FINAL BASIC ASSESSMENT REPORT

Project Reference Number: NWP/EIA/24/2017

Proposed Development of a 1Ml Reservoir at the Bakubung Lodge, Pilanesberg National Park, North West Province

Prepared by:

NuLeaf PLANNING & ENVIRONMENTAL

August 2017

TABLE OF CONTENTS

FOREWORD

This report constitutes the **Final Basic Assessment Report**, and has been circulated digitally for Stakeholder information on 25 August 2017.

NuLeaf Planning and Environmental would like to thank all Stakeholders for their participation and input into this process.

Please mark all comments for the attention of:

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LIST OF APPENDICES

ACRONYMS AND ABBREVIATIONS

BA:	Basic Assessment
BAR:	Basic Assessment Report
CBA:	Critical Biodiversity Area
CMP:	Construction Management Plan
DWS:	South African National Department of Water and Sanitation
EA:	Environmental Authorisation
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
EIR:	Environmental Impact Report
EMPr:	Environmental Management Programme
EMS:	Environmental Management System
EO:	Environmental Officer
I&AP:	Interested and Affected Party
IDP:	Integrated Development Plan
IEM:	Integrated Environmental Management
LED:	Local Economic Development
NEMA:	National Environmental Management Act, Act No. 107 of 1998
NEMPAA:	National Environmental Management: Protected Areas Act, Act No. 57 of 2003
NPAES:	National Protected Area Expansion strategy
OMP:	Operational Management Plan
SAHRA:	South African Heritage Resources Agency

GLOSSARY OF TERMS

Alien Vegetation:	Alien vegetation defined as undesirable plant growth which shall include, but not be limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations.
Alien Species: indigenous.	A plant or animal species introduced from elsewhere: neither endemic nor
Alternatives:	In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to: (a)The property on which or location where it is proposed to undertake the activity; (b) The type of activity to be undertaken; (c) The design or layout of activity; (d) The technology to be used in the activity; and (e) The operational aspects of the activity
Applicant:	Any person who applies for an authorization to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010.
Buffer zone:	Is a collar of land that filters out inappropriate influences from surrounding activities, also known as edge effects, including the effects of invasive plant and animal species, physical damage and soil compaction caused by trampling and harvesting, abiotic habitat alterations and pollution. Buffer zones can also provide more landscape needed for ecological processes, such as fire.
Construction Activity:	Any action taken by the Contractor, his subcontractors, suppliers or personnel during the construction process.
Ecology: environments.	The study of the inter relationships between organisms and their
Environment:	All physical, chemical and biological factors and conditions that influence an object and/or organism.
Environmental Impact:	An Impact or Environmental Impact is the degree of change to the environment, whether desirable or undesirable, that will result from the effect of a defined activity. An Impact may be the direct or indirect consequence of the activity and may be simple or cumulative in nature.

Environmental Impact Assessment: Assessment of the effects of a development on the environment.

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

Indigenous:	Means a species that occurs, or has historically occurred, naturally in a free state within the borders of South Africa. Species that have been introduced to South Africa as a result of human activity are excluded (South Africa (Republic) National Environmental Management: Biodiversity Act, 2004: Chapter 1).
Interested and Affected Party:	Any person, group of persons or organization interested in or affected by an activity contemplated in an application, or any organ of state that may have jurisdiction over any aspect of the activity.
Invasive vegetation:	Plant species that show the potential to occupy in unnatural numbers, any disturbed area, including pioneer species.
Mitigate:	The implementation of practical measures to reduce adverse impacts Public Participation Process: is a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.
Public Participation:	The legislated process contemplated in terms GN R543, in which all potential interested and affected parties are informed of the proposed project and afforded the opportunity to input, comment and object. Specific requirements are listed in terms of advertising and making draft reports available for comment.
Road Reserve:	The road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.
Road Width:	The area within the Road Reserve including all areas beyond the Road Reserve that are affected by the continuous presence of the road i.e. the verge.
Red data plant species:	Are fauna and flora species that require environmental protection based on the World Conservation Union (IUCN) categories and criteria.
RoD:	Record of Decision pertaining to the Application for Environmental Authorisation issued by the Competent Authority. The RoD is legally binding on the Applicant and may contain a positive or negative decision on the Application as well as conditions and provisions for each.
Soil Compaction:	Mechanically increasing the density of the soil, vehicle passage or any other type of loading. Wet soils compact easier than moist or dry soils.

Species:	Means a kind of animal, plant or other organism that does not normally interbreed with individuals of another kind. The term "species" include any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population (South Africa [Republic] National Environmental Management: Biodiversity Act, 2004: Chapter 1).
The Contractor:	The contractor, as the developers agent on site, is bound by the ROD and EMP conditions through his/her contract with the developer, and is responsible for ensuring that conditions of the EMP and ROD are strictly adhered to at all times. The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site agent in terms of the EMPr.
The Developer:	Remains ultimately responsible for ensuring that the development is implemented according to the requirements of the EMP and the conditions of the Environmental Decision throughout all phases of the project.
The Environmental Control Officer (ECO):	The ECO is appointed by the developer as an independent monitor of the implementation of the EMP i.e. independent of the developer and contractor.
The Environmental Officer (EO):	The Contractor shall submit to the Site Agent a nominated representative of the Contractor as an EO to assist with day to day monitoring of the construction activities for the contract.
Vegetation:	Is a collective word for plants occurring in an area.
Vulnerable:	A taxon is 'Vulnerable' when it is not 'Critically Endangered' or 'Endangered' but is facing a high risk of extinction in the wild in the medium term future.
Watercourse:	A river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; and any collection of water which the Minister may by notice in the Government Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks" (South Africa [Republic] National Water Act, 1998).

