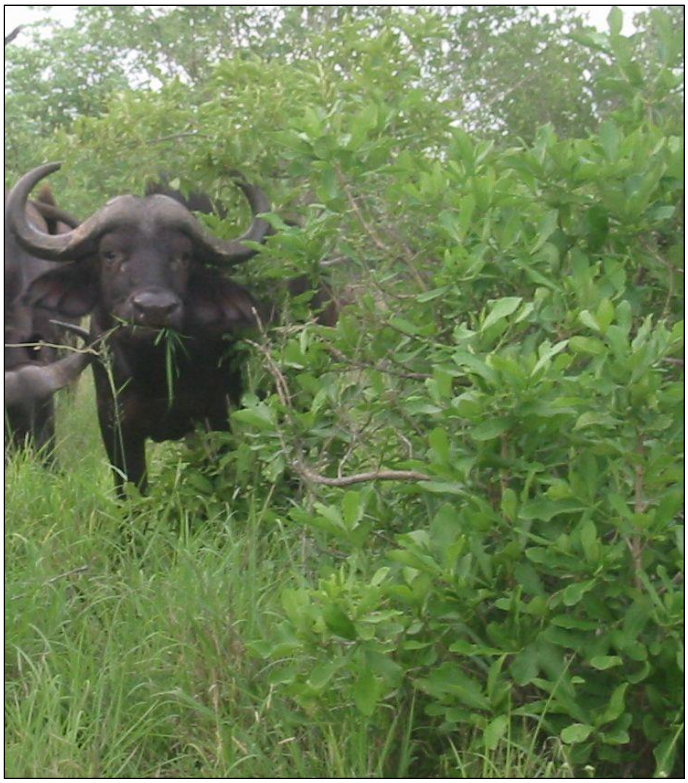


DRAFT BASIC ENVIRONMENTAL ASSESSMENT REPORT

May 2014.

REF: 17/2/3/E-252

PROJECT:
The upgrade and expansion of various facilities in the Londolozi Camp, Sabi Sand Game Reserve

CONSULTANT:
EMROSS Consulting
P.O. Box 507
White River
1240
Phone: 013 750 2782
Cell: 082 3399 627
Fax: 086 675 4320
Email: andrew@emross.co.za

APPLICANT:
Londolozi Game Reserve Trust
Contact: Chris Goodman
Postal address: PO Box 6
Skukuza
1350
Phone: 013 735 5653
Fax: 013 735 5100
Email: chrisgoodman@londolozi.co.za

PROPERTY:
Pt 1, 2 and re of Marthly 258KU

EMROSS
CONSULTING (PTY) LTD

the dedet

Department:
Economic Development, Environment and Tourism
MPUMALANGA PROVINCIAL GOVERNMENT

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

(For applicant / EAP to complete)

File Reference Number:	17/2/3/E-252
Project Title:	Expansion of Existing Accommodation and Lodge Construction at Londolozi, Sabi Sand Game Reserve
Name of Responsible Official:	Millicent Masango

(For official use only)

NEAS Reference Number:	
Date Received:	

Kindly note that:

1. Required information 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. Tables can be extended as each space is filled with typing.
2. Where applicable **black out** the boxes that are not applicable in the form.
3. An incomplete report may be returned to the applicant for revision.
4. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
5. All reports (draft and final) must be submitted to the Department at the address of the relevant **DISTRICT OFFICE** given below or by delivery thereof to the relevant **DISTRICT OFFICE**. Should the reports not be submitted at the relevant district office, they will not be considered.
6. No faxed or e-mailed reports will be accepted.
7. One copy of the draft version of this report must be submitted to the relevant district office. The case officer may request more than one copy in certain circumstances.
8. **Copies of the draft report must be submitted to the relevant State Departments / Organs of State for comment.** In order to give effect to Regulation 56(7), proof of submission/delivery of the draft documents to the State Departments / Organs of State must be attached to the draft version of this report.
9. 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.
10. All specialist reports must be appended to this document, and all specialists must complete a declaration of independence, which is obtainable from the Department.

