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Department:
**Rural, Environment and Agricultural
Development**
North West Provincial Government
REPUBLIC OF SOUTH AFRICA



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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

The proposed Sun City Chairlift Project involves the construction and operation of a 900 m long chairlift from a site 85 m from the Welcome Centre to the top of the Sun City Mountain. The chairlift will consist of a top and bottom station, with 30 two-seater chairs suspended from a moving wire rope. Pylons will be located at approximately every 100 m.

The chairlift will be just above the tree tops, with some illumination (lighting) required at each pylon for night-time operation and allowing guests (200 guests per hour) to decent the mountain via foot, if preferred or required.

Ablution facilities will be included at the chairlift top station. This will be a permanent installation with water and sewer connections. This facility will make general provision for 200 guests, with a peak design for 400 guests. The ablution facility will include the supply of Cold/Hot Running Water, extraction, air conditioning, electrical and a sewerage line for removal of sewage. Provision will be made for disabled, female and male facilities, which would include one toilet and one hand wash basin for the unisex disabled facility, twelve toilets and six hand wash basins for the female facilities, and three toilets, seven urinals and three hand wash basins for the male facility.

Wastewater from these facilities will be removed via a gravity main connecting with the existing sewage network of the Sun City Complex. Two alternatives are available, which will not affect the type of installation required or the installation methods, but could affect the length of the pipeline. The pipe network will be constructed within the existing service road servitude.

A current fresh water storage reservoir is situated less than 1 km from the top of the hills with an elevation variant of approximately 100m. A new pumping station will need to be constructed and installed at the reservoir with a new pipeline laid next to the existing service road to pump water to a fresh water storage vessel on top of the hill.

Hot water for the ablution block can be generated with the use of either solar or conventional geyser systems.

The objective of the proposed Sun City Chairlift Project is to provide the guests the opportunity to visit the Sun City Star and the Zip Line which have been constructed on top of the Sun City Mountain.

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

Listed activity as described in GN R.983, 984 and 985	Description of project activity
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<p>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.</p>	<p>A bridge measuring 10m in length, 12 metres wide will be built over the Crocodile river</p>
<p>GN. R 327 Activity 10: The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes –</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more;</p> <p>excluding where— such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or where such development will occur within an urban area.</p>	<p>Wastewater from these facilities will be removed via a gravity main connecting with the existing sewage network of the Sun City Complex. Two alternatives are available, which will not affect the type of installation required or the installation methods, but could affect the length of the pipeline.</p> <p>The internal diameter of the pipe will be 0.11 meters and the maximum length will be 850 meters. Therefore Activity 10 is not triggered, but noted for completeness sake.</p>
<p>GN.R. 324 Activity 8: The development and related operation of above ground cableways and funiculars.</p> <p>(i) Outside urban areas:</p> <p>(aa) A protected area or within world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA;</p> <p>(cc) All Heritage Sites proclaimed in terms of National Heritage Resources Act, 1999 (Act No. 25 of 1999);</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p>	<p>The proposed chairlift consists of a top and bottom station, with 30 two-seater chairs suspended from a moving wire rope. The guests board the chairlift at the bottom station to be transported to the top station. The planned chairlift will be 900m long with sixteen pylons interspaced according to the topography. The chairlift will be located on a site outside of an urban area. The site will be within 5 kilometres from a protected site</p>
<p>GN.R. 324 Activity 12: The clearance of an area of 300 square metres 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</p>	<p>Clearance will generally be limited to the pylon bases and the top and bottom stations, as well as the ablution facilities and conservancy tank footprints.</p>
<p>GN.R. 324 Activity 17: The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded</p>	<p>The Sun City Chairlift proposed development can be considered an expansion of the Sun City footprint.</p>



c) Property description/physical address

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

Province	North West Province
District Municipality	Bojanala District Municipality
Local Municipality	Moses Kotane Local Municipality
Ward Number(s)	14
Farm name and number	Doornhoek 910 JQ
Portion number	1
21 digit Surveyor General Code	TOJQ0000000091000001

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
Alternative Site 1 (preferred or only site alternative)	<p>The objective of the chairlift is to connect existing activities, therefore the top and bottom location of the chairlift stations were selected based on this requirement. An added advantage is that these sites have been altered through anthropogenic activities.</p> <p>The shortest route was then selected between these two points, therefore no other alternatives have been considered.</p> <p>The sewer outfall and potable drinking water line do not triggered a listed activity, but the alignment of these two pipelines fall within the existing service road corridor.</p>
Alternative Site 2	Various alignments could be considered, but the shortest possible route will ensure the least impact on the environment.
Alternative Site 3	None considered.

Site Co-ordinates

Latitude (S):

Longitude (E):

Alternative S1 (preferred or only site alternative)

°	'	"	°	'	"
°	'	"	°	'	"
°	'	"	°	'	"

Alternative S2 (if any)

Alternative S3 (if any)

In the case of linear activities:

Alternative:

Latitude (S):

Longitude (E):

Alternative S1 (preferred or only route alternative)

- Starting point of the activity

25°	20'	50.02"	27°	05'	52.43"
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- Middle/Additional point of the activity
- End point of the activity

°	'	"	°	'	"
21°	25'	07.21"	27°	05'	36.02"

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.

Please refer to the table below providing coordinates of the bottom and top stations and each pylon that will be constructed

Bottom Station	25°20'507.05" S	27°05'52.02" E
Line-stand 1	25°20'50.80" S	27°05'51.37" E
Line-stand 2	25°20'51.13" S	27°05'51.08" E
Line-stand 3	25°20'52.75" S	27°05'49.73" E
Line-stand 4	25°20'53.12" S	27°05'49.41" E
Line-stand 5	25°20'55.14" S	27°05'47.71" E
Line-stand 6	25°20'56.78" S	27°05'46.30" E
Line-stand 7	25°20'57.85" S	27°05'45.38" E
Line-stand 8	25°20'58.32" S	27°05'44.99" E
Line-stand 9	25°20'59.80" S	27°05'43.72" E
Line-stand 10	25°21'01.37" S	27°05'42.42" E
Line-stand 11	25°21'02.85" S	27°05'41.19" E
Line-stand 12	25°21'04.27" S	27°05'39.99" E
Line-stand 13	25°21'05.39" S	27°05'39.03" E
Line-stand 14	25°21'05.65" S	27°05'38.80" E
Line-stand 15	25°21'07.08" S	27°05'37.61" E
Line-stand 16	25°21'07.32" S	27°05'37.45" E
Top Station	25°21'07.50" S	27°05'37.29" E

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 (preferred or	None considered, except that the shortest possible route has been selected between the two stations.



only alternative)	
Alternative 2	None
Alternative 3	None

c) **Technology alternatives**

Alternatives	Description
Alternative 1 (preferred or only alternative)	The chair lift, manufactured in South Africa, which will be constructed and operated to internationally recognised safety standards, is the best technology available for the circumstances of this project.
Alternative 2	None.
Alternative 3	None.

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

Alternatives	Description
Alternative 1 (preferred or only alternative)	The ablution facilities will be fitted with water conserving devices, and hot water provided via a solar system.
Alternative 2	
Alternative 3	

e) **No-go alternative**

The final alternative consideration for the proposed Project is the 'no-go' option, where the development is not undertaken, and the current status quo remains intact. Access and use of the site will remain undeveloped and natural processes of decay and degradation will remain unmitigated at the heritage facilities. The no-go option does not consider the use of places of cultural significance for public enjoyment, research and tourism as encompassed in Section 44(1) of the NHRA.

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

One of the key growth objectives of the Moses Kotane Local Municipality is a Heritage park, specifically the Pilanesberg/ Madikwe Corridor (Heritage Park) with the focus to create major new tourism initiatives within the



Moses Kotane Local Municipality. The chairlift has the potential to act as a catalyst for greater economic investment into the municipality in support of one of the key growth objectives identified in the Integrated Development Plan of Mose Kotane Local Municipality.

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 A1¹ (preferred activity alternative)

Estimated 500 m² broken down into 9x3.5² for the pylons, 40m² per station and 40m² for the ablution facilities.

Alternative A2 (if any)

m²

Alternative A3 (if any)

m²

or, for linear activities:

Alternative:

Length of the activity:

Alternative A1 (preferred activity alternative)

900 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)

500m²



Alternative A2 (if any)

	m ²
Alternative A3 (if any)	m ²

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:

The existing road to the top of the mountain will be used to gain access to the top station, ablation facility site and pylons. No new or additional access roads will be created. All equipment and construction material will be hand carted to the pylon sites.

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)



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.

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.

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.

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 existing property is used as a hotel / resort with an assortment of tourist attractions, whereof the chairlift will be one of these attractions.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	Yes		Please explain
(b) Urban edge / Edge of Built environment for the area		No	Please explain
The site falls within the Pilansberg Nature Reserve, but within the footprint of the existing Sun City Resort / hotel.			
(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?).	Yes		Please explain
The proposed development will not compromise the integrity of the Local Municipality's IDP and SDF. In fact, it will enhance and support their strategies.			



(d) Approved Structure Plan of the Municipality		No	Please explain
Sun City has developed and maintains all infrastructure, including roads, drinking water sewage, and solid waste facilities.			
(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
The proposed development will not compromise the integrity of existing environmental management priorities. The cultural significant site, the stonewalled settlement <i>Itlholanoga</i> , falls within the footprint of the proposed development, but will not impact this site negatively, but conversely, have a positive impact on the site.			
(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.			
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
This is not necessarily a societal priority, but will contribute positively and enhance the tourist attraction of an existing site with benefits to society.			



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
<p>Sun City has an existing Wastewater Treatment Facility with more than sufficient capacity to cater for the additional load from this development.</p> <p>Domestic water is purchased directly from Magalies Water.</p> <p>Sun City has a licenced waste disposal facility for general waste.</p> <p>All other services, such as telecommunication, electricity and access roads are existing and available.</p>			
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
As described in Point 5, Sun City is not dependent on the Local Municipality for any services.			
7. Is this project part of a national programme to address an issue of national concern or importance?		No	Please explain
Not applicable.			
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
<p>Sun International at their Sun City Resort is continuously exploring various alternatives to enhance the attraction of the resort for tourists. The proposed chairlift is one alternative that will attract tourist to an existing resort / hotel, not only for the Sun City complex, but for the wider Pilanesburg Nature Reserve and other lodges.</p>			
9. Is the development the best practicable environmental option for this land/site?	Yes		Please explain
<p>The proposed chairlift is considered to be the best environmental option, or the option with the least impact on the biophysical environment.</p> <p>The existing access road will have to be upgraded to a two lane facility to transport more than 200 guests up the mountain. Such an upgrade will require the clearing of an additional 4m of indigenous veld, as well as impacting on the identified heritage sites. The construction impacts of such an upgrade will be significant, considering noise, dust, visual and the potential for incidents such as oil spills, etc.</p>			



10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	Yes		Please explain
<p>Limited negative impacts are expected, and with proper implementation of management and mitigation measures, these will be reduced to a negligible impact.</p> <p>The positive impacts include, amongst others, increased numbers of tourist, with direct and indirect financial benefits for the community.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		No	Please explain
<p>This will not necessarily be the case, since the main reason for gaining access to the top of the Sun City mountain is to visit the SunStar. The sculpture was conceptualised and designed by Cape Town artist and founder of the Robben Island Art Company and Trust (RIACT), Christopher Swift, and was also a showcase project for Cape Town's World Design Capital 2014.</p> <p>The SunStar was constructed in part from the steel from the original fence that once surrounded Robben Island. The ultimate symbol of apartheid has been transformed into an inspiring piece of art that now stands as an invitation to the world to share their hope for the future of South Africa.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?		No	Please explain
The development is within the Sun City are of jurisdiction.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		No	Please explain
The proposed project it is not within the urban edge.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		No	Please explain
Not Applicable.			
15. What will the benefits be to society in general and to the local communities?			Please explain
Limited job opportunities and tourist attraction.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
None.			



17. How does the project fit into the National Development Plan for 2030?	Please explain
The proposed project will attract more tourists, with direct and indirect economic benefits.	
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.	
<p>The application of appropriate environmental management tools must ensure the integrated environmental management of activities. The principles of environmental management must be integrated into all decisions which may have a significant effect on the environment</p> <p>The potential impact of the proposed development and the alternatives to lessen the possible harm on the environment were investigated. Socio-economic conditions and specifically the cultural heritage of this area was considered to ensure that these areas are avoided. The effects of the proposed development on the environment has been kept to the minimum, and the no-go option of not implementing the activity was explored. The public participated in the decision that might affect the environment, including the biophysical and social environments.</p>	
19. Please describe how the principles of environmental management as set out in Section 2 of NEMA as amended have been taken into account.	
<p>Environmental management must place people and their needs at the forefront, and serve their physical, psychological, developmental, cultural and social interests equitably.</p> <p>Development must be socially, environmentally and economically sustainable. Therefore, this development considered the following aspects, and addressed these where applicable:</p> <ul style="list-style-type: none"> • Disturbance of ecosystems with resulting loss of biological diversity was minimised. • Pollution and degradation of the environment will be controlled through an Environmental Management Programme Report. • Disturbance of landscapes and sites of the nation's cultural heritage have been identified, described and avoided. • The principle of waste avoidance, minimization, re-use, recycle, or disposal of in a responsible manner, were all considered in the application. • No Non-renewable natural resources will be used, except for domestic water supplied by a Water Service Provider. • The use of renewable resources was considered with solar facilities as an option at the ablution facilities. • A risk-averse and cautious approach was applied. • Negative impacts on the environment and on people's environmental rights were anticipated and prevented, and where they could not be prevented, minimized and remedied. 	