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(For official use only)

Provincial Reference Number:	
NEAS Ref Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications.
2. This report format is current as of **December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. The use of "not applicable" in the report must be done with circumspection. An incomplete report or that does not meet the requirements in terms of Regulation 19 of the NEMA EIA Regulations, 2014, will be rejected to be revised and be resubmitted.
6. The report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The signature of the Environmental Assessment Practitioner (EAP) on the report must be an original.
9. The report must be compiled by an independent EAP.
10. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
11. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
12. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
13. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
14. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

1. PROJECT DESCRIPTION

a) Describe the project in association with the listed activities applied for

Construction of a new 1 Ml (1000 m^3) potable water storage reservoir to replace the various existing, aging and leaking potable water storage reservoirs at Bakubung Lodge, in the Pilanesberg National Park. As part of the proposed development the existing electric fence will need to be extended to include the proposed site within the Bakubung Lodge boundary. This will allow for safe access to the Reservoir by the lodges maintenance staff, as well as, ensure the reservoir isn't damaged by wildlife such as elephant in search of water.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN R.327, 325 and 324	Description of project activity
Example: ***GN R.983 Activity 12(iii): The development of a bridge exceeding 100 square metres where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such development will occur within existing roads or roads reserve.***	***A bridge measuring 10m in length, 12 metres wide will be built over the Crocodile river***
GN R. 324 Activity 2 (h) (ii): The development of reservoirs for bulk water supply excluding dams, with a capacity of more than 250 cubic meters.	Construction of a 1000 cubic meter potable water reservoir to replace the existing aging reservoirs currently on site.
GN R. 324 Activity 12 (h) (ii): The clearance of an area of 300 square meters or more of indigenous vegetation.	Clearance of an area of not more than but likely less than 1000 square meters of indigenous vegetation. Vegetation cleared will not exceed 1 Ha.

c) Property description/physical address

Province	North West
District Municipality	Bojanala Platinum District Municipality
Local Municipality	Moses Kotane Local municipality
Ward Number(s)	Ward 14
Farm name and number	Ledig 909 JQ
Portion number	Portion 6
21 digit Surveyor General Code	TOJQ00000000090900006

Where a large number of properties are involved (e.g. linear activities) please attach a full list to this application including the same information as indicated above

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", **in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—**

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by EIA Regulation, 2014 Appendix 1(h). Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds using the Hartebeeshoek94 WGS84 co-ordinate system.

a) Site alternatives

List alternative sites, if applicable.

Site Alternatives	Description
Preferred Alternative (only site alternative)	The proposed reservoir site is situated south of the existing Bakubung Lodge Staff Accommodation. It is within the hills near the southern boundary of Pilanesberg National Park. The vegetation within the proposed reservoir footprint has been significantly impacted by bush clearing, possibly from the nearby transmission line route. No alternatives have been considered for this development due to the nature of the activity - infrastructure upgrades. Refer to **Appendix A** for the Locality Map.
Alternative Site 2	
Alternative Site 3	

Site Co-ordinates	Latitude (S):			Longitude (E):		
Alternative S1 (only site alternative)	25°	20'	51.48"	27°	3'	17.67"
Alternative S2 (if any)	°	'	"	°	'	"
Alternative S3 (if any)	°	'	"	°	'	"

In the case of linear activities:

Alternative:	Latitude (S):			Longitude (E):		
Alternative S1 (preferred route alternative)						
• Starting point of the activity	°	'	"	°	'	"
• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"
Alternative S2 (if any)						
• Starting point of the activity	°	'	"	°	'	"
• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"
Alternative S3 (if any)					'	"
• Starting point of the activity	°	'	"	°	'	"
• Middle/Additional point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 metres along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

b) Lay-out alternatives

Alternatives	Description
Alternative 1 (only alternative)	
Alternative 2	
Alternative 3	

c) Technology alternatives

Alternatives	Description
Alternative 1 (only alternative)	
Alternative 2	
Alternative 3	

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternatives	Description
Alternative 1 (only alternative)	
Alternative 2	
Alternative 3	

e) No-go alternative

The No-go Alternative implies that the development of the proposed Bakubung Reservoir will not take place. In this scenario, the receiving environment will not be impacted upon negatively in any manner, with particular reference to protected flora.

However, it should also be noted that no positive impacts will be realized such as reduction in potable water wastage due to aging / leaking infrastructure. This would not be ideal owing to the fact that South Africa is currently experiencing drought conditions and any means of water saving measures should be taken to ensure that no amount of potable water is wasted.

In light of the above, as well as the fact that all negative impacts can be adequately mitigated and managed, it is not recommended that the No-go Alternative be supported.

f) **Please motivate for preferred site, activity and technology alternative**

No alternatives have been considered for this development due to the nature of the activity, infrastructure upgrades.

Advantages of the proposed activity include the following:

- The continued operation of the current system is labor and energy intensive and does not function efficiently as such the location of the proposed reservoir will result in a reduction of energy cost needed as potable water will be gravity fed into the existing water reticulation network.
- Continued operation of the existing potable water network is leading to fatigue on the network with water wastage in the form of pipeline leakage and regular maintenance. Operation of the new facility will increase the lifespan of the existing potable water network and reduce fatigue and maintenance on the system. This will translate into water savings.
- Total affected area will be reduced from 560m^2 to 380m^2. The proposed reservoir will also be located in and areas where minimal clearance of vegetation will be needed.

Disadvantages of the proposed activity include the following:

- An additional small area of indigenous vegetation will need to be cleared resulting in an expansion of Bakubung Lodge's development footprint.
- Potential risk to species of conservation importance.