SECTION A: BACKGROUND INFORMATION

Project applicant:	Londolozi Game Reserve Trust		
Trading name (if any):			
Contact person:	Chris Goodman		
Physical address:	Sparta Farm, Sabi Sand Game Reserve, Mpumalanga		
Postal address:	PO Box 6, SKUKUZA		
Postal code:	1350	**Cell:**	
Telephone:	013 735 5653	**Fax:**	013 735 5165
E-mail:	chrisgoodman@londolozi.co.za		

Environmental Assessment Practitioner:	Emross Consulting (Pty) Ltd		
Contact person:	Andrew Rossaak		
Postal address:	PO Box 507, White River		
Postal code:	1240	**Cell:**	082 3399 627
Telephone:	0137502782 / 0130070077	**Fax:**	086 675 4320
E-mail:	andrew@emross.co.za		
Qualifications:	M.Sc. Ecology and 15+ years of experience in environmental field		
Professional affiliations (if any):	SACNASP reg no: 400167/08, GSSA registered professional, IAIAsa		

SECTION B: DETAILED DESCRIPTION OF THE PROPOSED ACTIVITY

Describe the activity, which is being applied for, in detail. The description must include the size of the proposed activity (or in the case of linear activities, the length) and the size of the area that will be transformed by the activity.

Expansion of Existing Accommodation, deck and Lodge Construction at Londolozi, Sabi Sand Game Reserve

SECTION C: PROPERTY/SITE DESCRIPTION

Provide a full description of the preferred site alternative (farm name and number, portion number, registration division, erf number etc.):

Portions 1, 2 and re of the farm Marthly 258KU

Indicate the position of the activity using the latitude and longitude of the centre point of the preferred site alternative. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection. The position of alternative sites must be indicated in Section B of this document.

River House

Latitude (S):		Longitude (E):	
24°	47.794‘	31°	29.663‘

Additional Staff Houses

Latitude (S):		Longitude (E):	
24°	47.855‘	31°	29.874‘

Founders 1:

Latitude (S):		Longitude (E):	
24°	47.851‘	31°	29.776‘

Founders 2:

Latitude (S):		Longitude (E):	
24°	47.841‘	31°	29.783‘

Founders 3:

Latitude (S):		Longitude (E):	
24°	47.818‘	31°	29.788‘

Tree Camp SALA Deck:

Latitude (S):		Longitude (E):	
24°	47.728‘	31°	30.102‘

SITE OR ROUTE PLAN

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

The site or route plans must be at least A3 and must include the following:

6.1 a reference no / layout plan no., date, and a legend / land use table
6.2 the scale of the plan which must be at least a scale of 1:2000;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all indigenous trees taller than 1.8 metres and all vegetation of conservation concern (protected, endemic and/or red data species);
6.7 servitudes indicating the purpose of the servitude;
6.8 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  a) watercourses and wetlands;
  b) the 1:100 year flood line;
  c) ridges;
  d) cultural and historical features;
6.9 10 metre contour intervals

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 as an appendix to this form**.**

FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as an appendix 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.

SECTION D: BASIC ASSESSMENT REPORT

Prepare a basic assessment report that complies with Regulation 22 of the Environmental Impact Assessment Regulations, 2010. The basic assessment report must be attached to this form and must contain all the information that is necessary for the competent authority to consider the application and to reach a decision contemplated in Regulation 25, and must include:

(Checklist for official use only)

1. A description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity.	
2. An identification of all legislation and guidelines that have been considered in the preparation of the basic assessment report.	
3. Details of the public participation process conducted in terms of Regulation 21(2)(a) in connection with the application, including – (i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation **55** as interested and affected parties in relation to the application; and (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	
4. A description of the need and desirability of the proposed activity;	

5. A description of any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity;	
6. A description and assessment of the significance of any environmental impacts, including— cumulative impacts, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the activity; the nature of the impact; the extent and duration of the impact; the probability of the impact occurring; the degree to which the impact can be reversed; the degree to which the impact may cause irreplaceable loss of resources; and the degree to which the impact can be mitigated;	
7. Any environmental management and mitigation measures proposed by the EAP;	
8. Any inputs and recommendations made by specialists to the extent that may be necessary;	
9. A draft environmental management programme containing the aspects contemplated in regulation **33**;	
10. A description of any assumptions, uncertainties and gaps in knowledge;	
11. A reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	
12. Any representations, and comments received in connection with the application or the basic assessment report;	
13. The minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;	
14. Any responses by the EAP to those representations, comments and views;	
15. Any specific information required by the competent authority; and	
16. Any other matters required in terms of sections 24(4)(a) and (b) of the Act.	

