the impact will be reduced to be of **low** significance. Should the developer adhere to the mitigation as set out in the specialist report (also see section 4.8 of BA Report), the development may continue in the areas as indicated within the report.

TABLE 13: IMPACT ON HERITAGE RESOURCES

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|---|-------------------|----------------------|------------------|-----------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Heritage resources [NEGATIVE] | Medium | Site-specific | Long-term | Probable | Medium | Low |

Mitigation measures

- Alternative sites were investigated and proposed for accommodation pods 5, 6 and 9 (section 4.8) and if these alternative sites are used for the accommodation pods, the impact on heritage resources/structures would be mitigated.
- Indistinct LIA stone walls were identified in the eastern section of the proposed accommodation pod 13. The proposed site must move slightly to the west, to avoid any impact on the stone walls.
- Access roads to the sites must avoid the LIA sites, and the access road to accommodation pods 14 must move towards the south to prevent any disturbance to the identified LIA stonewalls.
- The access road to accommodation pod 15, which runs through the LIA settlement, cannot move due to topography constraints. For this reason, the road may not be widened or upgraded, in order to ensure that the stone walls are protected. Care must be taken not to disturb the LIA site during access, or by activities for the proposed accommodation pods.
- Distinct archaeological material or human remains may only be revealed during the development of the proposed agricultural operations. In such instances, a qualified archaeologist must be contacted to monitor the activities and make recommendations.
- Should the farm owner wish to remove the LIA stone wall, a Phase 2 heritage investigation must be conducted, which will include a full documentation and research project with the scientific (archaeological) excavations of the stone walled area. After such investigation, the landowner may apply for a destruction permit from SAHRA (at the cost of the Landowner).
- Should the section of the stone wall be excluded from the proposed development, a buffer zone must be established around the site to ensure the preservation of the site and any possible future research, if required.

7.1.8 Socio-economic Impact

Description of the potential impact

During the construction activities, various temporary job opportunities will be created. In terms of safety and security, there is always risk associated when working with machinery and therefore all workers must comply with the Health and Safety Act 85 of 1993.

Significance of the impacts

Based on the methodology detailed in **Section 6**, the following ratings have been assigned to the 'employment opportunities and impact associated with the health and safety of employees, respectively.

The job opportunities during the construction phase are short term and therefore the impact is only of **medium (+)** significance. In terms of the health and safety aspects of the workforce, the significance of the impact has been rated to be of **very low** significance after the implementation of the mitigation measures due to the short construction timeframe. Mitigation measures must be adhered to.

TABLE 14: SOCIO-ECONOMIC IMPACT

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--|-------------------|---------------|------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Job opportunities [POSITIVE] | Medium | Local | Short-term | Definite | Medium (+) | Medium (+) |
| Health and Safety [NEGATIVE] | Medium | Site-specific | Short-term | Probable | Low | Very Low |

Mitigation measures

- The applicant and/or project manager must ensure that local residents receive preference for job opportunities where local labour might be required.
- It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

7.2 Operational Phase Impacts

During operation, the activities are likely to result in the following environmental and socio-economic impacts:

- *Generation of waste.*
- *Impact on soil.*
- *Impact on water resources.*
- *Impact on heritage resources.*
- *Socio-economic.*

7.2.1. Generation of Waste

Description of the potential impact

Throughout the operational phase, the increased influx of tourists utilizing the accommodation will result in the production of additional waste. The accumulation of this waste can potentially pose various health and safety risks, particularly in the context of a Game Reserve, where it can have repercussions on the well-being of wildlife and the preservation of the natural environment. Considering this, the improper accumulation, storage, and disposal of waste could adversely affect the reserve if not properly managed.

Significance of the impact

The impacts associated with the generation of waste will be of a medium magnitude, site-specific, and extend over the long term. However, with the implementation of mitigation measures, the significance of this potential impact is expected to be **low** after mitigation efforts are put in place.

TABLE 15: WASTE GENERATION

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|---------------------------------------|-------------------|---------------|------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Waste generation [NEGATIVE] | Medium | Site-specific | Short-term | Probable | Low | Very Low |

Mitigation measures

- Dry chemical toilets must be made available at a ratio of 1:15 at the construction site and must be cleaned and serviced regularly.
- The contractor may not dispose of any waste and/or construction debris by burning or burying it. An adequate number of appropriate refuse bins must be provided at the construction site for refuse and solid waste. This waste should be removed regularly to a registered dumping site for disposal.
- All waste must be transported in an appropriate manner (e.g., plastic rubbish bags). A specific site should also be allocated for construction waste e.g., empty cement bags etc. A low temporary fence may be erected around such a site in order to contain the waste and assist in the effective removal thereof from the site.
- Hazardous waste will be removed and taken to a registered hazardous waste disposal facility.