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
The Constitution of South Africa (Act No 108 of 1996)	Section 24 of the Bill of Rights states that: "Everyone has the right - a.to an environment that is not harmful to their health or well-being; and b.to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - i.) prevent pollution and ecological degradation; ii.)promote conservation; and iii.)secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".	Department of Environmental Affairs.	1996
National Environmental Management Act (No 107 of 1998)	The BA process is being undertaken in accordance with the principles of Section 2 of NEMA as well as with the EIA 2014 Regulations, promulgated in terms of NEMA. These Listed Notices have been reviewed against the project activities to determine the likely triggers. Based on the activities listed, it has been identified that a BA process is required for the Project.	Department of Rural, Environment and Agricultural Development	1998
National Environmental Management: Biodiversity Act (No 10 of 2004)	Affords threatened or protected species a legal status and protection.	Department of Rural, Environment and Agricultural Development	2004
National Environmental Management: Waste Act (No 59 of 2008)	No Littering, and disposal of all construction and domestic waste at a licenced facility.	Department of Rural, Environment and Agricultural Development	2008
National Water Act (No 36 of 1998)	Section 19 for the control and reporting of incidents that may impact on the water environment.	Department of Water and Sanitation	1998
National Heritage Resources Act (No 25 of 1999)	The NHRA is the overarching legislation that protects and regulates the management of	SAHRA	1999



	<p>heritage resources in South Africa, with specific reference to the following Sections:</p> <ul style="list-style-type: none"> • 5. General principles for HRM • 6. Principles for management of heritage resources • 7. Heritage assessment criteria and grading • 38. Heritage resources management 	North West Provincial Heritage Resources Authority	
<p>The Environmental Impact Assessment (EIA) Regulations, Government Notice Regulation (GN) R.982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R.983 (Listing Notice No. 1), GN R.984 (Listing Notice No. 2) and GN R.985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended.</p>	<p>See above for the listed activities which could potentially be triggered by the Project.</p>	Department of Rural, Environment and Agricultural Development	2014
<p>South African Heritage Resources Agency (SAHRA) Archaeology, Palaeontology and Meteorites (APM) Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports (2007)</p>	<p>The guidelines provide the minimum standards that must be adhered to for the compilation of a Heritage Impact Assessment (HIA) Report. Chapter II Section 7 outlines the minimum requirements for inclusion in the heritage assessment as follows:</p> <ul style="list-style-type: none"> • Background information on the Project; • Background information on the cultural baseline; • Description of the properties or affected environs; • Description of identified sites or resources; • Recommended field rating of the identified sites to comply with Section 38 of the NHRA; • A statement of Cultural Significance in terms of Section 3(3) of the NHRA; and • Recommendations for mitigation or management of identified heritage resources. 	SAHRA	2007



12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

Yes	
-----	--

 If YES, what estimated quantity will be produced per month?

100m ³

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

The construction solid waste will be collected in receptacles for each type of waste to ensure effective recycling. The receptacles will be removed from site on a daily basis to the Sun City Central Waste Depository for processing.
--

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

Construction solid waste that cannot be recycled will be disposed of the licenced Sun City Waste Disposal Facility.

Will the activity produce solid waste during its operational phase?

Yes	
-----	--

 If YES, what estimated quantity will be produced per month?

100m ³

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

The operational solid waste will be collected in receptacles for each type of waste to ensure effective recycling. The receptacles will be removed from site on a daily basis to the Sun City Central Waste Depository for processing.

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

Not applicable.

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

Construction solid waste that cannot be recycled will be disposed of the licenced Sun City Waste Disposal Facility.

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?

	N/A m ³
--	--------------------

Will the activity produce any effluent that will be treated and/or disposed of on site?

	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?

Yes	
-----	--

If YES, provide the particulars of the facility:

Facility name:	Sun City Wastewater Treatment Works		
Contact person:	Derek Turner		
Postal address:	PO Box 11 Sun City		
Postal code:	0316		
Telephone:	014 557-1680	Cell:	+27 71 581 6541
E-mail:	derek.turner@suninternational.com	Fax:	+27 86 546 7593

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

All wastewater generated from the proposed chairlift and ablution facilities will be directed to the Sun City Wastewater Treatment Works via mainly existing pipeline and pumpstation network. This wastewater will be treated with conventional methods and reused on the Sun City property.
--

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	No
--	----

If YES, is it controlled by any legislation of any sphere of government?

N/A	
-----	--

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:

Not Applicable.

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?

Yes	
	No

If YES, is it controlled by any legislation of any sphere of government?

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:

Normal construction related noise.

13. WATER USE

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

Municipal	<input checked="" type="checkbox"/> Water board	Groundwater	River, stream, dam or lake	Other	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:

Not Applicable. 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, that have been taken to ensure that the activity is energy efficient:

The design considerations include solar power and LED lightening at the ablution facilities.
--

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

Solar power will be used as an energy source at the ablution facilities.
--

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:

- 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:

The area is zoned for tourism.

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:

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 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	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

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)	No		
Dolomite, sinkhole or doline areas	No		
Seasonally wet soils (often close to water bodies)	No		
Unstable rocky slopes or steep slopes with loose soil	No		
Dispersive soils (soils that dissolve in water)	No		
Soils with high clay content (clay fraction more than 40%)	No		
Any other unstable soil or geological feature	No		
An area sensitive to erosion	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. GROUND COVER

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	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		No	
Non-Perennial River		No	
Permanent Wetland		No	



Seasonal Wetland		No	
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

Protected area, Mountain, Koppie or ridge, Protected Area:
 The proposed Sun City Chairlift Project site consists of intact and relatively undisturbed Zeerust thornveld (Endemic), within this vegetation type three species of special concern was encountered. Due to the extent of this vegetation type and the minimal impact that the activities of the construction and operational will have on the biophysical environment; this site was assigned and medium high sensitivity rating.

Archaeological site:
 The proposed development will occur within proximity to the stonewalled settlement *Itlholanoga*. This site is a known capital of the Tlokwa and has been designated with a high Cultural Significance. The potential negative and positive impacts of the proposed development onto the Cultural Significant site were assessed by an independent specialist. Implementing the recommended management measures will mitigate any potential impacts on this site and the positive impacts, through the sustainable use and development of *Itlholanoga*, can be achieved.

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:

Not Applicable.

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:

Not Applicable.

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

Critical Biodiversity Area (as per provincial conservation plan)	Yes	
Core area of a protected area?		No
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
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The proposed Sun City Chairlift Project area has undergone a small degree of disturbance due to livestock grazing, resulting in the establishment of bush encroachment. The proposed Sun City Chairlift Project site falls within a Critical Biodiversity Area 2 as far as regional ecological importance is concerned (North West Biodiversity Sector Plan; 2014)

- 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	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	100%	According to the vegetation maps of southern Africa (Mucina and Rutherford, 2006), the study area falls within the Zeerust Thornveld vegetation type. Current land use for the hillside area is infrequent grazing by cattle of the local herders, and road usage from the main Sun City area to the top of this hillside for the Zipline operations. The grazing of cattle herds is only evident in the more accessible areas, with little evidence of grazing encountered in the inaccessible steep areas. The presence and dominance of <i>Aristida spp</i> and <i>Dichrostachys cinerea</i> are indicators of veld overgrazed and poor veld management. Domestic livestock can have high



		impacts on natural vegetation, resulting in decreases to species richness and diversity. A total of 42 plant species were encountered, 22 of these were trees or tall shrubs, one fern, six grass species and ten herb species. Sixteen mammal species were recorded during the field visit, none of these are considered protected. Twelve Bird species were recorded, with 21 (Species of Special Concern) SSC bird species potentially occurring in the area of interest. No reptile species and amphibian species were recorded during the site visit.
Degraded (includes areas heavily invaded by alien plants)	%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	%	

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)	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)		
	Endangered			
	Vulnerable			
	Least Threatened			
		YES	NO	UNSURE

- d) 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)

Please refer to the attached specialist report.



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:

Yes	
Uncertain	



Archaeological Site:

Situated within the site-specific study area within and adjacent to the proposed development footprint is the stonewalled settlement *Itlholanoga*. Recorded as Site 33/81, the settlement was excavated and reported by Mason (1986). Recovered diagnostic ceramics were reported as belonging to the Uitkomst and Buispoort facies. Huffman (2007) described Uitkomst ceramics as a mixture of Ntsuanatsatsi and Olifantspoort characterised by stamped arcades, appliqué and blocks of parallel incisions, stamping and cord impressions. Buispoort comprises rim notching, broadly incised chevrons and white bands all with red ochre.

Furthermore, the site was partly mapped by Huffman and his team between 2005 and 2006. Huffman (2007, p. 437) classified the site as consisting of two distinct patterns, an earlier Type N and later Molokwane type. Type N comprises a few cattle kraals in the centre linked by other walls, the perimeter sometimes incorporates small stock enclosures. Molokwane consists of multiple arcs in the outer wall that marks the back courtyards of households surrounding the core of cattle kraals and small livestock enclosures.

Based on the results of the early excavations and recorded settlement pattern, Huffman (2007, p. 437) postulates *Itlholanoga* having two occupations, an early Tlokwa occupation as indicated by earlier Type N walling and Uitkomst facies ceramics, and a later Kgatla occupation marked by the Molokwane pattern and Buispoort facies ceramics. This assertion requires further study to provide meaningful conclusions to the occupation of *Itlholanoga*. Considering the oral histories, stonewalling pattern and macro settlement structure discussed by Anderson (2009, p. 94) in reference to *Marothodi* some 20 km due west, the similarity in spatial layout allow for certain inferences to be made. These are briefly discussed below.

Ethnography suggests that a threefold division of the spatial layout of settlements was a common feature in the settlements of most Tswana chiefdoms. This will include three 'zones' of clustered settlement units/ homesteads. These 'zones' comprised:

- A central zone – increased density of stonewalling, more complexity and greater quantity of identifiable homesteads;
- An upper zone – outlying, less dense grouping of stonewalling; and
- A lower zone – outlying, less dense grouping of stonewalling.

Furthermore, subsurface features exposed during excavations at *Itlholanoga* and *Marothodi* provide tangible examples of the type of resources associated with these stonewalled settlements. Notably these include preserved hut foundations, hearths, ceramic vessels and shards, metal artefacts and beads.

Paleontological Sites:

The site-specific study area forms part of the Pilanesberg Alkaline Province. Characterised by widespread alkaline volcanic and plutonic activity, this geology formed between ~1450 million years ago (Ma) and 1200 Ma. The Pilanesberg Complex has a circular outline and concentric ring structure



with a 28 km east-west diameter and an areal extent of 530 km². It consists of dislocated remnants of phonolitic and trachytic lava flows, stratified volcanoclastic lacustrine sediments, debris flows, tuff, agglomerate and volcanic breccia (Verwoerd, 2006). This geology has zero palaeontological sensitivity and was not considered further by the Specialist.

According to the SAHRIS Palaeo-Sensitivity Map (PSM), the Pilanesberg is interdigitated with geological strata with moderate palaeontological sensitivity. The Council of Geosciences has defined this as Quaternary Aged Sands associated with glacial-interglacial cycles from 2.6 Ma onwards. In general, these sands have the potential to contain fossil remains but are often sparse (Groenewald, 2016). Known fossil remains within Quaternary Aged Sands include, but are not limited to:

- Mammalian bones;
- Tortoise remains;
- Non-marine mollusc shells;
- Ostracods;
- Microfossils;
- Trace fossils; and
- Plant material.

The proposed development footprint, however, is not underlain by Quaternary Aged Sand, and it is envisaged that the possible associated fossil heritage will not be impacted upon by project related activities. Therefore, a recommendation and Request for Exemption (RfE) from further palaeontological studies was made.

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:



Please refer to the attached specialist report. The specialist's findings are briefly described below:

Through the analysis of the various alternatives, the Specialist found that the proposed chairlift and stations are suitable from a heritage perspective.