The advantages outweigh the disadvantages with regards to the proposed infrastructure upgrade. South Africa is currently experiencing drought conditions, as such, any means of water saving measures should be taken to ensure that no amount of potable water is wasted.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	1200 m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	m^2
Alternative A2 (if any)	m^2
Alternative A3 (if any)	m^2

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4. SITE ACCESS

Does ready access to the site exist?	**YES**
If NO, what is the distance over which a new access road will be built	**m**

Describe the type of access road planned:

Access to the site is via the Bakubung Gate. Bakubung Gate is easily accessible from the R565 to the Pilanesberg Game Reserve, and from Bakubung Gate, an existing road gives access to the Lodge. No additional access road is required as the site lies off the existing road.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- the accurate indication of the site in relation to closest protected environments or national parks (i.e. within 2.5 km)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds using the Hartebeeshoek94 WGS84 co-ordinate system

Please refer to Appendix A.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix B to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;

- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

Please refer to Appendix B.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by Department of Water and Sanitation);
- ridges;
- for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas and ecological support area.
- protected areas (e.g Magaliesberg Protected Environment, Pilanesberg National Park etc.)

The sensitivity map must also cover areas within 100m of the site and must be part of Appendix B.

Please refer to Appendix B.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix C to this report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Please refer to Appendix C.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix D for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	**YES**		**Please explain**
The activity is permitted as it is considered infrastructure upgrades at the existing Bakubung Lodge.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
(b) Urban edge / Edge of Built environment for the area		**NO**	**Please explain**
The development is within a Protected Area, the Pilanesberg National Park. The urban edge is not applicable to the proposed development.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
(d) Approved Structure Plan of the Municipality		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			

(f) Any other Plans (e.g. Guide Plan)		**NO**	**Please explain**
Not applicable.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park, as a result the proposed development is not subject to specified SDF timeframes.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)		**NO**	**Please explain**
The project is not a societal priority in terms of both the national and well as local context. This project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix E.)	**YES**		**Please explain**
Potable water will continue to be sourced from Sun City, solid waste will also not be produced for the proposed activity and potential electricity usage will not exceed current usage. Thus the proposed activity will have no implication on municipal capacity available.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)		**NO**	**Please explain**
Potable water will continue to be sourced from Sun City, solid waste will also not be produced for the proposed activity and potential electricity usage will not exceed current usage. Thus the proposed activity will have no implication on municipal infrastructure planning			
7. Is this project part of a national programme to address an issue of national concern or importance?		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park, and as such, does not address any issue of national concern or importance.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES**		**Please explain**
The development is within a Protected Area, the Pilanesberg National Park, where conservation and ecotourism are the primary land uses.			

9. Is the development the best practicable environmental option for this land/site?	**YES**		**Please explain**
This project serves part of infrastructure upgrades at Bakubung Lodge. The replacement of aging / leaking infrastructure will result in a reduction of potable water wastage.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**		**Please explain**
The benefits associated with the development of the proposed reservoir will be positive, contributing to a reduction of energy costs, increasing the lifespan of the existing potable water network, as well as, reducing fatigue and maintenance on the system. This will translate into water savings.Negative impacts may be mitigated thorough sensitive planning and other appropriate mitigation measures employed during construction and operation.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park, and as such, is not expected to set a precedent for the area.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		**NO**	**Please explain**
It is not anticipated that any person's rights will be affected on an individual basis. This includes visitors to Bakubung Lodge who come to enjoy an uncompromised natural experience.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		**NO**	**Please explain**
The activities are within a Protected Area, which is beyond the Urban Edge. The Urban Edge is therefore not applicable to this project.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		**NO**	**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park, and as such, does not contribute to any of the SIPS.			
15. What will the benefits be to society in general and to the local communities?			**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
16. Any other need and desirability considerations related to the proposed activity?			**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			
17. How does the project fit into the National Development Plan for 2030?			**Please explain**
Not applicable as this project serves part of infrastructure upgrades at Bakubung Lodge within the Pilanesberg National Park.			

18. Please describe how the general objectives of Integrated Environmental Management as set out in Section 23 of NEMA as amended have been taken into account.

The proposed project has been undertaken according to section 23 of the National Environmental Management Act (NEMA) (No 107 of 1998) and in this respect, the following has been considered:

- An Application for Environmental Authorization was filed with the Department
- A public participation process was implemented whereby all interested and affected parties, as well as, compliance authorities were identified and information distributed to them in the form of a Background Information Document; comprehensive advertisements were placed in a local newspaper; site notices were placed in and around the affected area and community.
- Specialist studies were conducted where it was deemed necessary.
- Potential impacts on the receiving environment in terms of aesthetics, biodiversity and cultural heritage and socio-economics have been assessed for all three phases of development (planning and design, construction and operational). Comprehensive and appropriate mitigation measures have been described for all identified impacts.

Other objectives of IEM that have been taken into account include the consideration of risks and consequences.

19. Please describe how the principles of environmental management as set out in Section 2 of NEMA as amended have been taken into account.

This Basic Assessment Process has been structured to ensure the principles as set out in Section 2 of NEMA are taken into account, and the BAR specifically responds to the following principles:

Environmental resources must serve the public interest: The proposed development of the proposed lodge will allow the public to benefit from the continued sustainable utilization of Bakubung Lodge and by extension Pilanesberg National Park.

Sustainable development: The development is underpinned by the principles of sustainability. Tread lightly and environmental sensitivity. The design, construction and operation of the facility will take into consideration the sensitivity of the site.

Pollution and degradation of the environment: The integrity of the natural environment is not expected to be compromised in any way. All other impacts will be mitigated and managed throughout the project lifecycle. Environmental audits will be conducted on a regular basis to ensure that the development is in line with the requirements of Section 2 of NEMA.

Public participation and stakeholder engagement processes: A public participation process has been implemented for this project. Stakeholders and compliance authorities have been identified, informed and invited to participate and provide comments. Other actions implemented are:

- Advertisements placed in a local newspaper
- Placement of site notices in and around the affected areas
- The distribution of a Background Information Document (BID) to all identified stakeholders.