The basic assessment report must take into account -

(a) any relevant guidelines; and

(b) any departmental policies, environmental management instruments and other decision making instruments that have been developed or adopted by the competent authority in respect of the kind of activity which is the subject of the application.

* In terms of Regulation 22(4), the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in subregulation 22(2)(h), exist.

Have reasonable and feasible alternatives been identified, described and assessed?	YES	NO
If NO, the motivation and investigation required in terms of Regulation 22(4) must be attached as an Appendix to this document		

SECTION E: CONSULTATION WITH OTHER STATE DEPARTMENTS

Provide a list of all State Departments / Organs of State that have been consulted and registered as interested and affected parties, and to whom draft reports have been submitted for comment. **Proof of submission / delivery of the draft report to all State Department / Organs of State must be attached to this document.**

Department:	Kruger National Park		
Contact person:	Tracy-Lee Petersen		
Postal address:	PO Box 394, SKUKUZA		
Postal code:	1350	**Cell:**	074 580 5583
Telephone:	013 735 4271	**Fax:**	013 735 4051
E-mail:	TracyP@sanparks.org		

Department:	Mpumalanga Parks and Tourism Agency		
Contact person:	Komilla Narasoo/ Frans Krige		
Postal address:	Private Bag X11338, NELSPRUIT		
Postal code:	1200	**Cell:**	084 232 2902
Telephone:	013 254 0279	**Fax:**	013 254 0279
E-mail:	franskrige@telkomsa.net		

Department:	Bushbuck Ridge Local Municipality		
Contact person:	Municipal Manager – Mr. Doctor Shabangu		
Postal address:	Private Bag X9308, Bushbuck Ridge		
Postal code:	1280	**Cell:**	
Telephone:	013 799 1851/7	**Fax:**	013 799 1865
E-mail:	shabangud@bushbuckridge.gov.za		

Department:	Sabi Sand Game Reserve		
Contact person:	Edwin Pierce – SSW Ecological Officer		
Postal address:			
Postal code:		**Cell:**	078 804 0347
Telephone:		**Fax:**	
E-mail:	ecologist@sabisand.co.za		

Department:	Department of Water Affairs		
Contact person:	Sampie Shabangu		
Postal address:			
Postal code:		**Cell:**	082 857 4275
Telephone:		**Fax:**	
E-mail:	shabangus2@dwa.gov.za		

Department:	Inkomati Catchment Management Agency		
Contact person:	Thomas Gyedu-Ababio		
Postal address:			
Postal code:		**Cell:**	078 893 8924
Telephone:	013 753 9050	**Fax:**	
E-mail:	thomasga@inkomaticma.co.za		

SECTION E: APPENDICES

The following appendices must be attached to the basic assessment report as appropriate:

Site plan(s)

Photographs

Facility illustration(s)

Specialist reports

Comments and responses report

Other information

Table of Contents

1 INTRODUCTION

Emross Consulting was appointed by Londolozi Game Reserve Trust, to undertake the required actions to apply for environmental authorisation from Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET: the decision-making authority) for the proposed construction of an additional lodge, expansion of existing tourism accommodation and additional staff accommodation within the Londolozi Camp, in the Sabi Sand Game Reserve, Bushbuckridge Local Municipality.

This proposed development is identified as a listed activity in GN Regulation 546 of 18 June 2010 issued in terms of sections 24(2) and 24D of the National Environmental Management Act (NEMA, Act 107 of 1998) as **activity # 18(a)ii(aa); "*The expansion of a resort, lodge and tourism or hospitality facilities where the development footprint will be expanded".***

The Londolozi Lodges are situated in the Sabi Sand Game Reserve, a protected area proclaimed in terms of the National Environmental Management: Protected Areas Act (NEMPAA), on the western border of the Kruger National Park. *Figure 1* below shows the location of Londolozi.