If the project does not continue then access and use of the site will remain undeveloped and natural processes of decay and degradation will remain unmitigated. This approach, however, does not consider the use of places of cultural significance for public enjoyment, research and tourism as encompassed in Section 44(1) of the NHRA. To this effect, the Specialist considered the identified impacts and undertook a sensitivity analysis against the socio-economic benefits that may be derived from the Project.

Considering the proposed Project relative to tourism development as described in the MKLM IDP the appropriate use and management of the site *Itlholanoga* can contribute sustainable socio-economic benefits for the local population and the proposed "Heritage Park" development. This is motivated by the following:

- The Project, as currently proposed, will have a minimal direct impact to the site and may partially contribute to sustainable employment of local community members through possible integration with the Mphebatho Museum for example; and
- *Itlholanoga* provides tangible evidence of the history of the dominant groups of the Pilanesberg region that will contribute to the "Heritage Park" development.

The use of the site *Itlholanoga*, however, must consider the identified potential impacts and align with the aforementioned objectives to minimise these.

Will any building or structure older than 60 years be affected in any way?

	No
Yes	

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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

9. 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 level of in the Moses Kotane Local Municipality according to their Integrated Development Plan for 2016 / 17 is at 51%.



Economic profile of local municipality:

The economy of Moses Kotane Local Municipality 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.

The effects of unemployment include poverty as a result of lack of income, poor quality of life, high crime rate, lack of food security, lack of tax base and poor economic development. Provision of employment opportunities is hampered by lack of funding, lack of resources, lack of training institutions, and lack of infrastructure such as water and roads and inefficient communication system. It is mostly rural women who are affected because they are the ones often left behind to feed and take care of children.

Level of education:

	2001	2011
Literacy Rate	79	94.4
Attending Educational Institutional (%)	75	70
No Schooling (%) (20yrs +)	18	10.4
Primary Enrolment (%) (6-13yrs)	97.8	98
Matric Completion (%) (20yrs +)	36.5	33
Matric Pass Rate	See DoE report	
Completion of Higher Education (%)	6.2	5.9

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 20 000 000.00
What is the expected yearly income that will be generated by or as a result of the activity?	R 4 380 000.00
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	40
What is the expected value of the employment opportunities during the development and construction phase?	R 1 500 000.00
What percentage of this will accrue to previously disadvantaged individuals?	30%
How many permanent new employment opportunities will be created during the operational phase of the activity?	8
What is the expected current value of the employment opportunities during the first 10 years?	R 850 000.00
What percentage of this will accrue to previously disadvantaged individuals?	100%



10. SPECIALIST(S) CONSULTATION

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 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.

1. 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
Alternative 1 (preferred alternative)			
Heritage Impact	Direct impacts: Construction activities may result in damage and/ or destruction to surface features, i.e. stonewalling, and possible sub-surface features associated with the settlement site.	Negative - Moderate	Develop a HSMP to manage the site, construction and operation activities to promote the responsible conservation of the site. Undertake a Watching Brief during the construction phase to guide activities and record any sub-surface features that may be exposed.
	Indirect impacts: Increased human traffic through the site that may result in damage, including looting and vandalism	Negative - moderate	The management measures must be completed in accordance with the published SAHRA minimum standards.



Activity	Impact summary	Significance	Proposed mitigation
			The aforementioned HSMP must be implemented prior to the construction and operation of the development.
	<p>Cumulative impacts: Increased human traffic that may impact on the integrity of the site over time. While the individual impacts will be limited to certain aspects of the site, the frequent and repetitive impacts will interact to produce a total impact greater than the individual effects. This will result in the degradation of the integrity and value of the site. Furthermore, the repetitive use of the site through time is envisaged to increase.</p>	Negative - High	Avoid/ reduce through developing a HSMP, inclusive of CFPs and undertaking a Watching Brief
	<p>Cumulative impacts: The development will result in an additive cumulative impact when considered in relation to the development of the chair lift as well as the number of developments within the Sun City complex and surrounds that continue to reduce the 'sense-of-place'.</p>	Negative - High	Avoid/ reduce through the development of a HSMP for the Project
	<p>Cumulative impacts: The appropriate use of the site through development will result in an increased awareness of the archaeo-historical context of the region through the frequent and repetitive use. Furthermore, the development will result in the management of the site that would not have occurred otherwise.</p>	Positive - High	Avoid/ reduce through the development of a HSMP for the Project
Fauna and Flora impact	<p>Direct impacts: Loss of Mountain Bushveld on steep slopes and Mountain Bushveld on moderate slopes</p>	Negative - Minor	<ul style="list-style-type: none"> Rehabilitation of the disturbed area should take place after construction,



Activity	Impact summary	Significance	Proposed mitigation
			<p>whereby a mixture of native grass species harvested from climax <i>Themeda</i> grassland and native grass species (such as <i>Cynodon dactylon</i>) are planted immediately to prevent erosion;</p> <ul style="list-style-type: none"> • The footprint area should be limited as far as possible; and • Protected species, <i>Spirostachys africana</i>, Tambotie, <i>Boophane disticha</i>, Poison Bulb and <i>Sclerocaria birrea</i>, Maroela are present at the site, all effort must be made to avoid disturbance of these species.
	<p>Indirect impacts: Alien plant invasion</p>	<p>Negative - Minor</p>	<p>An AIPs Management Plan should be compiled and implemented.</p>
	<p>Cumulative impacts: The greater study area has in parts been impacted due to historical agriculture and livestock farming and current impacts that accompanies the operation of the Sun City Resort. The cumulative effects of the proposed Sun City Chairlift Project construction will affect the areas available for grazing and browsing that wild herbivores need for survival, it will however not be a severe impact due to the small footprint of the actual disturbance areas or pylons. The ecosystem functioning and services that are currently</p>	<p>Negative - Minor</p>	<p>An AIPs Management Plan should be implemented, whereby the disturbed site is monitored quarterly for at least two years to ensure that AIPs does not take place. Currently bush encroachment is an issue on the lower slopes of the proposed Sun City Chairlift Project area, this problem is likely to spread of uncontrolled grazing in allowed to continue in controlled.</p>



Activity	Impact summary	Significance	Proposed mitigation
	<p>produced in the area could be impaired or reduced in small areas; these include food and shelter for the animals.</p> <p>The footprint of the proposed pylons and base stations areas and access roads will impact minimally on the ecosystem services and present habitats such as mountain Bushveld.</p>		
	<p>Direct impacts - Operational: Disturbance to fauna on site (noise, litter), including bird collisions</p>	<p>Negative - Moderate</p>	<ul style="list-style-type: none"> • Install bird deflectors on cables, chairs and pylons to make the structures visible to birds in flight; • Erect signage on site; • Adhere to designated areas; and • Ensure guest know that feeding animals are not allowed.
No-go option			
Heritage	<p>Direct impacts: The development of tourism initiatives within the MKLM as a catalyst for greater economic investment and job creation is considered here. Sun City and the Pilanesberg National Park are the main tourism anchors for the province. The MKLM IDP refers to the “Heritage Park” development to link the Pilanesberg in the east with Madikwe in the west to promote eco-tourism and cultural historic heritage development. One Key Performance Area (KPA) considered by the MKLM is the need to preserve cultural heritage through reaching a balance between the need to enhance the</p>	<p>Negative - High</p>	<p>Considering the proposed Project relative to tourism development as described in the MKLM IDP the appropriate use and management of the site <i>Itlholanoga</i> can contribute sustainable socio-economic benefits for the local population and the proposed “Heritage Park” development. This is motivated by the following:</p> <ul style="list-style-type: none"> • The Project, as currently proposed, will have a minimal direct impact to the site and may partially contribute to sustainable employment of local community members



Activity	Impact summary	Significance	Proposed mitigation
	built environment with measures that reduce the impact of the development.		<p>through possible integration with the Mphebotho Museum for example; and</p> <ul style="list-style-type: none"> • <i>Itlholanoga</i> provides tangible evidence of the history of the dominant groups of the Pilanesberg region that will contribute to the “Heritage Park” development.

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.

2. 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.

Alternative A (preferred alternative)

Sun International at their Sun City Resort is continuously exploring various alternatives to enhance the attraction of the resort for tourists. Sun City proposes to construct and operate a chair lift from the Sun City Welcome Centre to the top of the so-called “Sun City Mountain”.

The chair lift, manufactured in South Africa, constructed and operated to internationally recognised safety standards, will transport guests up to the Sun City Mountain. The chairlift consists of a top and bottom station, with 30 two-seater chairs suspended from a moving wire rope. The guests board the chairlift at the bottom station to be transported to the top station. The planned chairlift will be 900 m long with pylons at approximately 100 m intervals.

The main environmental and social attributes that may be impacted by the proposed activity includes Fauna and Flora, and Heritage Resources. Specialists were appointed to assess these environmental and social attributes in detail, consider the positive and negative impacts, proposed mitigation and management measures. The results of these investigations are summarised below:

Fauna and Flora

According to the vegetation maps of southern Africa (Mucina and Rutherford, 2006), the study area falls within the Zeerust Thornveld vegetation type. Current land use for the hillside area is infrequent



grazing by cattle of the local herders, and road usage from the main Sun City area to the top of this hillside for the Zipline operations. The grazing of cattle herds is only evident in the more accessible areas, with little evidence of grazing encountered in the inaccessible steep areas. The presence and dominance of *Aristida* spp and *Dichrostachys cinerea* are indicators of veld overgrazed and poor veld management. Domestic livestock can have high impacts on natural vegetation, resulting in decreases to species richness and diversity. A total of 42 plant species were encountered, 22 of these were trees or tall shrubs, one fern, six grass species and ten herb species. Sixteen mammal species were recorded during the field visit, none of these are considered protected. Twelve Bird species were recorded, with 21 (Species of Special Concern) SSC bird species potentially occurring in the area of interest. No reptile species and amphibian species were recorded during the one day site visit.

Impacts include Loss of Mountain Bushveld on steep slopes and Mountain Bushveld on moderate slopes with mitigation measures as follows:

- Rehabilitation of the disturbed area should take place after construction, whereby a mixture of native grass species harvested from climax *Themeda* grassland and native grass species (such as *Cynodon dactylon*) are planted immediately to prevent erosion;
- The footprint area should be limited as far as possible; and
- Protected species, *Spirostachys africana*, Tambotie, *Boophane disticha*, Poison Bulb and *Sclerocaria birrea*, Maroela are present at the site, all effort must be made to avoid disturbance of these species.

Alien plant invasion with mitigation measures as follows:

- An AIPs Management Plan should be compiled and implemented.

Mitigation measure for bird collisions with project infrastructure are:

- Install bird deflectors; and
- Initiate bird monitoring plan.

Paleontological and Heritage Resources

The site-specific study area forms part of the Pilanesberg Alkaline Province. This geology has zero palaeontological sensitivity and is not considered further. According to the South African Heritage Resources Information System (SAHRIS) Palaeo-Sensitivity Map (PSM), the Pilanesberg is interdigitated with geological strata with moderate palaeontological sensitivity. The Council of Geosciences has defined this as Quaternary Aged Sands. Known fossil remains within Quaternary Age Sands include, but are not limited to:

- Mammalian bones;
- Tortoise remains;
- Non-marine mollusc shells;
- Ostracods;
- Microfossils;
- Trace fossils; and
- Plant material.



The proposed development footprint, however, is not underlain by Quaternary Aged Sand, and it is envisaged that the possible associated fossil heritage will not be impacted upon by project related activities. Therefore, a recommendation and Request for Exemption (RfE) from further palaeontological studies is made.

From a heritage perspective, the development footprint is associated with the Late Farming Community (LFC) stonewalled settlement *Itlholanoga*. The determined Cultural Significance (CS) of the site demonstrates that *Itlholanoga* is a heritage resources with very high CS based on its importance or contribution to four broad value categories, i.e. aesthetic, historical, scientific and social.

This assessment considered the possible direct and indirect impacts on *Itlholanoga* by the identified listed activities relative to the aforementioned CS. A summary of the assessment is presented in the following table:

Impact	Pre-mitigation:						Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance	Duration	Extent	Intensity	Consequence	Probability	Significance
Damage / Destruction of surface and sub-surface features	Permanent	Very limited	High - negative	Moderately detrimental	Certain	Moderate - negative	Beyond project life	Province/ Region	Very high - positive	Highly beneficial	Unlikely	Minor - positive
Increased human traffic through the site that may result in damage	Project Life	Local	Extremely high - negative	Highly detrimental	Certain	Moderate - negative	Project Life	Very limited	Very high - positive	Moderately beneficial	Highly probable	Minor - positive

To manage the identified impacts to *Itlholanoga*, the following mitigation measures are recommended:

- Sun International must commission a Heritage Site Management Plan (HSMP) for *Itlholanoga* as a condition of authorisation for approval by the South African Heritage Resources Agency (SAHRA). The HSMP must be developed in support of a Grade II Site Nomination and for the appropriate management of the site during the construction and operation of the Project. The HSMP must include project specific Chance Find Protocols (CFPs) and aim to control the elements that make up the physical and social environment of the site, i.e. its physical condition, public visitors and interpretation, and promote / enhance its conservation and maintenance through deliberate and thoughtful design; and
- A Watching Brief by a qualified archaeologist during the construction phase of the Project which will entail the on-site supervision of all activities to guide the development and record any exposed sub-surface features or material culture.