Development must be socially, environmentally and economically sustainable: The development has been designed and planned to be socially, environmentally and economically sustainable, by:

- Mitigating environmental impacts.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
LEGAL FRAMEWORK			
Constitution of Republic of South Africa (Act No.108 of 1996):	This is the fundamental law of South Africa, setting out the Bill of Rights as well as the relationship of various government structures to each other.	National Government	1996
Conservation of Agricultural Resources Act (Act No. 43 of 1983):	Provides for control over the utilization of the natural agricultural resources of the Republic. The project will be required in terms of this legislation to ensure that: The soil mantle is protected and conserved, The natural water sources are protected, Vegetative cover is conserved and weeds and invader plants are removed from the site.	Department of Agriculture	1983
National Environmental Management Act (Act No. 107 of 1998)	To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.	Department of Environmental Affairs	1998
National Environmental Management: Protected Areas Act (Act No. 57 of 2003):	The Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas, and for matters in connection therewith. While the property is not a formally declared protected area, it does fall within the Waterberg Biosphere Reserve as recognized by UNESCO and an application for proclamation has been submitted.	Department of Environmental Affairs	2003
National Environmental	The purpose of the Biodiversity Act is to provide for the management and conservation of South	Department of	2004

Management: Biodiversity Act (Act No. 10 of 2004):	Africa's biodiversity within the framework set out by NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed (see below). The Act lists species that are threatened or require protection to ensure their survival in the wild, while regulating the activities, which may involve such listed threatened or protected species and activities which may have a potential impact on their long-term survival. The Act has listed flora and fauna species.	Environmental Affairs	
National Spatial Biodiversity Assessment, 2011:	The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.	Department of Environmental Affairs	2011
National Forests Act (Act No. 84 of 1998):	This Act provides for the management, utilisation and protection of forests through the enforcement of permitting requirements associated with the removal of protected tree species, as indicated in a list of protected trees (first promulgated in 1976 and updated since).	Department of Agriculture, Forestry and Fisheries	1998
National Veld and Forest Fire Act (Act No. 101 of 1998)	The purpose of this Act is to prevent and combat veld, forest and mountain fires throughput the Republic. The Act provides for a variety of institutions, methods and practices for achieving this purpose.	Department of Water Affairs	1998
National Heritage Resources Act (Act No. 25 of 1999)	The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments exceed 300 metres in length. Potential impact on cultural heritage, paleontological or archaeological resources through excavation activities or disturbance will need to be monitored. Permits may be required per the National Heritage Resources Act (Act No. 25 of 1999).	South African Heritage Resources Agency (SAHRA)	1999
The National Water Act (Act No. 36 of 1998)	This Act aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. The development will have to ensure that local water resources are protected, used, developed, conserved, managed and controlled in a responsible way.	Department of Water Affairs	1998
The National Water Services Act (Act No. 108 of 1997)	The Act legislates the necessity to provide for the rights of access to basic water supply and basic sanitation; to provide for the setting of national standards and of norms and standards for tariffs; to provide for water services development plans; to provide a regulatory framework for water services institutions and water services intermediaries; to provide for the establishment and disestablishment of water boards and water services committees and their powers and duties; to provide for the monitoring of water services and intervention by the Minister or by the relevant Province; to provide	Department of Water Affairs	1997

	for financial assistance to water services institutions; to provide for certain general powers of the Minister; to provide for the gathering of information in a national information system and the distribution of that information; to repeal certain laws; and to provide for matters connected therewith.		
National Environmental Management Waste Act (Act No. 59 of 2008)	The Waste Act reforms the law regulating waste management in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation. The development will be subject to this Act in terms of the disposal of waste.	Department of Environmental Affairs	2008
Hazardous Substances Act (Act No. 15 of 1973)	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.	Department of Health	1973
National Environmental management Air Quality Act (Act No. 39 of 2004)	To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.	Department of Environmental Affairs	2004
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993):	The purpose of this Act is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with, the activities of persons at work.	Department of Labour	1993
Integrated Environmental Management Information Series	IEM is a key instrument of NEMA and provides the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. The aim of the information series is to provide general information on techniques, tools and processes for environmental assessment and Management. ERM have referred to these various documents for information on the most suitable approach to the environmental assessment process for the proposed development.	Department of Environmental Affairs	1992

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	NO
If YES, what estimated quantity will be produced per month?	m^3

How will the construction solid waste be disposed of (describe)?

Not applicable as no solid waste will be generated.

Where will the construction solid waste be disposed of (describe)?

Not applicable as no solid waste will be generated.

Will the activity produce solid waste during its operational phase?	NO
If YES, what estimated quantity will be produced per month?	m^3

How will the solid waste be disposed of (describe)?

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Not applicable as no solid waste will be generated.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?		NO
If YES, what estimated quantity will be produced per month?		m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO

If YES, describe the type of effluent and the disposal mechanism/method

Will the activity produce effluent that will be treated and/or disposed of at another facility?		NO

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		**Cell:**	
E-mail:		**Fax:**	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Not applicable as this potable water reservoir.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?		NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

d) Waste Licence/Registration

Will any aspect of the activity produce waste that will require a waste licence/registration in terms of the NEM:WA?		NO

If YES, please submit evidence that an application for a waste licence/registration has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?		NO
If YES, is it controlled by any legislation of any sphere of government?	YES	NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	**Other ✓ Water is supplied from Sun City**	The activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	litres
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water and Sanitation?	NO

If YES, please provide proof that the application has been submitted to the Department of Water and Sanitation.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

The proposed reservoirs site is located in such a way that it will result in a reduction of energy cost needed to operate as potable water will be gravity fed into the existing water reticulation network.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources have been taken into account due to the nature of the proposed activity.

Has a specialist been consulted to assist with the completion of this section? NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix F.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, as it appears on the Site Plan.