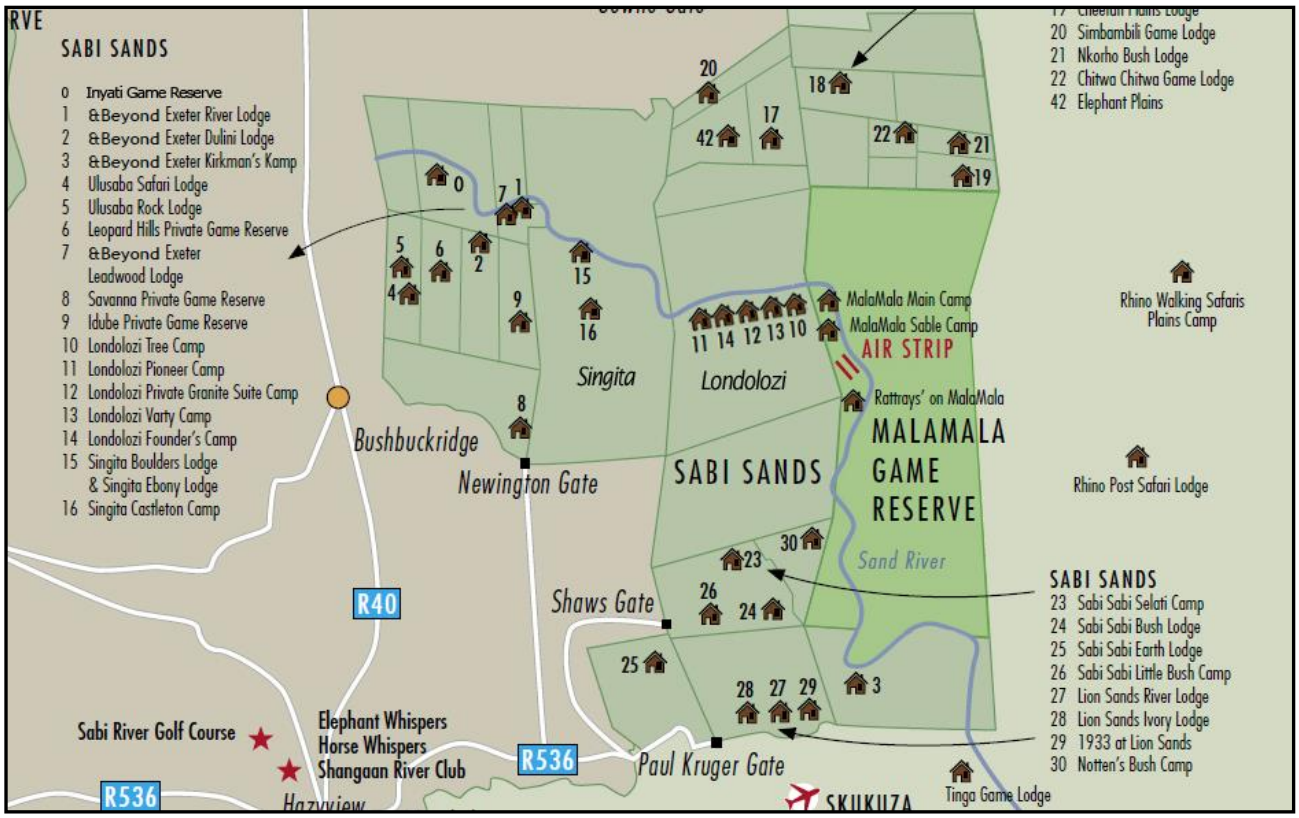


Figure 1: Map of Southern part of Sabi Sand Game Reserve. The Londolozi Lodges are shown as number 10-14

The proposed expansions involve different components of the lodge to bring about improved guest offerings and staff accommodation. As these proposed developments are in different areas of the camp complex and cover different activities they have each been assessed in terms of their relationship to their immediate environment and not as a single broad impact. The proposed activities are the development of the *River House, Deck extension, Room size extension* and *Staff housing*. Throughout the report the different proposed activities associated

with the expansion are discussed and the order of these has been kept consistent to assist in reading this report.

2 DESCRIPTION OF RECEIVING ENVIRONMENT

The vegetation on and around the Londolozi Camp site hosts the vegetation type SVI 3; Granite Lowveld (Mucina & Rutherford 2006) which is recorded as a vulnerable vegetation type. All sites are on the farm Marthly 258KU, located in the Sabi Sands Game Reserve a protected area in terms of NEMPAA. Londolozi Private Game Reserve is accessed via Shaws Gate.