7.2.2. Impact on Soil

Description of the potential impact

One of the potential impacts that the accommodation pods may have on the receiving environment is that of erosion of surface soils. If areas are not properly rehabilitated and revegetated following construction, the possibility of erosion occurring, could increase.

It is also noted that the accommodation pods would be making use of septic tanks to dispose effluent. If, septic tanks are not maintained regularly, it could result to the overflow of untreated effluent, polluting the soil surrounding the septic tanks.

Significance of the impact

Due to the topography of some of the accommodation pod sites, the possibility of erosion occurring on site is of medium magnitude. The impact is site specific and of long-term duration and for this reason, the impact is rated to be of **medium** significance prior to the implementation of mitigation measures. Mitigation measures to minimise the possibility of erosion will however reduce the significance of the impact to be of **low significance**.

Soil pollution during operation is restricted to the possibility of the septic tank malfunctioning. The magnitude of this impact is medium, as natural functions could be notably altered. The impact is however site specific but of medium-term duration and for this reason the impact is of **medium** significance prior to the implementation of mitigation measures.

TABLE 16: IMPACT ON SOIL

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|------------------------------|-------------------|---------------|-------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Erosion [NEGATIVE] | Medium | Site Specific | Long-term | Probable | Medium | Low |
| Soil Pollution [NEGATIVE] | Medium | Site Specific | Medium-term | Probable | Medium | Low |

Mitigation measures

- Investigate the accommodation pods following rain events and address any areas where erosion is noticed.
- Permanent measures must be taken on areas prone to erosion. These measures can include gabions or revegetation of riparian areas.

- As far as possible all cleared areas should be rehabilitated and re-vegetated with indigenous plant species.
- The site footprint must be adhered to and not extended past the perimeter of the site. Guests are briefed to stick to pathways and not create new pathways or trample the natural vegetation in the area.
- Septic tanks must be maintained and checked regularly to ensure that the tanks are in working order.

7.2.3. Impact on Water Resources

Description of the potential impact

Water will be supplied to the developed infrastructure via the existing borehole on the property. No activities are proposed within the adjacent watercourses; however, water resources could be impacted by the following:

- Excessive water use.
- Unmaintained septic tanks – untreated effluent polluting nearby water resources.

Significance of the impact

Water is a scarce resource in South Africa and therefore unsustainable abstraction can change the natural flow regime of watercourses in the area which will result in lower flows and reduced water table levels. The applicant does however not intend to extract more than what is required and approved as per their existing water rights. As water is a scarce commodity, the impact is of **medium** significance and appropriate measures must be adhered to ensure proper management of water use.

The watercourse could also be affected negatively if activities were to take place within the riparian areas (i.e., removal of riparian vegetation), or within a close proximity to wetland areas or watercourses. The operational activities could lead to increased sedimentation if activities are undertaken near watercourses. The impact is rated to be of medium magnitude, site-specific extent and medium-term duration. For this reason, the impact is regarded to be **medium** prior to the implementation of mitigation measures.

As for the pollution of water resources, it is noted that malfunctioning septic tanks could lead to the pollution of surrounding water bodies (surface and groundwater). This impact is regarded to be of medium magnitude, local extent and medium-term duration and for this reason the impact is also rated to be of **medium** significance.

TABLE 17: IMPACT ON WATER RESOURCES

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|---|-------------------|--------|-------------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Water resource use [NEGATIVE] | Medium | Local | Long-term | Probable | Medium | Low |
| Impact on water resources, sedimentation [NEGATIVE] | Medium | Local | Medium-term | Unlikely | Medium | Low |
| Water pollution [NEGATIVE] | Medium | Local | Medium-term | Unlikely | Medium | Low |

Mitigation measures

- Water should be used responsibly, and water abstraction must be regulated and monitored.
- No activities may take place within riparian/buffer zones and all cleared areas should be rehabilitated and re-vegetated with indigenous plant species.
- Septic tanks must be maintained and checked regularly to ensure efficient treatment of effluent.

7.2.4. Impact on Heritage Resources

Description of the potential impact

Most of the LIA stone walls have been impacted by road infrastructure and historical agricultural activities. The LIA are fairly intact although the walls are not in good condition. During operation, the LIA stone walls must continue to be protected.