2. Paragraphs 1 - 6 below must be completed for each alternative.

Current land-use zoning as per local municipality IDP/records:	Conservation

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

	1:50 – 1:20	

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	2.4 Closed valley	2.7 Undulating plain / low hills	
2.2 Plateau	2.5 Open valley	2.8 Dune	
2.3 Side slope of hill/mountain	2.6 Plain	2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)	[redacted]	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas		NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)		NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO	YES	NO	YES	NO
Any other unstable soil or geological feature		NO	YES	NO	YES	NO
An area sensitive to erosion		NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition[E]	**Natural veld with scattered aliens[E]**	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	[redacted]	NO	[redacted]
Non-Perennial River		NO	
Permanent Wetland		NO	

Seasonal Wetland	[redacted]	NO	[redacted]
Artificial Wetland		NO	

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Not applicable.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland [N]
Light industrial	Sewage treatment plant[A]	**Nature conservation area [N]**
Medium industrial [AN]	Train station or shunting yard [N]	**Mountain, koppie or ridge [N]**
Heavy industrial [AN]	Railway line [N]	Museum
Power station	Major road (4 lanes or more) [N]	Historical building [N]
Office/consulting room	Airport [N]	**Protected Area [N]**
Military or police base/station/compound	Harbour	Graveyard [N]
Spoil heap or slimes dam[A]	Sport facilities	Archaeological site [N]
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain

The impact of the proposed activity will be very low to the areas marked above. The proposed activity is intended in a very small area located at the base of a hill south of the existing Bakubung Lodge. The fence extension will encroach slightly up the hill, however the actual location of the reservoir was sifted closer to the existing fence line in order to avoid plant species of importance.

If any of the boxes marked with an "[AN]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "[H]" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		NO
Core area of a protected area?	YES	
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix B (as part of sensitivity map).

7. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix B to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category			**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
	Ecological Support Area (ESA)		This area is located within an ESA level 1 (Protected Area Corridor) area within the Pilanesberg National Park (a formally protected area). There are six Protected Area Corridors in North-West province, with the study area being located in the Pilanesberg-Madikwe Heritage Park. Ecological Support Areas (ESAs) are not necessarily essential for meeting biodiversity representation targets, but they play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering valuable ecosystem services.

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0 %	Not applicable
Near Natural (includes areas with low to moderate level of alien invasive plants)	100 %	The vegetation within the proposed reservoir footprint has been significantly impacted by bush clearing, possibly for the nearby transmission line route. A seed-base of invasive alien species is already present within the impact footprint, and invasion by these species could increase as bare soil is exposed; if well managed, this is likely to only have moderate significance.
Degraded (includes areas heavily invaded by alien plants)	0 %	Not applicable.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0 %	Not applicable.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	[redacted]	**Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)**
	Least Threatened	[redacted] **NO** [redacted]

c) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

BIODIVERSITY

The vegetation within the impact footprint is degraded and has been fairly recently cleared, possibly for maintenar of a nearby transmission line. As a result, few mature trees are present in the impact footprint and even these a damaged and coppicing. No threatened or near threatened species of flora or fauna were confirmed during fieldw and the site is considered to have low sensitivity. However, one species that is protected under the National For Act (Sclerocarya birrea) and two species that are protected under the North West Biodiversity Management A (Spirostachys africana, Pellaea calomelanos) were located. The study site is located within a large conservation ar in which numerous threatened species of fauna are present. However, given the close proximity to a busy lodge a the degraded state of the vegetation, few of these species are ever likely to utilise the habitats present.

The following recommendations can be made regarding the proposed development:

- If possible, the position of the water reservoir should be such that all Sclerocarya birrea a Spirostachys africana trees and shrubs are avoided; these trees and shrubs should be demarcat with emergency tape and the construction team should be given strict instructions to avoid the plants.
- The small fern Pellaea calomelanos can be carefully excavated and transplanted into suita representative habitat adjacent to the study site.
- Where possible, no new roads should be constructed but the existing gate at the Bakubung fer should be reopened and upgraded to allow access to the proposed reservoir site.
- Poaching could be a significant threat. If any external labour teams are used during constructi then these teams should preferably be accommodated off site; if this is not possible then tea should be carefully monitored to ensure that no unsupervised access to plant and animal resourc takes place.

There are no perceived fatal flaws in this project from a terrestrial ecology perspective. If the above mitigat measures are implemented then there should be no significant negative impacts on the ecology of the site.

Please refer to Appendix G.1

8. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	NO

Not applicable, no signs of culturally or historically significant elements where found.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A comprehensive heritage impact assessment investigation was undertaken in accordance with the provisions of Sections 38(1) and 38(3) of the National Heritage Resources Act (Act No. 25 of 1999) and focused on the survey results from a cultural heritage survey.

Stone Age settlements
No Stone Age settlements, structures, features, assemblages or artefacts were recorded during the survey.
Iron Age settlements
No Late Iron Age artefacts, structures, features or settlements were identified during the survey.
Graveyards
No Graveyards or individual graves were identified.
Historical structures
No historical buildings or structure were recorded.

No cultural heritage remains will be impacted on during the construction and operational phases of the proposed development. It is therefore recommended, from a cultural heritage perspective that the proposed mining activities may proceed.

However, please note:
Archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (cf. NHRA (Act No. 25 of 1999), Section 36 (6)).

Will any building or structure older than 60 years be affected in any way?	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

9. PALAEONTOLOGICAL

A desktop Palaeontological Impact Assessment for the proposed construction of a reservoir for Bakubung Lodge in the Pilanesburg National Park was undertaken by Prof Marion Bamford.

The rocks in the area are the ancient Pilanesburg Complex which comprises a series of volcanic eruptions and younger dykes. The rocks to the south of the site are plutonic gabbros of the Pyramid Gabbronorite, of the Bushveld Complex. Such volcanic and plutonic rocks do not contain any fossils. There is no chance of finding fossils anywhere in the Pilanesburg National Park. It is concluded that the project may continue as far as the palaeontology is concerned and no further palaeontological assessments are required.

10. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The socio-economic analysis indicated that Moses Kotane Local Municipality has an unemployment rate of 51%. This situation is compounded by low education level.