RIVER HOUSE

The preferred site for the proposed lodge is on the remainder portion of the farm Marthly. The site is located on the western side of the existing Londolozi Camp, just outside of the camp fence. The preferred lodge site is currently undeveloped and in a natural vegetated state (*Figure 2*). The site is a clearing, surrounded by tall trees. Alternative 1 and Alternative 2 are inside the camp fence, they have currently support some infrastructure, and as such are already impacted sites. The existing structures/infrastructure would have to be demolished and cleared prior to any building taking place on these alternatives.

Three nationally protected trees and two provincially protected trees were encountered on the preferred site. It is not envisaged that these will be impacted by the development, but will be protected and become a feature of the development. A specialist Ecological Assessment was conducted in March 2013, the resulting report is attached in Appendix 4 and discussed further on in this report.

Location maps are included in Appendix 1.

Figure 2: View from the preferred site for River House.

EXTENSION OF EXISTING DECK AT TREE CAMP SALA

The location of the existing deck, which is proposed extended is at co-ordinates 24º 47.728'S 31º 30.102'E. This site is on portion 2 of the farm Marthly 258KU.

This development is the extension of existing infrastructure and thus no alternative site is considered. The no-go alternative remains. The area is between the existing deck and the river (*Figure 3*). The vegetation on site is riverine with some disturbance from the presence of the lodge and deck. A vegetation survey was conducted for the site to establish presence of protected species and other sensitivities. The specialist report in included in Appendix 4. Location maps are included in Appendix 1.

Figure 3: The existing Tree Camp deck. Source: londolozi.com

FOUNDERS ROOMS EXPANSION

The Founders Camp currently has 10 accommodation units. Three of these units (numbers 1-3) are proposed to be extended with an extra room (*Figure 4*), to become 'family' units. Please refer to the co-ordinates on page 2 above. The Founders Camp is on portion 1 of the farm Marthly 258KU.

The areas of the proposed extensions are in the riverine vegetation. This vegetation is impacted by the existing accommodation units and localised landscaping. It was assessed during site inspections that very little natural vegetation will be impacted by the expansion and as such no vegetation assessment has been undertaken. The sites are close to a small stream and on a gentle slope. Location maps are included in Appendix 1.

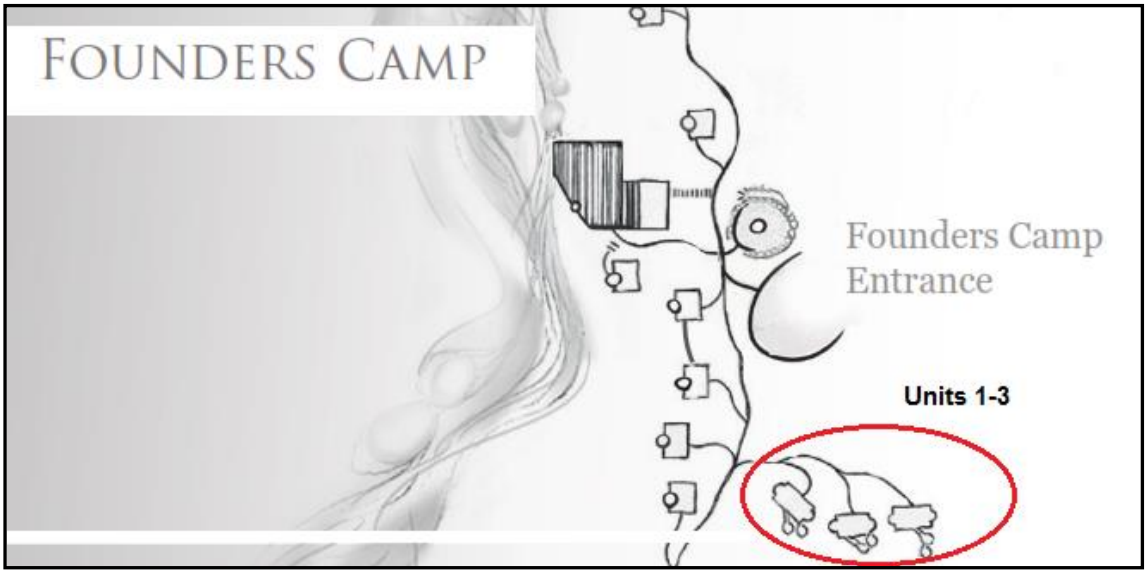


Figure 4: Founders camp layout, units to be expanded marked with red circle.