It is the considered opinion of the Independent Environmental Assessment Practitioner that if the recommended management and mitigation measures are implemented, that the proposed



development will have a minor impact on the environmental and social attributes considered. Furthermore, this proposed development will create positive impacts through the sustainable use and development of *Itlholanoga*.

No-go alternative (compulsory)

The site-specific study area is located within the MKLM in the North West Province. Statistically, the MKLM comprises a population of 242 554 (as of the 2011 census). Education levels of the local population consist primarily of those who have completed “some primary” and “some secondary”, amounting to 42% and 32% respectively. Only 14.8% of the population have completed secondary school, suggesting that the skill base within the MKLM is relatively low.

The MKLM Integrated Development Plan (IDP) recognises the challenge of the low education levels and its contribution to an unemployment rate of 51%. As such, Local Economic Development (LED) initiatives aimed at skills development and job creation across various economic sectors are considered a priority.

The development of tourism initiatives within the MKLM as a catalyst for greater economic investment and job creation is considered here. Sun City and the Pilanesberg National Park are the main tourism anchors for the province. The MKLM IDP refers to the “Heritage Park” development to link the Pilanesberg in the east with Madikwe in the west to promote eco-tourism and cultural historic heritage development. One Key Performance Area (KPA) considered by the MKLM is the need to preserve cultural heritage through reaching a balance between the need to enhance the built environment with measures that reduce the impact of the development.

Considering the proposed Project relative to tourism development as described in the MKLM IDP the appropriate use and management of the site *Itlholanoga* can contribute sustainable socio-economic benefits for the local population and the proposed “Heritage Park” development. This is motivated by the following:

- The Project, as currently proposed, will have a minimal direct impact to the site and may partially contribute to sustainable employment of local community members through possible integration with the Mphebotho Museum for example; and
- *Itlholanoga* provides tangible evidence of the history of the dominant groups of the Pilanesberg region that will contribute to the “Heritage Park” development.

The use of the site *Itlholanoga*, however, must consider the identified potential impacts and align with the aforementioned KPA to minimise these.



SECTION D: PUBLIC PARTICIPATION

To be completed after making BAR available to stakeholders and Government Departments.

1. ADVERTISEMENT AND NOTICE

Publication name		
Date published		
Site notice position	Latitude	Longitude
Date placed		

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

2. 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)

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.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

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



4. 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.

5. 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	Fax No	e-mail	Postal address

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

6. 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	
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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 EMPr that meet the requirements of EIA Regulation,2014, Appendix 4, must be attached as Appendix J.

Is an EMPr attached?

YES	<input type="checkbox"/>
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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 Deon Esterhuizen of MDT Environmental (Pty) Ltd 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

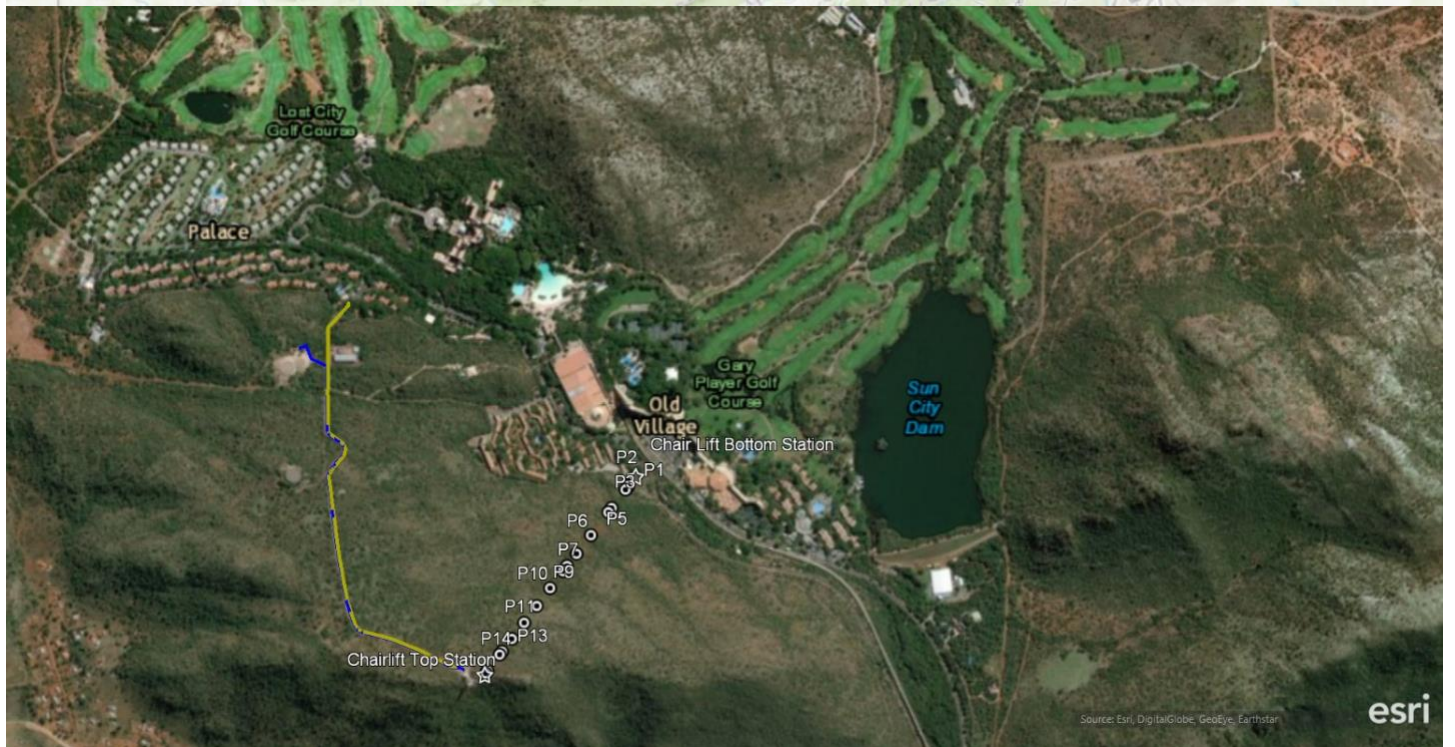


SECTION F: APPENDICES

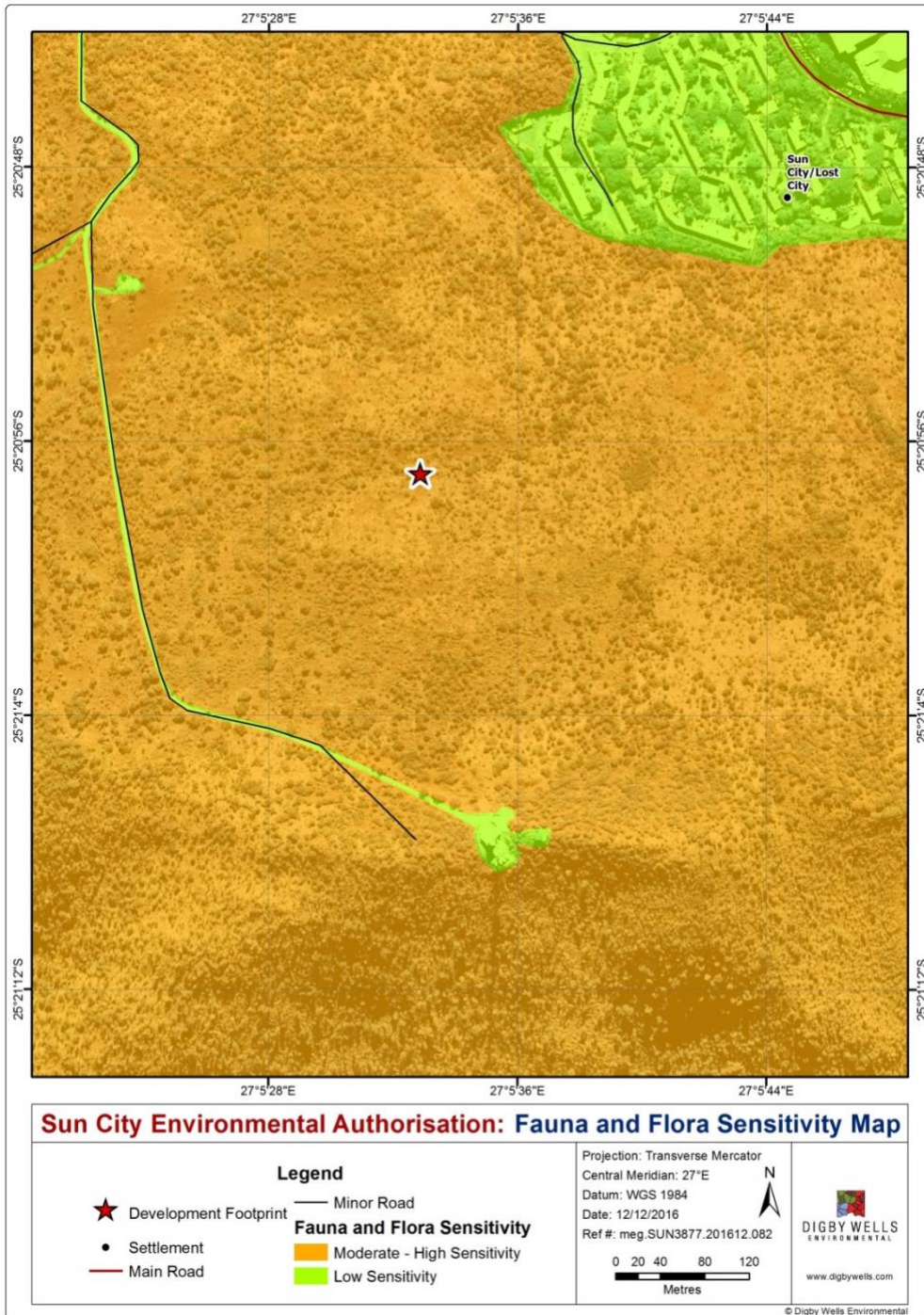
The following appendices must be attached:

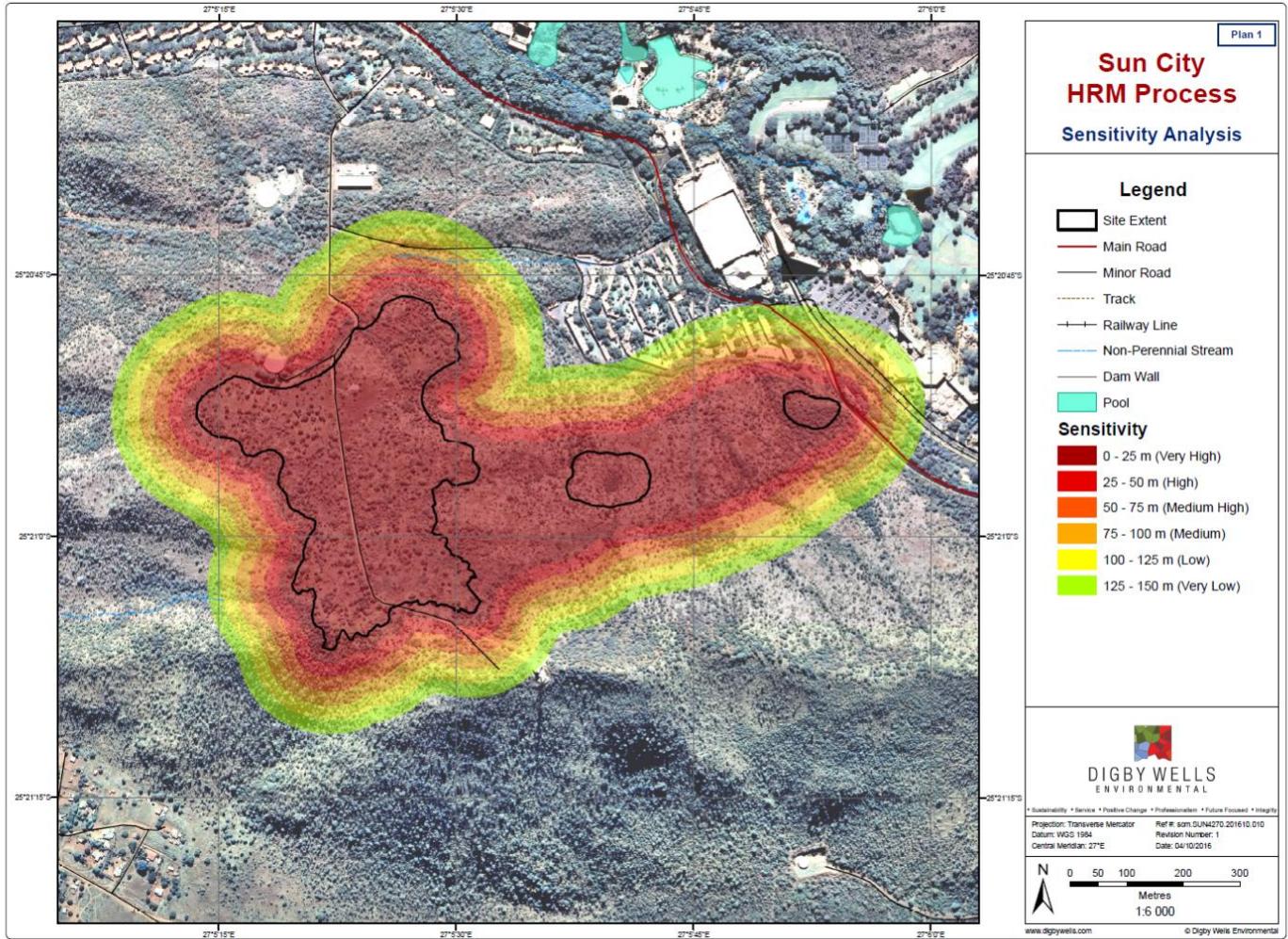
Appendix A: A3 Locality Map





Appendix B: Layout Plan and Sensitivity Maps





Appendix C: Photographs



Moderate sloped *Dichrostachys cinerea* encroached bushveld



Steep rocky Slopes



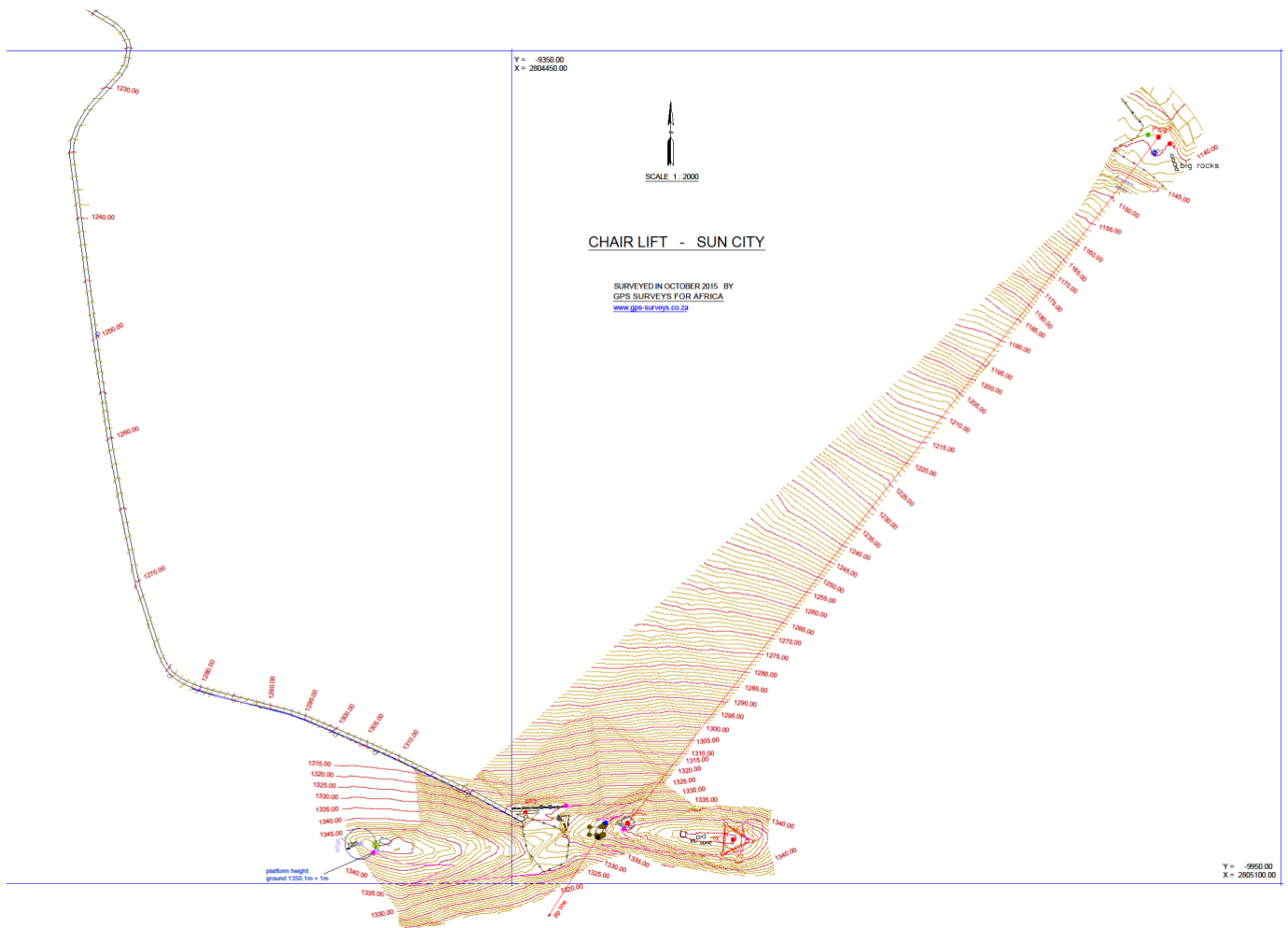
Northerly view

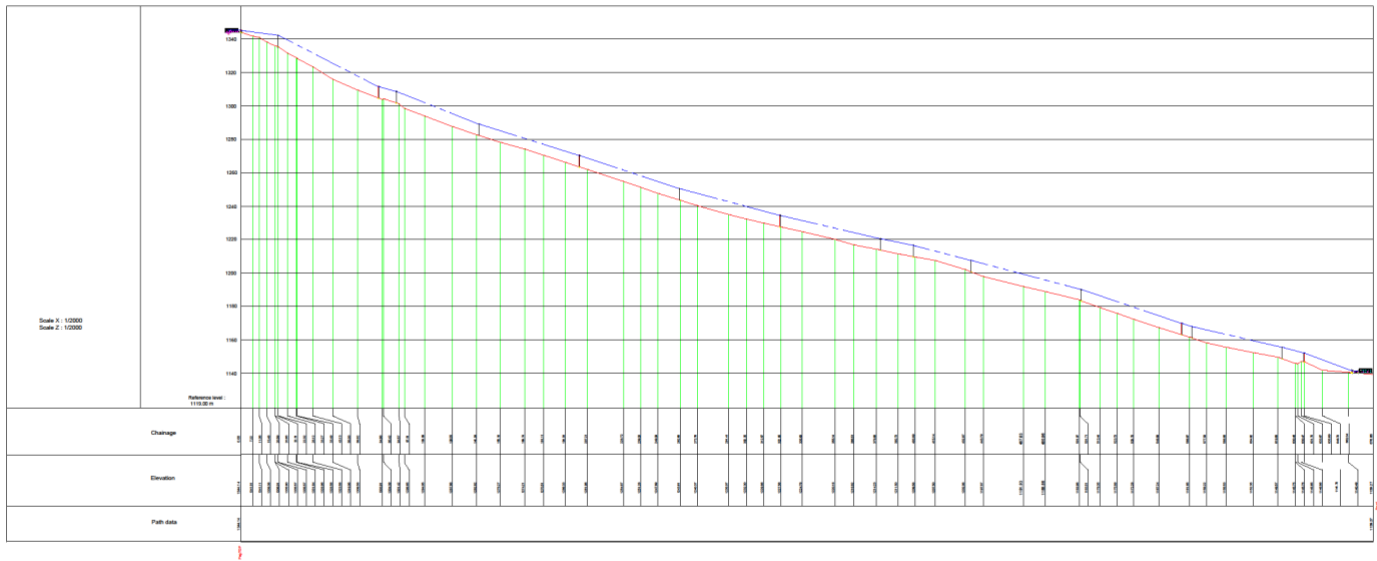


***Sclerocarya birrea*, Marula**

Appendix D: Facility illustration(s)







Appendix E: Confirmation of services by Municipality (servitude and infrastructure planning)

Not required. No additional services are required from the Municipality.

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

Attached as separate reports, and individual Declaration of Interests are included in the reports.

Appendix G: Specialist reports (including terms of reference)

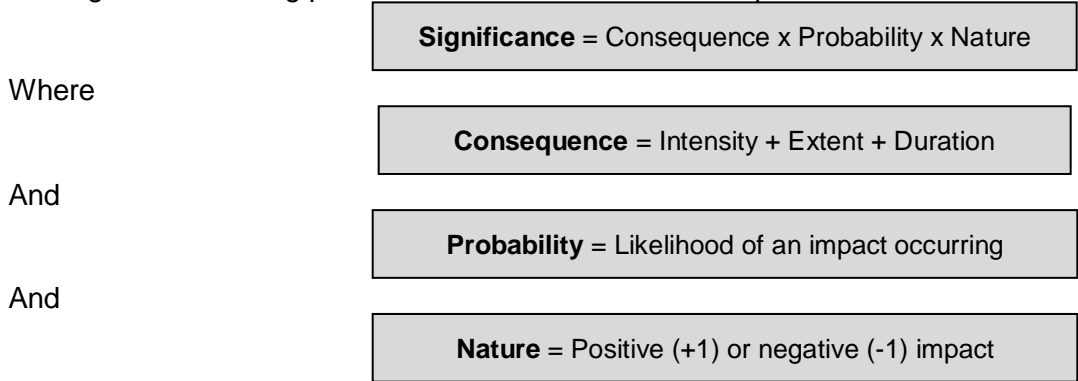
Attached as separate reports, and individual Terms of References are included in the reports.



**Appendix H: Impact Assessment
Fauna and Flora Impact Assessment**

Details of the impact assessment methodology used to determine the significance of physical, bio-physical and socio-economic impacts are provided below.

The significance rating process follows the established impact/ risk assessment formula:



Note: In the formula for calculating consequence, the type of impact is multiplied by +1 for positive impacts and -1 for negative impacts.

The matrix calculates the rating out of 147, whereby Intensity, Extent, Duration and Probability are each rated out of seven as indicated in Table 0-3. The weight assigned to the various parameters is then multiplied by +1 for positive and -1 for negative impacts.

Impacts are rated prior to mitigation and again after consideration of the mitigation measure proposed in this report. The significance of an impact is then determined and categorised into one of eight categories, as indicated in Table 0-2, which is extracted from Table 0-1. The description of the significance ratings is discussed in Table 0-3.

It is important to note that the pre-mitigation rating takes into consideration the activity as proposed, i.e. there may already be certain types of mitigation measures included in the design (for example due to legal requirements). If the potential impact is still considered too high, additional mitigation measures are proposed.

Table 0-1: Impact Assessment Parameter Ratings



Rating	Intensity/Replacability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	Positive Impacts (Nature = +1)			
7	Irreplaceable loss or damage to biological or physical resources or highly sensitive environments. Irreplaceable damage to highly sensitive cultural/social resources.	Noticeable, on-going natural and/or social benefits which have improved the overall conditions of the baseline.	<u>International</u> The effect will occur across international borders.	Permanent: The impact is irreversible, even with management, and will remain after the life of the project.	Definite: There are sound scientific reasons to expect that the impact will definitely occur. >80% probability.
6	Irreplaceable loss or damage to biological or physical resources or moderate to highly sensitive environments. Irreplaceable damage to cultural/social resources of moderate to highly sensitivity.	Great improvement to the overall conditions of a large percentage of the baseline.	<u>National</u> Will affect the entire country.	Beyond project life: The impact will remain for some time after the life of the project and is potentially irreversible even with management.	Almost certain/Highly probable: It is most likely that the impact will occur. <80% probability.
5	Serious loss and/or damage to physical or biological resources or highly sensitive environments, limiting ecosystem function. Very serious widespread social impacts. Irreparable damage to highly valued items.	On-going and widespread benefits to local communities and natural features of the landscape.	<u>Province/Region</u> Will affect the entire province or region.	Project Life (>15 years): The impact will cease after the operational life span of the project and can be reversed with sufficient management.	Likely: The impact may occur. <65% probability.



Rating	Intensity/Replacability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	Positive Impacts (Nature = +1)			
4	Serious loss and/or damage to physical or biological resources or moderately sensitive environments, limiting ecosystem function. On-going serious social issues. Significant damage to structures/items of cultural significance.	Average to intense natural and / or social benefits to some elements of the baseline.	<u>Municipal Area</u> Will affect the whole municipal area.	Long term: 6-15 years and impact can be reversed with management.	Probable: Has occurred here or elsewhere and could therefore occur. <50% probability.
3	Moderate loss and/or damage to biological or physical resources of low to moderately sensitive environments and, limiting ecosystem function. On-going social issues. Damage to items of cultural significance.	Average, on-going positive benefits, not widespread but felt by some elements of the baseline.	<u>Local</u> Local extending only as far as the development site area.	Medium term: 1-5 years and impact can be reversed with minimal management.	Unlikely: Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur. <25% probability.