Economic profile of local municipality:

The economy of Moses Kotane is characterized mainly by tourism, mining, agriculture owing to its location within the major tourism and mining belt of the North West province, Pilanesberg and Sun City. Industry and social services also form critical part of the local economy.

Level of education:

As of 2011 the level of education in the Moses Kotane Local Municipality is as follows, the literacy rate is at 94.4%, whereas 10.4% of people over 20 years have had no schooling and only 5.9% have completed higher education.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R750 000.00
What is the expected yearly income that will be generated by or as a result of the activity?	R0
Will the activity contribute to service infrastructure?	NO
Is the activity a public amenity?	NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Zero
What is the expected value of the employment opportunities during the development and construction phase?	R0
What percentage of this will accrue to previously disadvantaged individuals?	0%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Zero, will be maintained by existing Maintenance Staff
What is the expected current value of the employment opportunities during the first 10 years?	R0
What percentage of this will accrue to previously disadvantaged individuals?	0%

11. SPECIALIST(S) CONSULTATION

Has a specialist been consulted to assist with the completion of this section? **YES**

If YES, please complete the form entitled “Details of specialist and declaration of interest” for each specialist thus appointed and attach it in Appendix F. All specialist reports must be contained in Appendix G and must meet the requirement in Appendix 6 of EIA Regulations, 2014.

SECTION C: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

12. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
Preferred Alternative			
Planning and design phase	***Direct impacts:***		
	Ground water		
	None		
	Hydrology (surface water)		
	None		
	Soil		
	Erosion risk	7 N	EMPr section 7.1 & 7.2
	Air		
	None		
	Biodiversity (Flora)		
	Risk to Pilanesberg Mountain Bushveld	21 L	EMPr section 7.1 & 7.2
	Risk to sensitive habitats	21 L	
	Risk to Conservation Important Species and protected trees	20 L	
	Risk of alien plant invasion	20 L	
	Biodiversity (Fauna)		
	Risk of habitat fragmentation	14 L	EMPr section 7.1 & 7.2
	Land Use & Agricultural Potential		
	None		
	Heritage		
	None		
	Visual		
	Risk to visual quality and sense of place	33 M	EMPr section 7.2 & 7.3
	Socio-economics		
	None		

Activity	Impact summary	Significance	Proposed mitigation
	Municipal services & traffic		
	None		
	Indirect impacts:		
	None		
	Cumulative impacts:		
	Biodiversity (Flora)		
	Loss of Pilanesberg Mountain Bushveld	22 L	EMPr section 7.1 & 7.2
	Loss of sensitive habitats	22 L	
	Reduction of Conservation Important Species and protected trees	24 L	
	Biodiversity (Fauna)		
	Loss of faunal habitat	20 L	EMPr section 7.1 & 7.2
	Heritage		
	None		
Construction Phase	***Direct impacts:***		
	Ground water		
	None		
	Hydrology (surface water)		
	None		
	Soil		
	Contamination and pollution	18 L	EMPr section 8.1, 8.2, 8.3, 8.4, 8.5, 8.7 & 8.10
	Erosion by wind and rain	18 L	
	Air		
	None		
	Biodiversity (Flora)		
	Removal of invader alien species	*30 L*	EMPr section 8.1, 8.2, 8.3, 8.4, 8.5, 8.7, 8.9 & 8.10
	Loss of Pilanesberg Mountain Bushveld	28 L	
	Disturbance of sensitive habitats	36 M	
	Destruction and damage to conservation Important Species and protected trees	20 L	
	Increase in exotic species and bush encroachment	26 L	
	Biodiversity (Fauna)		
	Loss of faunal habitat	30 L	EMPr section 8.1, 8.2, 8.3, 8.5, 8.7, 8.8, 8.9 & 8.10
	Mortality of fauna	14 L	
	Poaching and snaring of fauna	27 L	
	Smuggling of poached items	27 L	
	Land Use & Agricultural Potential		
	None		
	Heritage		
	Discovery of new important artefacts	*24 L*	EMPr section 8.1 & 8.2
	Damage to artefacts unearthed during construction	16 L	
	Visual		
	Visual impact of construction, lighting	21 L	EMPr section 7.2 & 7.3

Activity	Impact summary	Significance	Proposed mitigation
	and dust on sensitive visual receptors owing to the presence of construction equipment, camps and workers.		
	Visual impact of construction, lighting and dust on conservation areas within the region (Pilanesberg National Park).	12 N	
	Socio-economics		
	None		
	Municipal services & traffic		
	Increase in traffic	21 L	EMPr section 8.1, 8.2, 8.7 & 8.8,
	Increase in number and frequency of construction vehicles	15 L	
	Indirect impacts:		
	Biodiversity (Flora)		
	Loss of biodiversity due to veld fires	16 L	As above
	Biodiversity (Fauna)		
	Loss of faunal biodiversity due to increased incidence of veld fires	20 L	As above
	Socio-economics		
	Loss of property and threat to human life due to increased incidence of veld fires	16 L	As above
	Traffic and Services		
	Degradation of local roads due to the increase in the numbers of heavy vehicles.	21 L	As above
	Cumulative impacts:		
	Biodiversity (Flora)		
	Loss of Pilanesberg Mountain Bushveld	27 L	EMPr section 8.1, 8.2, 8.3, 8.4, 8.5, 8.7, 8.9 & 8.10
	Loss of sensitive habitats	26 L	
	Reduction of Conservation Important Species and protected trees	24 L	
	Biodiversity (Fauna)		
	Loss of faunal habitat	20 L	EMPr section 7.1 & 7.2
	Heritage		
	None		
	Socio-economics		
	None		
	Services and traffic		
	Increase in traffic and resultant noise, dust etc. on road users and guests	16 L	EMPr section 8.1, 8.2, 8.7 & 8.8
Operational Phase	***Direct impacts:***		
	Ground water		
	None		
	Hydrology (surface water)		
	None		