Source: londolozi.com

SENIOR STAFF FAMILY HOUSES

Three family staff houses are proposed, within the existing camp area. These units are proposed to be small (120 square meters) and have a low environmental footprint, making use of solar power, rainwater harvesting and other green technologies and design. The proposed area for the houses is currently undeveloped, but has had some historic activity (an old roadway is easily noted). The vegetation is natural and of medium density (*Figure 5*), with a high woody component of bushes and shrub. The site is flat and away from riverine areas. It is surrounded by existing developments and infrastructure. On an initial survey, 6 sites were identified as possibilities, with 3 of these being preferred. A vegetation assessment was undertaken and this is included in Appendix 4. Location maps are available in Appendix 1.

Figure 5: Staff housing site two, the other sites look similar.

3 DESCRIPTION OF PROPOSED ACTIVITIES

Londolozi currently consists of five luxury camps situated close together along the banks of the Sand River. The planning of these camps have put them all in relatively close proximity to one another and has thus negated the necessity for a number of staff camps and has allowed service and management structures to be combined and located centrally. The footprint of the operation has therefore been contained to a minimum while ensuring the ability to provide guests with a world class product. The new developments listed below have been planned with this ethos of a limited environmental footprint in mind.

A number of proposed activities are being put forward in the assessment, each with viable alternatives where possible. Each of these activities are outlined below.

RIVER HOUSE

The proposed development comprises a 500m^2 private guest facility with a 12 bed capacity, similar to the private Granite Suites already at Londolozi. Three different alternative sites have been identified for the River House, all on portion 1 of the farm Marthly 258KU, and within or very close to the existing camp area.

AN EXTENSION TO THE EXISTING DECK AT TREE CAMP SALA

Currently dining in inclement weather is a challenge at the Tree Camp, therefore it is proposed that the existing deck is extended with an 8m x 8m section with a thatch roof covering, similar to the existing deck at Founders Camp. Apart from the no-go option, no alternative sites are considered as it is the expansion of existing infrastructure.

ADDITIONS TO UNITS ONE, TWO AND THREE AT FOUNDERS CAMP

In order to increase the promoted child friendliness of the Founders Camp, it is desired to redesign units one, two and three, to become two bedroom family units. The units currently are a single room with a lounging area on the side and en-suite bathroom. The proposal is to extend the side room into an additional room of approximately 25m^2 with the possibility of an additional bathroom.

SENIOR STAFF FAMILY HOUSES

Londolozi has an obligation as a business to focus on an effective growth strategy. Part of this strategy is staff retention. Thus it has become necessary to develop staff accommodation suited to the needs of young families. With this in mind the construction of three, two bedroom family houses of approximately 120m^2 each has been proposed. These units are intended to utilize sound environmentally friendly systems and design to reduce environmental footprint.

4 APPLICABLE LEGISLATION

In terms of the National Environmental Management Act (NEMA), the activities proposed are regarded as listed activities under schedule of activities as follows:

GN R 544, activity # 24;*"The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of coming into effect of this schedule, or thereafter, such land was zoned open space, conservation or had an equivalent zoning"*

GN R 546, activity # 18(a)ii(aa); "*The expansion of a resort, lodge and tourism or hospitality facilities where the development footprint will be expanded".*

GN R 546, activity 5(a); *"The construction of resorts, lodges or other tourism accommodation facilities that sleep less than 15 people".*

GN R 546, activity 16(iv)(a)iii(aa) *"The construction of buildings with a footprint exceeding 10m^2 in size; where such construction occurs within 32m of a watercourse....".*

GN R 546, activity 16(iv)(a)iv(aa) "The construction of infrastructure covering 10m^2 or more; where such construction occurs within 32m of a watercourse....".

GN R 546, activity 24(c)(a)ii(aa) "The expansion of buildings where the buildings will be expanded by 10m^2 or more in size; where such construction occurs within 32m of a watercourse....".

GN R 546, activity 24(d)(a)ii(aa) "The expansion of infrastructure where the infrastructure will be expanded by 10m^2 or more; where such construction occurs within 32m of a watercourse....".