Significance of the impact

The LIA stone wall has the potential to yield information that will contribute to the understanding of South Africa's natural or cultural heritage or have a strong association with a particular community or cultural group for social, cultural or spiritual reasons. For this reason, the protection of these heritage

resources is of medium magnitude, site specific extent and long-term duration. The impact is subsequently rated to be of medium significance prior to the implementation of mitigation measures.

TABLE 18: HERITAGE RESOURCES

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|---|-------------------|---------------|-----------|-------------|---------------|------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Impact on heritage resources [NEGATIVE] | Medium | Site-Specific | Long term | Probable | Medium | Low |

Mitigation Measures

- Should the Client wish to incorporate the LIA settlements as a tourist attraction or if any activities will take place within these sections, mitigation measures will be required, such as full documentation of the sites (to determine the layout pattern and possible age), as well as a management plan with guidelines to preserve it.
- Should the Client wish to develop the sites where LIA stone walled settlements were identified, the following processes need to be followed: a Phase 2 investigation: This will include excavations and/or shovel test pits (STP) which should be done at the sites to determine the scientific value before a destruction permit may be applied for (from SAHRA).

7.2.5. Socio-economic Impact

Description of the potential impact

The operation of the lodge will add further positive socio-economic opportunities to the local community (both direct and indirect benefit). The proposed development corresponds with current land use objectives, and it is anticipated that there will be a positive impact on the community in the form of provision of additional permanent employment.

Significance of the impact

Based on the methodology detailed in **Section 6**, the following ratings have been assigned to the 'employment opportunities' impact before and after mitigation. As additional job opportunities are limited, the impact is of **medium (+)** significance.

TABLE 19: SOCIO-ECONOMIC IMPACT

| IMPACT | BEFORE MITIGATION | | | | | AFTER MITIGATION |
|--|-------------------|--------------|------------------|-----------------|-------------------|-------------------|
| | Magnitude | Extent | Duration | Probability | Impact Rating | Impact Rating |
| Job opportunities [POSITIVE] | Medium | Local | Long-term | Definite | Medium (+) | Medium (+) |

Mitigation measures

Creating jobs and business opportunities for the local community will have a positive impact. No mitigation measures would be required to further enhance this impact; however, the applicant must ensure that local residents receive preference for job opportunities.

7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the construction and operational activities proposed for the project:

TABLE 20: ENVIRONMENTAL IMPACT STATEMENT

| IMPACT | SIGNIFICANCE BEFORE MITIGATION MEASURES | SIGNIFICANCE AFTER MITIGATION MEASURES |
|---|---|--|
| Construction Phase Impacts | | |
| Loss of Vegetation | Low | Very Low |
| Loss of Important Species | Low | Very Low |
| Loss and Fragmentation of Habitat | Low | Very Low |
| Impact on Riparian Zones and Aquatic Biodiversity | Low | Very Low |
| Generation of Dust | Low | Very Low |
| Generation of Waste | Low | Very Low |
| Erosion | Low | Very Low |
| Soil Pollution | Low | Very Low |
| Impact on Water Resources | Low | Very Low |
| Water Pollution | Low | Very Low |
| Impact on Heritage Resources | Medium | Low |
| Job opportunities | Medium (+) | Medium (+) |
| Health and Safety | Low | Very Low |
| Operational Phase Impacts | | |
| Generation of Waste | Low | Very Low |
| Erosion | Medium | Low |
| Water Resource Use | Medium | Low |
| Impact on Water Resources, Sedimentation | Medium | Low |
| Impact on Heritage Resources | Medium | Low |
| Job opportunities | Medium (+) | Medium (+) |

8. CONCLUSION AND WAY FORWARD

8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the construction and operation of Nkomazi Game Reserve accommodation pods.
- The conclusion and recommendations proposed are based solely on the information, and scope of works as agreed with the proponent.

8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with the construction and operational activities concluded that the impact on the surrounding environment is of **low significance** after the implementation of mitigation measures. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within Section 7 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 7**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation measures included as the conditions of the authorisation.

8.2 Way Forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DFFE) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be submitted to the DFFE for decision-making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

9. REFERENCES

General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)

Integrated Site Sensitivity Verification Report for Nkomazi Game Reserve, July 2023, D van der Walt

IUCN World Heritage Evaluations, 2018

Mpumalanga Biodiversity Conservation Plan, 2014

Mpumalanga Biodiversity Conservation Plan, 2014

National Environmental Management Act 107 of 1998 (NEMA 107, 1998).

National Water Act 36, 1998

Phase 1 Archaeological and Heritage Impact Assessment for Nkomazi Game Reserve, September 2023, C van Wyk Rowe