Activity	Impact summary	Significance	Proposed mitigation
	Soil		
	None		
	Air		
	None		
	Biodiversity (Flora)		
	Destruction and damage to Conservation Important Species and protected trees	20 L	
	Increase in exotic vegetation	22 L	
	Biodiversity (Fauna)		
	None		
	Land Use & Agricultural Potential		
	None		
	Heritage		
	None		
	Socio-economics		
	None		
	Services & traffic		
	Operational cost expected to be lower	*28 L*	EMPr section 9.5
	Indirect impacts:		
	Visual		
	Impact on the visual character and sense of place	18 L	EMPr section 9.5
	Cumulative impacts:		
	Visual		
	Accumulation of built forms	22 L	EMPr section 9.5
No-go option			
	Direct impacts:		
	No much needed upgrades to infrastructure resulting in no water savings	52 M	None
	Indirect impacts:		
	None		
	Cumulative impacts:		
	Resulting in water loss in drought conditions	52 M	None

A complete impact assessment which include process undertaken to identify, assess and rank the impacts, the activity will impose on the site through the life of the activity in terms of EIA Regulation 2014, Appendix 1(i) and (j) of GN R.982 must be included as Appendix H.

13. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Preferred Alternative (only alternative)

The proposed Bakubung Reservoir is situated within the Pilanesberg Mountain Bushveld vegetation type, which is in the Savanna Biome. Pilanesberg Mountain Bushveld was assessed by Mucina & Rutherford (2006) as **Least Threatened.**

It is not situated in any floristic centres of endemism and is not listed as a Threatened Ecosystem.

The North West Biodiversity Sector Plan classifies the property and general surroundings as an **Ecological Support Area 1 (ESA1).** ESA1's are described as **Protected Area Corridors**, there are six Protected Area Corridors in North-West province, with the study area being located in the Pilanesberg-Madikwe Heritage Park. ESAs are not necessarily essential for meeting biodiversity representation targets, but they play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering valuable ecosystem services.

No threatened plant species were confirmed during fieldwork. The vegetation within the proposed reservoir footprint has been significantly impacted by bush clearing. Three species **protected** either under the North West Biodiversity Management Act (Act No. 4 of 2016) or the National Forests Act (No. 30 of 1998) were recorded. No threatened plant species potentially occur.

A tread lightly approach will be encouraged for the development of site, in terms of the design and layout. A 1m buffer will be respected with regard to all protected trees.

No cultural heritage remains were discovered.

The site is located in an area with a **low** biodiversity/development conflict sensitivity.

Statement:

The proposed Bakubung Reservoir development site is acceptable for development and not fatally flawed in any way. The construction impacts, if effectively managed according to the mitigation measures proposed in this report, the specialist reports and the draft EMPr will have a predominately **low** residual significance rating.

Operational impacts can also be mitigated and will result in **low** post mitigation significance ratings.

Positive impacts include water savings for the operational phase, as well as, skills transfer and development.

In light of the above discussion it is recommended that all of the proposed Bakubung Reservoir be supported on the condition that all mitigation measures mentioned in this report, the specialist studies and the draft EMPr are implemented and adhere to throughout the project lifecycle.

Alternative B

Alternative C

No-go alternative (compulsory)

The No-go Alternative implies that the development of the proposed Bakubung Reservoir will not take place. In this scenario, the receiving environment will not be impacted upon negatively in any manner, with particular reference to protected flora.

However, it should also be noted that no positive impacts will be realized such as reduction in potable water wastage due to aging / leaking infrastructure. This would not be ideal owing to the fact that South Africa is currently experiencing drought conditions and any means of water saving measures should be taken to ensure that no amount of potable water is wasted.

In light of the above, as well as the fact that all negative impacts can be adequately mitigated and managed, it is not recommended that the No-go Alternative be supported.

SECTION D: PUBLIC PARTICIPATION

14. ADVERTISEMENT AND NOTICE

Publication name	Rustenburg Herald	
Date published	07 April 2017	
Site notice position	**Latitude**	**Longitude**
	S25°20'50.70"	E27°3'17.95"
	S25°20'36.43"	E27°3'29.30"
	S25°20'24.06"	E27°3'50.01"
Date placed	07 April 2017	

Include proof of the placement of the relevant advertisements and notices in Appendix I1.

15. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN R.982.

Key stakeholders (other than organs of state) identified in terms of Regulation 40(2)(d) of GN R.982:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
John Wesson	WESSA	john.wesson@wessa.co.za
Renee Harmes	Magalies Water Board	reneeh@magalieswater.co.za
Warren Best	Friends of the Pilanesberg	wmbest@global.co.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix I2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

16. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

No comment have been received to date. Any comments on the Draft BAR will be included and addressed in the Final BAR.

Summary of main issues raised by I&APs	Summary of response from EAP

17. COMMENTS AND RESPONSE REPORT

The practitioner must make report (s) available to I&APs record all comments received from I&APs and respond to each comment before is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA Regulations and be attached to the Final BAR as Appendix I3.

18. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders. Key stakeholders identified in terms of Regulation 7(1) and (2) and Regulation 40(2) (a)-(c) of GN R.982:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	e-mail
NW READ	Ouma Skosana	018 389 5156	oskosana@nwpg.gov.za
NW READ/	Obitseng Moholo	018 389 5095	omoholo@nwpg.gov.za
NWREAD: Compliance	Lungiswa Nonkomo	083 263 3655	lnonkomo@nwpg.gov.za
NW PHRA	Mr. Mosiane	018 388 2826	mosianem@nwpg.gov.za
North West Parks and Tourism Board	Phuti Mahloko	018 381 6030	phuti@nwpb.org.za
DWA: Water Sector Support	Mr S Matsheka	082 806 8856	MatshekaS@dwa.gov.za
Moses Kotane Local Municipality	Refiloe Raditlhalo	014 555 1406	rraditlhalo@moseskotane.gov.za
Bojanala District Municipality	Tebogo Matlala	014 590 4517	tebogom@bojanala.gov.za

Include proof that the Authorities and Organs of State received written notification and draft reports of the proposed activities as Appendix I4.

19. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as Appendix I5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix I6.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The proposed development of the Bakubung Reservoir within the Pilanesberg Mountain Bushveld and has a national conservation status of **Least Threatened.** Limited encroachment into sensitive habitats will occur and a 1 m buffer around identified protected trees will be respected.

As discussed in the preceding section, all significant negative impacts can be successfully mitigated and managed to acceptable levels (i.e. moderate to low) during all phases of the proposed development.

All mitigation measures as detailed in this BAR, the attached Specialist Impact Assessments and the Draft Environmental Management Programme (EMPr) must be implemented and adhered for the duration of the project lifecycle (i.e. during the planning, construction and operational phases).

In addition, the following specific recommendations apply:

Planning and Design Phase:

- The sensitivity map for the site must be used as a decision tool to guide the layout design. Development on areas of high environmental sensitivity must be avoided.
- If possible, the position of the water reservoir should be such that all Sclerocarya birrea and Spirostachys africana trees and shrubs are avoided; these trees and shrubs should be demarcated with emergency tape and the construction team should be given strict instructions to avoid these plants.
- Wherever possible, tall trees should be left unharmed, whether protected by law or not.
- The small fern Pellaea calomelanos can be carefully excavated and transplanted into suitable representative habitat adjacent to the study site.
- Where possible, no new roads should be constructed but the existing gate at the Bakubung fence should be reopened and upgraded to allow access to the proposed reservoir site.

Construction Phase:

- If possible, the position of the water reservoir should be such that all Sclerocarya birrea and Spirostachys africana trees and shrubs are avoided; these trees and shrubs should be demarcated with emergency tape and the construction team should be given strict instructions to avoid these plants.
- Wherever possible, tall trees should be left unharmed, whether protected by law or not.
- Where avoidance or pruning of the nationally or provincially protected trees is not possible, pruning or removal of the trees can only be undertaken once a permit authorising the contractor to do so has

been granted by the Department of Agriculture, Forestry and Fisheries (DAFF) or NW READ. The activity can only proceed, once the permit has been issued.

- Protected trees must be clearly demarcated with a 1m buffer to prevent any damage/ destruction.
- Poaching could be a significant threat. If any external labour teams are used during construction, then these teams should preferably be accommodated off site; if this is not possible then teams should be carefully monitored to ensure that no unsupervised access to plant and animal resources takes place.

Operational Phase:

- Management measures to eradicate and control alien plants need to be informed by the properties invasive species management program.
- Grounds staff should be trained to recognize and eradicate potential invasive plants.
- Undertake yearly removal of aliens within the area (done in summer) until equilibration is reached. This may take several years
- Monitor the effectiveness of the screen planting continuously in order to maintain its mitigation function.

Assuming that the above recommendations are implemented and adhered to, there is no reason why the proposed development of the Bakubung Reservoir should not take place. The Environmental Assessment Practitioner recommends that the development as proposed be supported.

The EMPr that meet the requirements of EIA Regulation,2014, Appendix 4, must be attached as Appendix J.

Is an EMPr attached? YES

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix K

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix F

Any other information relevant to this application and not previously included must be attached in Appendix L.

SECTION F: AFFIRMATION BY EAP

I ----------(name of person representing EAP) of ----------(name of company) declare that the information provided is correct and relevant to the activity/ project and that, the information was made available to interested and affected parties for their comments. All specialist (s) reports are relevant for the competent authority to make informed decision.

SIGNATURE OF EAP **DATE**

SECTION F: APPENDICES

The following appendices must be attached:

Appendix A: A3 Locality Map

Appendix B: Layout Plan and Sensitivity Maps

Appendix C: Photographs

Appendix D: Facility illustration(s)

Appendix E: Confirmation of services by Municipality (servitude and infrastructure planning) **(Not included as not applicable)**

Appendix F: Details and expertise of Specialist and Declaration of Interest

Appendix G: Specialist reports (including terms of reference)
- G.1: Biodiversity Sensitivity Screening
- G.2: Cultural Heritage Impact Assessment
- G.3: Visual Screening
- G.4: Palaeontological Impact Assessment

Appendix H: Impact Assessment

Appendix I: Public Participation

Appendix J: Environmental Management Programme (EMPr)

Appendix K: Details of EAP and expertise

Appendix L: Any other Information
- L.1 Services Report

Appendix M: Financial Provision (if applicable) **(Not included as not applicable)**

Appendix N: Closure Plan (where applicable) as described in Appendix 5 of EIA Regulations, 2014 **(Not included as not applicable)**

APPENDIX A: A3 LOCALITY MAP

APPENDIX B: LAYOUT PLAN AND SENSITIVITY MAPS

APPENDIX C: PHOTOGRAPHS

APPENDIX D: FACILITY ILLUSTRATION

APPENDIX E: CONFIRMATION OF SERVICES BY MUNICIPALITY

(NOT APPLICABLE)

APPENDIX F: DETAILS AND EXPERTISE OF SPECIALIST AND DECLARATION OF INTEREST

APPENDIX G: SPECIALIST REPORTS

APPENDIX G.1: BIODIVERSITY SENSITIVITY SCREENING

APPENDIX G.2 CULTURAL HERITAGE IMPACT ASSESSMENT

APPENDIX G.3 VISUAL SCREENING

APPENDIX H: IMPACT ASSESSMENT

APPENDIX I: PUBLIC PARTICIPATION

APPENDIX J: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

APPENDIX K: DETAILS OF EAP AND EXPERTISE

APPENDIX L: ANY OTHER INFORMATION

APPENDIX L.1: SERVICES REPORT

APPENDIX M: FINANCIAL PROVISION

(NOT APPLICABLE)

APPENDIX N: CLOSURE PLAN
(NOT APPLICABLE)