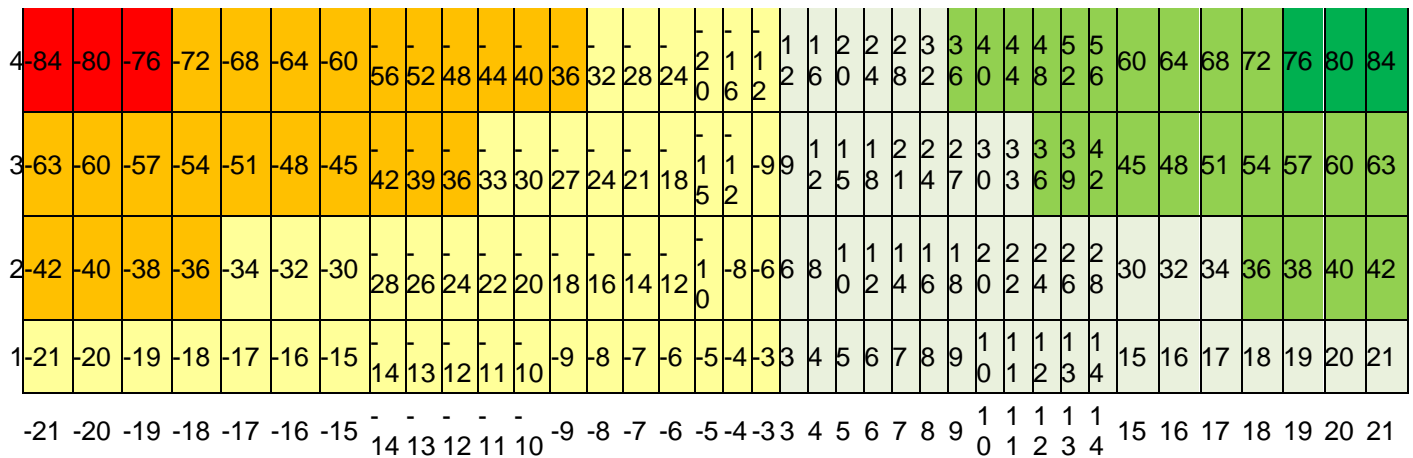


Table 0-3: Significance Rating Description

Score	Description	Rating
109 to 147	A very beneficial impact that may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change.	Major (positive) (+)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and/ or social) environment.	Moderate (positive) (+)
36 to 72	A positive impact. These impacts will usually result in positive medium to long-term effect on the natural and/ or social environment.	Minor (positive) (+)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the natural and/ or social environment.	Negligible (positive) (+)
-3 to -35	An acceptable negative impact for which mitigation is desirable. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural and / or social environment.	Negligible (negative) (-)



Score	Description	Rating
-36 to -72	A minor negative impact requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the natural and/ or social environment.	Minor (negative) (-)
-73 to -108	A moderate negative impact may prevent the implementation of the project. These impacts would be considered as constituting a major and usually a long-term change to the (natural and/ or social) environment and result in severe changes.	Moderate (negative) (-)
-109 to -147	A major negative impact may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects. The impacts are likely to be irreversible and/or irreplaceable.	Major (negative) (-)

1.1 Impact Assessment

1.1.1 Construction Phase

1.1.1.1 Project Activities, Site Clearing

The construction of the chairlift, ablation facilities and hiking trails will focus on low impact construction methods. The construction duration is expected not to exceed eight months. No labour camp will be established, and a bowser will be used to cart construction water to the site on a daily basis. The existing road to the top of the mountain will be used to gain access to the top station, ablation facility site and pylons. No new or additional access roads will be created. The access road servitude will be used to bury a conservancy tank for the ablation facilities. All equipment and construction material will be hand carted to the pylon sites. The clearing and trimming of trees and vegetation will be kept to a minimum with a platform created at each pylon, and a trail between the pylons, that will become the permanent access for maintenance purposes. The hiking trail will follow natural contours with a 50 cm path cleared through vegetation cutting and tree trimming. No trees will be removed, and no paving or any other infrastructure created for the hiking trail. Natural bioengineering methods will be used to control erosion.

During the construction phase (construction of surface infrastructure), mountain bushveld vegetation type, present on steep rocky slopes and more moderate footslopes will be impacted on. The impact of loss of mountain bushveld (assigned a medium-high sensitivity) will have negative impacts on biodiversity on a localised scale. It is not anticipated that any plant SSC will be lost, as these must be avoided during the planning phase of this project. Should any plant SSC be recorded within the infrastructure development footprint area, it should be reported to the relevant authorities and a relocation strategy must be compiled. Once all permits are in place, such species may be relocated.



Table 0-4: Interactions and Impacts

Interaction	Impact
Site clearing	Loss of Mountain Bushveld on steep slopes and Mountain Bushveld on moderate slopes.
	Habitat fragmentation and edge effects.

1.1.1.2 Impact Description

For site clearing, the Mountain Bushveld has been rated as moderately high sensitivity and will be negatively impacted on, through tree removal and pruning to accommodate the Chairlift and conservancy tank. The Mountain Bushveld represents a ubiquitous habitat that shows moderately high ecological sensitivity and as a result, the intensity of the impact was rated as minor. Further to this, the extent of the impact is limited to a very small area and will not have considerable negative impacts on overarching biodiversity of the site.

1.1.1.3 Management Objectives

The objective of management measures is to ensure that the impact to habitat is restricted only to the footprint area and that protected plant species are not affected through construction and AIPs invasion does not take place as a result of development.

1.1.1.4 Management Actions and Targets

In addition, the following mitigation and management measures have been prescribed:

- The footprint area should be kept as small as possible;
- Existing access roads should be used to reach the site for clearing and vehicles should not be allowed to traverse natural areas or leave the demarcated road, it has been established that no access roads will be constructed and materials will be moved by hand from the existing road;
- As plant SSC is present in the proposed Sun City Chairlift Project area, specifically *Spirostachys africana*, (Tambotie), *Boophane disticha* (Poison Bulb) and *Sclerocaria birrea* (Maroela), care must be taken not to disturb these plant species. As pruning of protected trees are a restricted activity that requires a permit from the Provincial authority, the trees that will be affected must be quantified and permits must be obtained; and
- An AIPs Management Plan should be implemented, whereby the disturbed site is monitored quarterly for at least two years to ensure that AIPs does not take place. Currently bush encroachment is an issue on the lower slopes of the proposed Sun City Chairlift Project area, this problem is likely to spread of uncontrolled grazing in allowed to continue in controlled.

1.1.1.5 Impact Ratings

The impacts of the construction phase are rated in the table below.

Table 0-5: Potential Impacts of the Construction Phase – Loss of Habitat/Vegetation Types



Dimension	Rating	Motivation	Significance
Site Clearing			
Impact Description: Loss of Mountain Bushveld on steep slopes and Mountain Bushveld on moderate slopes			
Prior to Mitigation/Management			
Duration	Medium-term (3)	Limited native vegetation will be removed for surface infrastructure and the impact will be permanent, but reversible. Fauna species will move away with no permanent impact on them.	Minor (negative) 49
Extent	Very limited (1)	The area to be cleared is minor in comparison to the extent of the vegetation unit, as well as the extent of the total study area. No faunal SSC was encountered in the area of disturbance; therefore no direct impact is expected.	
Intensity x type of impact	Moderate (-3)	Since the vegetation unit has been assigned moderate-high ecological sensitivity and the area coincides with CBA1, the impact is not regarded as particularly significant for terrestrial biodiversity.	
Probability	Certain (7)	Clearing of vegetation will definitely take place for the establishment of infrastructure, but this will take place on very limited areas.	
Nature	Negative	The impact will be negative.	
Mitigation/Management Actions			
<ul style="list-style-type: none"> ▪ Rehabilitation of the disturbed area should take place after construction, whereby a mixture of native grass species harvested from climax <i>Themeda</i> grassland and native grass species (such as <i>Cynodon dactylon</i>) are planted immediately to prevent erosion, this must be completed soon after construction stops to avoid erosion from the steep slopes that the project is located on; ▪ The footprint area should be limited as far as possible; and ▪ Protected species, <i>Spirostachys africana</i>, Tambotie, <i>Boophane disticha</i>, Poison Bulb and <i>Sclerocaria birrea</i>, Maroela are present at the site, all effort must be made to avoid disturbance of these species. 			
Post-Mitigation			
Duration	Project Life (3)	The area will return to natural if the chairlift is removed.	Minor (negative) 35
Extent	Very limited (1)	The area to be cleared is minor in extent.	
Intensity x type of impact	Minimal (1)	No loss of SSC or the moderate-high sensitive vegetation type is expected.	
Probability	Likely (7)	This impact will occur.	
Nature	negative	The impact will be negative.	



Table 0-6: Potential Impacts of the Construction Phase –Alien plant Invasion

Dimension	Rating	Motivation	Significance
Site Clearing			
Impact Description: Alien plant invasion			
Prior to Mitigation/Management			
Duration	Medium-term (3)	Habitat fragmentation and AIPs invasion will take place on a small scale	Minor (negative) 54
Extent	Limited (2)	AIPs will establish around disturbed areas associated with the construction phase.	
Intensity x type of impact	Serious (4)	AIPs invasion is a serious problem with significant ecological consequences; hence its reference in the NEM: BA and CARA legislation.	
Probability	Highly probable (6)	Since AIPs have already been recorded on site, the spread of these species due to disturbance will invariably take place. The seedbank in the soil will contain alien species.	
Nature	negative	The impact will be negative	
Mitigation/Management Actions			
<ul style="list-style-type: none"> ▪ An AIPs Management Plan should be compiled and implemented. 			
Post-Mitigation			
Duration	Medium-term (3)	As seedlings emerge, they will be removed bi-annually as part of an AIPs Management Plan.	Minor (negative) 42
Extent	Limited (2)	AIPs will establish around disturbed areas associated with the construction phase.	
Intensity x type of impact	Minimal (1)	AIPs invasion is serious for terrestrial biodiversity; however, if these species are controlled timeously, the impact will be reduced.	
Probability	Likely (7)	Since AIPs have already been recorded on site, the spread of these species due to disturbance will invariably take place. The seedbank in the soil will contain alien species.	
Nature	Negative	The impact will be negative	



1.1.2 Operations Phase

1.1.2.1 Project Activities Assessed

During the operational phase of the development, the chairlift and hiking trail will be in use by guests. No planned loss of habitat or flora species are expected, however the chairlift cable does pose a collision risk for birds, specifically slow flying large bodied species. The only activity that is considered at this time is increased human activities on the site.

1.1.2.2 Impact Description

Due to increased human movement on site, fauna may be disturbed due to noise and litter. Due to the presence of large bodied birds that are known to occur in the Pilansberg National Park and Waterbirds form the Sun City lake, these include, Cape Vulture (*Gyps coprotheres*), White-backed Vulture (*G. africanus*), Lappet-faced Vulture (*Torgos tracheliotus*), Verreaux's Eagle (*Aquila verreauxii*), Wahlberg's Eagle (*Hieraetus wahlbergi*), African Hawk Eagle (*Aquila spilogaster*), Brown Snake Eagle (*Circaetus cinereus*), Black-chested Snake Eagle (*C. pectoralis*). As these birds are known to forage over large areas the possible interaction between them and the cables, suspended chairs and supporting pylons must be quantified.

1.1.2.3 Management Objectives

The objective of management measures is to ensure that littering does not take place and faunal disturbance is kept to a minimum. Furthermore the objective is to ensure that no bird collisions take place.

1.1.2.4 Management Actions and Targets

Signage should be erected to indicate an expected plant and animal species, and that no disturbance of these is allowed. Bird deflectors must be installed on cables, chairs and pylons to make the structures visible to birds in flight.

1.1.2.5 Impact Ratings

The impacts of the operational phase are rated in the table below.

Table 0-7: Potential Risks of the Operational Phase disturbance to fauna including birds

Dimension	Rating	Motivation	Significance
Increased vehicular movement and noise on site			
Impact Description: Disturbance to fauna on site (noise, litter), including bird collisions			
Prior to Mitigation/Management			
Duration	Project life (5)	The impact will last for the project life.	Moderate (negative) 84
Extent	Municipal area (4)	The extent could affect breeding pairs within the Pilansberg National Park, even though surface infrastructure is minimal.	



Dimension	Rating	Motivation	Significance
Intensity x type of impact	Limited (-5)	Certain Red Data avifauna species are expected to be at risk but the impact will not be frequent.	
Probability	Highly probable (6)	This is a commonly observed impact but it is not definite.	
Nature	negative	The impact will be negative.	
Mitigation/Management Actions			
<ul style="list-style-type: none"> ▪ Install bird deflectors on cables, chairs and pylons to make the structures visible to birds in flight; ▪ Erect signage on site; ▪ Adhere to designated areas; and ▪ Ensure guest know that feeding of/interaction with animals are not allowed. 			
Post-Mitigation			
Duration	Project Life (5)	The impact will last for the project life.	Negligible(negative) 24
Extent	Municipal Area (4)	The extent is limited since surface infrastructure is minimal.	
Intensity x type of impact	Moderate (3)	Very few Red Data avifauna species are expected to be at risk and the impact will not be frequent.	
Probability	Rare (2)	Animals would have moved away by this time.	
Nature	negative	The impact will be negative.	

1.2 Cumulative Impacts

The greater study area has in parts been impacted due to historical agriculture and livestock farming and current impacts that accompanies the operation of the Sun City Resort. The cumulative effects of the proposed Sun City Chairlift Project construction will affect the areas available for grazing and browsing that wild herbivores need for survival, it will however not be a severe impact due to the small footprint of the actual disturbance areas or pylons. The ecosystem functioning and services that are currently produced in the area could be impaired or reduced in small areas; these include food and shelter for the animals. The footprint of the proposed pylons and base stations areas and access roads will impact minimally on the ecosystem services and present habitats such as mountain Bushveld.

Heritage Impact Assessment

Impact assessment

This section provides the reader with an assessment of the CS of *Itlholanoga* and the potential impacts to the site by the Project. These are presented separately below.



Cultural significance assessment

The CS of the *Itlholanoga* was determined based on its importance or contribution to four broad value categories, i.e. aesthetic, historical, scientific and social. The assessment contributes to the development of appropriate management and mitigation measures commensurate to the determined CS in accordance with the published SAHRA minimum standards.

The CS assessment is summarised in Table 0-1:

Table 0-1: The CS assessment for *Itlholanoga*

Description	Aesthetic	Historic	Scientific	Social	INTEGRITY	Designation	Recommended Field Rating	Field Rating Description	Recommended Mitigation
<i>Itlholanoga</i>	5 The stonewalling demonstrate principle characteristics in terms of the development of Tswana capital settlements. These are considered irreplaceable	5 The site has relevance to the history of the Tlokwa their place in events in the pattern of South Africa's history	4 The site may yield scientific information that will contribute to an understanding of South Africa's cultural heritage.	4 The site has strong affiliations with the Tlokwa and their history in the region. It further has relevance to the scientific community for its potential contribution to understanding of historical groups, archaeological material culture and historical events within the region.	4 There is a high potential to yield information from the site. The identified extent of the site represents the last remaining elements of a much larger complex as evidence in the 1948 aerial imagery. The fabric of the site remains intact and has excellent preservation.	Very High	Grade II ²	Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region	Project design must change to avoid all change to resource; Conserved in entirety, CMP. The CMP should be completed in support of a Grade II Site Nomination

Heritage impact assessment

The assessment considers the possible direct and indirect impacts on *Itlholanoga* by the identified listed activities, as presented in **Error! Reference source not found.**, relative to the aforementioned CS. This section presents the possible direct impacts to the site during the construction phase, and considers the possible indirect impacts that may manifest during the operation of the Project. These are discussed separately below.

Construction

The construction phase of the Project presents the greatest likelihood for direct impacts on *Itlholanoga* to manifest. The identified impacts and management/ mitigation measures are discussed below.

Listed activities considered

Construction activities that may have a direct negative impact to *Itlholanoga* includes GN R 985 Activity 12 – clearance of an area of 300 m² or more of indigenous vegetation.



Potential impact description

Construction activities may result in damage and/ or destruction to surface features, i.e. stonewalling, and possible sub-surface features associated with the settlement site.

Management objectives

The management objectives for the identified possible damage to and/or destruction of surface and sub-surface features of the site are to avoid the direct impact through implementation of project related management measures.

Management actions and targets

The management measures must be completed in accordance with the minimum levels prescribed in the published SAHRA minimum standards. Project design must change to avoid all direct impacts to the heritage resources and conserve the site in its entirety and managed through a Conservation Management Plan (CMP)/ Heritage Site Management Plan (HSMP). The following management measures are recommended:

- Sun International must commission an HSMP for *Itlholanoga* as a condition of authorisation for approval by SAHRA. The HSMP must be developed in support of a Grade II Site Nomination and for the appropriate management of the site during the construction and operation of the Project. The HSMP must aim to control the elements that make up the physical and social environment of the site, i.e. its physical condition, public visitors and interpretation, and promote/ enhance its conservation and maintenance through deliberate and thoughtful design; and
- A Watching Brief must be undertaken by a qualified archaeologist during the construction activities of the chair lift and hiking trail, specifically during the establishment of access, drilling of pylon foundations, and clearing of the proposed maintenance route and hiking trail.

Impact ratings

A summary of the impact assessment is presented in table below.

Summary of the assessment for the damage or destruction of surface and sub-surface features of *Itlholanoga*

IMPACT DESCRIPTION: Damage / Destruction of surface and sub-surface features				
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Permanent (7)	Unmitigated/ managed construction activities may result in permanent damage to the site	Consequence: Moderately detrimental (-13)	Significance: Moderate - negative (-91)
Extent	Very limited (1)	Based on the nature of the Project, potential negative impacts will be limited to certain aspects of the site		



Intensity x type of impact	High - negative (-5)	Based on the nature of the construction activities, this may manifest as a minor change to a heritage resource with high CS		
Probability	Certain (7)	Without appropriate management, it is certain that construction activities will damage aspects of the site.		
MITIGATION:				
Develop a HSMP to manage the site, construction and operation activities to promote the responsible conservation of the site. Undertake a Watching Brief during the construction phase to guide activities and record any sub-surface features that may be exposed.				
POST-MITIGATION				
Duration	Beyond project life (6)	Where sub-surface features are exposed during the construction phase, these will be recorded and mitigated by the qualified archaeologists undertaking the Watching Brief, and guide construction activities to remove further negative impacts. This will be controlled and add value and information to the site that will extend beyond the project life	Consequence: Highly beneficial (17)	Significance: Minor - positive (51)
Extent	Very limited (1)	Based on the nature of the Project, potential negative impacts will be limited to certain aspects of the site. Exposed sub-surface material, however, will contribute to the value of the site and the context of archaeological context of the Rustenburg/ Pilanesberg region		
Intensity x type of impact	Very high - positive (6)	Where impacts manifest, these are considered a minor change to a heritage resource with high CS. The value of the exposure of sub-surface material culture, however, is considered as a moderate positive change if managed through the HSMP		
Probability	Unlikely (3)	It is unlikely that damage to the site will occur with the implementation of proposed management measures. Where exposure of sub-surface features do occur, this will be controlled and add value to the understanding of the site		

Operation/ Use

The operational phase, i.e. use of the chair lift and specifically the hiking trail, may result in potential indirect impacts. As defined above, indirect impacts are those which are viewed in relation to the causal activity, but occur at a different time to that activity. In this instance, the establishment of the hiking trail (*causal activity*) will result in increased human traffic through the site (*indirect impact*) that may result in the erosion of the trail that



may expose sub-surface features, possible looting and vandalism of the site (*direct impacts*). The identified potential impacts to the site are considered separately below.

Potential impact description

Operational activities through the expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded include:

- Unmanaged human traffic through the site may exacerbate natural processes of erosion that may expose sub-surface features;
- Possible looting of archaeological material culture generally protected by Section 35 of the NHRA; and
- Vandalism to the stonewalled settlement that may degrade the integrity of the site and effect CS value.

Management objectives

The management objectives for the operation of the Project are to avoid identified impacts through implementation of project related management measures.

Management actions and targets

The management measures must be completed in accordance with the published SAHRA minimum standards. The aforementioned HSMP must be implemented prior to the construction and operation of the development.

Impact ratings

A summary of the impact assessment is presented in **Error! Reference source not found..**



Summary of the assessment for increased human traffic through the site

IMPACT DESCRIPTION: Increased human traffic through the site that may result in damage, including looting and vandalism				
Dimension	Rating	Motivation		
PRE-MITIGATION				
Duration	Project Life (5)	Increased human traffic through the site will continue throughout the life of the Project	Consequence: Highly detrimental (-15)	Significance: Moderate - negative (-105)
Extent	Local (3)	Damage to the site is envisaged to occur at one or more components of the site that through time could decrease the integrity of the entire site.		
Intensity x type of impact	Extremely high - negative (-7)	This will result in a major change to a heritage resources with very high CS		
Probability	Certain (7)	Unmanaged human traffic through the site will result in damage to surface and sub-surface features		
MITIGATION:				
Develop a HSMP to manage the site, construction and operation activities to promote the responsible conservation of the site.				
POST-MITIGATION				
Duration	Project Life (5)	Increased human traffic through the site will continue throughout the life of the Project	Consequence: Moderately beneficial (12)	Significance: Minor - positive (72)
Extent	Very limited (1)	Certain aspects of the site may be damaged by increased traffic, this will be limited to certain components of the site. Where the parts of the site through which the trail runs are recorded in detail, the impact will be reduced.		
Intensity x type of impact	Very high - positive (6)	The HSMP will result in a moderate positive change to the site through appropriate management		
Probability	Highly probable (6)	The implementation of the HSMP will promote positive change to the site and contribute to the objectives development plans (See Section Error! Reference source not found.)		

Low risk and unplanned events

Certain project activities may represent low risks to heritage resources or cause unplanned events. Low risks, where identified, can be monitored to gauge if the baseline changes and mitigation is required. Unplanned



events are events that can occur on any project and cannot be monitored, but can, however, be planned for to reduce the severity of potential impacts if and where they occur.

Information on the potential impacts of these events and management plans are summarised in **Error! Reference source not found..**

Summary of potential unplanned events, potential impacts, and proposed mitigation and management

Unplanned event	Potential impact	Mitigation/ Management/ Monitoring
Accidental exposure of previously unidentified heritage resources during the construction of the Project.	Damage or destruction of heritage resources generally protected under Section 35 and 36 of the NHRA.	Undertake the recommended Watching Brief and develop project specific Chance Find Protocols (CFPs) as a condition of authorisation. The CFPs must clearly describe the type of heritage resources that may occur within the site specific project area, the protocol to follow in the event of accidental exposure of previously unidentified heritage resources, and the appropriate management measures and reporting structures to be adhered to. The CFPs must be defined and established prior to the construction phase of the proposed Project.

Sensitivity analysis and consideration of alternatives

As part of the requirements of the NHRA, consideration of alternatives to the project must be completed to assess the suitability of the Project in relation to the possible impacts to the identified heritage resources, in this instance *Itholanoga*. Here, any proposed changes to *Itholanoga* must be considered in relation to the integrity/ condition, CS/ special value as defined by subsection 3(3) of the NHRA, Field Ratings and the SAHRA Minimum Standards.

To this effect, the suitability of the Project was subjected to a Multi-Criteria Decision Analysis (MCDA) utilising a simple linear additive evaluation model. In this instance, the suitability was considered against the following criteria:

- Criteria 1: The level of existing anthropogenic disturbance to the site;
- Criteria 2: Potential for occurrence of unidentified heritage resources, both on the surface and at sub-surface levels that may be impacted upon;
- Criteria 3: The likelihood of *Itholanoga* to be impacted upon and the loss of integrity of the site; and
- Criteria 4: The potential that permitting requirements will be applicable.

These criteria were rated on a scale from 1 (unsuitable) to 5 (most suitable) to quantifiably compare the suitability of the Project. Once the ratings were determined against the criteria above, these were calculated to determine the overall suitability ranking.

Alternatives assessed in this section include:



- The proposed chair lift route and stations;
- Hiking Trail – Northern route; and
- Hiking Trail – Southern route.

A summary and motivation of the various alternatives under consideration are presented **Error! Reference source not found.**

Multi-criteria decision analysis

Criteria	Chair Lift Suitable	Hiking Trail – North Unsuitable	Hiking Trail – South Negligible
1 Level of existing disturbance	4 – Suitable The proposed top and bottom location of the stations have been altered through anthropogenic activities. A survey of the areas yielded no heritage resources that will be impacted upon. Furthermore, the development footprint of the pylons will be ~3 m ² and no heritage resources were identified in the alignments.	1 – Unsuitable While there has been encroachment on the site, the proposed route is through the settlement that has remained intact through time and subject to minimal disturbance.	2 – Less suitable The proposed route occurs predominantly on the periphery of the recorded extent of the site, adjacent to areas disturbed through the construction of the road. This section, while partially disturbed, is considered still largely undisturbed, but more suitable than the northern routing option.
2 Potential for unidentified heritage resources	4 - Suitable A survey of the proposed station locations and routing option did not record any surface indicators for heritage resources. Installation of the pylons will also have a minimal impact footprint.	1 – Unsuitable The potential to identify sub-surface features during the construction and operation of the route is almost certain.	5 – This route is the most suitable as it avoids a large portion of the internal configuration of the site and decreases the potential for exposing unidentified sub-surface features.
3 Likelihood of impacts and loss of integrity	5 – Most suitable The chair lift will be elevated and not impact upon the stonewalled site. It will also remove the element of human traffic through the site	1 – Unsuitable Unmitigated use of the site via the proposed route will increase the potential for impacts and loss of integrity to a point of certainty.	4 – Suitable Unmitigated use of the site via the proposed route will increase the potential for impacts and loss of integrity but to a lesser degree as it is primarily situated on the periphery of the site.
4 Potential permitting	4 – Suitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is low.	1 – Unsuitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is high.	1 – Unsuitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is high.

Appendix I: Public Participation

To be updated after Public Participation Process has been completed.

Appendix J: Environmental Management Programme (EMPr)



Attached as a separate report.

Appendix K: Details of EAP and expertise

Name of firm: MDT Environmental (Pty) Ltd

Name of Staff: Deon Esterhuizen

Profession: Environmental Scientist

Date of Birth: 6 June 1968

Nationality: South African

Professional Natural Scientist (RN: 400154/09)

Membership in Professional Societies:

Registered with the South African Council for Natural Scientific Professions: Professional Natural Scientist - Environmental Science (RN: 400154/09).

Member of the International Association for Impact Assessors South Africa.

Member of the Groundwater Division of South Africa.

KEY QUALIFICATIONS:

Deon has a MSc in Environmental Ecology with 27 years of experience in water related projects, which include water resource management, water quality management, water use registration and licencing of water users, including project management of multi-disciplinary studies. He also has extensive experience in a wide-range of environmentally related projects, processes and applications for private, commercial and industrial clients, in addition to local, provincial and national government departments.

He has gained experience through his involvement in a number of water resources related projects, including ensuring the protection, development, conservation, management, use and control of the water resources in the Gauteng Region's area of responsibility in a sustainable manner as well as co-ordinating the management of the quality of the water resources of a specific catchment on an ongoing basis to achieve water resource objectives during his employment at the Department of Water and Sanitation. Specific focus areas included:

- Catchment Management Strategies & Plans
- Water Quality Management Plans
- Registration and Licensing of water users
- Assessing water requirements for basic human needs and riverine ecology
- Determining stream-flow assimilative capacity for pollution loads
- Water quality guidelines
- Industrial wastewater treatment and disposal



He has gained experience through environmental related projects as a consultant at ILISO Consulting (Pty) Ltd and BKS (Pty) Ltd in the fields listed below:

- Integrated Environmental Management (IEM) in general
- Environmental Impact Assessments (EIAs)
- Environmental Management Plans (EMPs)
- Environmental monitoring and auditing

He has been the project leader and coordinator on a number of large, strategically important and multi-disciplinary projects for various clients, including international (Africa) projects as well as fulfilling the role of an external reviewer for the Department of Water and Sanitation as well as other consulting firms.

He has gained operational knowledge and experience of applying the IFC Social and Environmental Performance Standards, specifically on the Olifants Water Resources Development Project. He developed and implemented environmental and social mitigation and management plans that have been approved by the relevant environmental authorities.

EDUCATION:

M.Sc (Environmental Ecology) University of Pretoria 2003
B.Sc (Honours), Rand Afrikaans University 1991
B.Sc (Botany & Zoology), Rand Afrikaans University 1990

ADDITIONAL COURSES:

Environmental Water Quality Monitoring 2011
River hydraulics, stormwater & flood management, Stellenbosch University 2009
Environmental Risk and Impact Assessment, Rhodes University 2006
Reserve Determinations and Procedures, DWAF 2000
Project Management, Compu-Tutor 2000

EXPERIENCE RECORD:

ILISO Consulting (Pty) Ltd
August 2005 to present
Technical Director.

- Environmental and Social Lead of the Olifants River Water Resources Development Project - Sub- Phases 2C. Responsible and accountable for the management of all environmental and social related tasks performed by two Environmental Monitors, two Social Monitors, and a Land Acquisition Team. This team was responsible to ensure that the Contractor executes the project within the guidelines of legislation, the environmental authorisation, the environmental management plan, and project specifications. Trans Caledon Tunnel Authority. January 2011 - Current.
- Environmental and Social Lead of the Olifants River Water Resources Development Project - Sub- Phases 2B, C, D, E, & F. Responsible and accountable for the management of all environmental, social and land acquisition tasks and reports directly to the Project Manager / Engineer. Numerous design related activities were completed, including the development of project environmental compliance specifications, environmental management system, stakeholder relations strategy, and resettlement action plan. Trans Caledon Tunnel Authority. December 2009 - Current.



- Compilation of an application for exemption from minimum emission standards and extension of the minimum emission standard timeframes for Eskom's Power Stations, including supporting studies. Eskom (Pty) Ltd. Preparation of the surface water specialist report. 2013 - 2014.
- Application for the rectification in terms of section 24G for the unlawful construction of facilities and infrastructure for the return of service of the Eskom Komati Power Station. 2012.
- Application for the rectification in terms of section 24G for the unlawful construction of facilities and infrastructure for the Eskom Kusile Power Station. 2012.
- Application for an integrated environmental authorisation and waste management licence in terms of the National Environmental Management Act and the Waste Act for activities on the Eskom Kusile Power Station construction site. 2012 - current.
- Mafutha Environmental Impact Assessment for Sasol (Pty) Ltd. Responsible for the Surface water specialist study and water balance development. June 2010 - June 2011.
- Feasibility study for the construction of bridges linking Okahandja to Ovitoto communal area. Ministry of Works and Transport. Undertake an environmental screening in terms of the Environmental Management Act (2007) (EMA) that was promulgated in December 2007. 2010.
- Design and construction of Botsabelo Complex - Lesotho blood transfusion services centre, National Reference Laboratory, student accommodation at the National Health Training College. The Government of the Kingdom of Lesotho Millennium Challenge Account. Development of an Environmental Protection Plan for implementation during construction. The development of method statements for key environmental construction activities. 2010.
- Stormwater Audit at Namibian Custom Smelters in Tsumeb, Namibia. Namibian Custom Smelters (Pty) Ltd. 2012.
- Braamhoek Integrated Water Use Licence Application: Peer review of the draft Integrated Water Use Licence application for the proposed Braamhoek Pump Storage Scheme. 2005.
- Integrated Stormwater Management: Boepenspruit: Environmental Impact Assessment - Scoping for a record of decision application in terms of the Environmental Conservation Act. 2005.
- Gautrain Rapid Rail Link: Part of the ISAA Joint Venture compiling the Initial Works Environmental Management Plan and Draft Final Environmental Management Plan as required by the Record of Decision issued by the Gauteng Department of Agriculture, Conservation and Environment. 2005.
- Gautrain Rapid Rail Link: Preparing the surface water specialist report in support of the variant alignment environmental impact assessment study. 2006
- Department of Water Affairs & Forestry: Mpumalanga Region. Task Leader of a multi disciplinary team to assist the Mpumalanga Regional Office: Water Quality Management with line function work. 2006.
- Gauteng Region Office Technical and Administrative Support project. Project Manager of a multi disciplinary team to assist the DWAF Gauteng Regional Office with specific technical tasks. 2006 – 2009.
- Task Leader for preparing the Water Use Licence application for the Tshwane Metro Zeekoegat Waste Water Treatment Works. 2007 – 2010.
- Environmental specialist for a 42 month construction period of the Thune Dam in Botswana. 2007 – current.
- Preparation of an Environmental Management Plan for the Groot Letaba proposed storage dam. Department of Water Affairs and Forestry. 2007 – 2009.
- Project Manager of a multi disciplinary team to develop a National Groundwater Strategy for the Department of Water Affairs and Forestry. 2007 – 2010.
- Preparation of the surface water specialist report for the proposed Nelspruit Ring Road. 2007.



- Preparation of the surface water specialist report for the proposed expansion of ArcelorMittal in New Castle. 2008.

BKS (Pty) Ltd, Pretoria
January 2000 to July 2005
Director.

- Olifants River Catchment Ecological Water Requirement Assessment (Mpumalanga): Determination of the ecological reserve of the river (Management Consultant) Responsible for project co-ordination and administration. 2000-2002.
- Olifants / Doring River Rapid Reserve Assessment (Western Cape): Conducting a rapid reserve assessment of three sites in the Olifants and Doring Rivers for the provincial Department of Agriculture in the Western Cape. 2000-2002.
- Olifants / Doring River Basin Study (Western Cape): Determination of the ecological reserve of the river (Management Consultant) Responsible for project co-ordination and administration. 2000-2002.
- Assessment of Domestic Water Supplies, Volume 5: Management Guide. Development of a management guide, which forms part of a series, which is intended to provide water supply agencies, water resource managers, workers in health related fields, as well as communities throughout South Africa with guidance on domestic water quality with regard to planning a new domestic water supply scheme, implementation of a domestic supply scheme, and the management of an exiting domestic supply scheme. 2001-2002.
- DWAF, RDM-Office structure. Preparation of a strategy and plan to determine the Ecological Reserve for each significant resource, within the constraints of human and financial resources. Two components were developed namely, a structure / framework for the RDM-Office and the implementation of a control auditing system.
- Nylstroom Municipality Waste Water Treatment Plant. Licence application. Evaluation of the licence application in terms of the National Water Act. 2001.
- Thaba Chweu Municipality Waste Water Treatment Plant Licence application in terms of the National Water Act. 2002.
- Olifants River (Mpumalanga). Assisting the DWAF with the registration of all water uses in the catchment. 2001-2002.
- Leboeng Community Safety Centre. Registration of the waste water treatment facility in terms of the National Water Act. 2001.
- Mhlathuze Water. The completion of a licence application in terms of the National Water Act for two sea outfall pipelines into the Indian ocean. 2001-2002.
- Lower Spekboom Irrigation Board. Motivation on behalf of the Board to the DWAF requesting funds from their reserve fund for the rehabilitation of their canal system. 2002.
- Modder and Riet Rivers Catchment. Development of a Catchment Management Strategy and determination of an intermediate ecological Reserve. 2002-current.
- Water Quality Performance Assessment System. Development and implementation of a water quality performance assessment system for the DWAF Water Quality Management Directorate and the Gauteng Regional Office: Upper Vaal Water Management Area. 2002-current.
- Rietfontein WwTW (Madibeng Local Authority) Waste Water Treatment Plant Licence application in terms of the National Water Act. 2003.
- Rietfontein WwTW (Madibeng Local Authority) Waste Water Treatment Plant Environmental Impact



Assessment - Scoping for a record of decision application in terms of the Environmental Conservation Act. 2003.

- Da Gama Textiles Licence application in terms of the National Water Act. 2003.
- De Beers Kimberley Mines. The redrafting of the De Beers Kimberley Mines EMPR to consolidate all the relevant information into one document, to align the mine activities and EMPR with new anticipated legal requirements, and to align the EMPR to the Kimberley Mines Environmental Management System. 2003.
- Department of Water Affairs & Forestry. Project Manager of a project to develop a Water Quality Management Plan for the Waterval River catchment, DWAF Gauteng Regional Office. 2003.
- Department of Water Affairs & Forestry. Project Manager of a multi disciplinary team to assist the Gauteng Regional Office: Water Quality Management with line function work. 2003.
- ERPM Gold Mine Water Management Plan development and licence application in terms of the National Water Act. 2003.
- Olifants River Water Resources Development Project. Task Leader to assist the project co-ordinator on the management of the environmental and public participation tasks within this multi-disciplinary project. 2004
- Republic of Botswana. Ministry of Minerals, Energy and Water Affairs: Department of Water Affairs. EIA study in respect of detailed design of Lower Shashe Dam. Final EIA report. Review of issues identified and addressed in EIA report. 2004
- East-West highway Jamahiriya toll road feasibility study. Libya. Environmental Impact Assessment. 2005.

**Department of Water Affairs and Forestry, Pretoria
1991 to 1999
Assistant Director.**

- He was responsible for the management in an integrated manner all water resource related issues within the Mooi River, Taai and Leeu Spruit, Vaal Barrage and Liebenbergsvlei catchments. With his knowledge gained throughout the years he lectured all new Water Quality Managers appointed at the DWAF during the internally developed orientation course for water quality managers.

LANGUAGES:

	Speak	Read	Write
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

CERTIFICATION:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.





Deon Esterhuizen

Appendix L: Any other Information

None.

Appendix M: Financial Provision (if applicable)

Not Applicable.

Appendix N: Closure Plan (where applicable) as described in Appendix 5 of EIA Regulations, 2014

Not Applicable.