The following legislation may also be applicable to the proposal, in no particular order:

- Constitution of Republic of South Africa 108 0f 1996; (Constitution)
- National Environmental Management Act 107 of 1998; (NEMA)
- Conservation of Agricultural Resources Act 43 of 1983; (CARA)
- Environmental Conservation Act 73 of 1989; (ECA)
- Promotion of Administrative Justice Act 3 of 2000; (PAJA)
- Promotion of Access to Information Act 2 of 2000; (PAIA)
- National Veld and Forest Act 101 of 1998; (NVFA)
- National Forests Act 84 of 1998; (NFA)
- National Heritage Resources Act 25 of 1999; (NHRA)
- National Environmental Management Biodiversity Act 10 of 2004; (NEM-BA)
- Mpumalanga Nature Conservation Act 10 of 1998; (MNCA) and
- National Water Act 108 of 1997; (NWA)

The Constitution, The PAJA and PAIA deals with people's rights – the right to be heard, obtain information, have an environment that is not harmful and the right to receive fair treatment in the process. This is dealt with in the public participation process in section 5 below.

The NEMA, CARA, ECA and NVFA deals with people's responsibility to take due care of the environment. This is covered in various sections of this report, the environmental management plan (EMPr) and specialist reports. The specialist ecological report also covers the requirements of the MNCA. Should it be necessary to damage protected trees, the appropriate applications will need to be submitted to Department of Agriculture Forestry and fisheries or MTPA.

The Heritage Act lists certain activities in section 38 of that act, which requires a heritage impact assessment.

"Section 38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m^2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."

It is assessed that a heritage impact assessment is not required for the proposed activity.

5 PUBLIC PARTICIPATION PROCESS

According to the Constitution of the Republic of South Africa everybody has the right to have the environment protected, amongst others through sustainable development. Everybody also has the right to be informed and access to information. Therefore an important part of the Environmental Impact Assessment is to identify and to provide avenues for interested and affected parties to gain information and provide comment on the proposed development.

GNR 543, Section 54(2) prescribes that Interested and Affected Parties must be identified, the salient points of the approach is as follows:

- By placing notice boards in relevant places;
- By directly notifying all land owners and occupants of affected properties;
- By directly notifying neighbours to affected properties;
- By directly notifying ward councillors, rate payers associations, municipality and any relevant organ of state;
- By advertisement in local newspaper; and
- Any other method found reasonable for reaching affected parties which may not be reached with the above mentioned methods.

This was achieved by contacting neighbouring landowners, by advertising the process in the local newspaper, in this case the Lowvelder, by erecting a notice by the Shaws entrance gate to the Sabi Sand Game Reserve, and also by contacting identified affected parties directly.

All registered interested and affected parties have the right to comment on the report regarding the development submitted by the consultant to the department.

In return the registered interested and affected party is expected to:

- Submit all comments in writing to the consultant;
- Adhere to time frames given for commenting or submit a written motivation for why a longer commenting period is needed; and
- Disclose any direct business, financial, personal or other interest in the approval or refusal of the development.

Authorities that were consulted or provided details and asked for comment, and included in the EIA process include:

- Bushbuck Ridge Local Municipality;
- Mpumalanga Tourism and Parks Agency;
- Kruger National Park;
- Mpumalanga Department of Environment
- The Department of Water Affairs and
- The Inkomati Catchment Management Agency.

Comments received during the course of the assessment, have been recorded as a means of identifying all key environmental issues (including project alternatives) pertaining to the proposed development.

NOTIFICATION OF I & AP's

The identification of I & AP's was undertaken through 4 distinct processes.

- Authority identification and contact.
- Land owner contact.
- Notices and media advertising.
- Direct contact.

Authorities having jurisdiction were identified. As the development is in a reserve neighbouring Kruger National Park (KNP), the MTPA and KNP were contacted. The local municipality was also identified as having jurisdiction. The respective land owners neighbouring the site, were contacted directly, along with the Sabi Sand Game Reserve Management. As the development is in the vicinity of a water course the Department of Water Affairs and the Inkomati Catchment Management Agency was also informed of the proposed development.

NOTICE BOARDS

Notices were displayed in the media and on site. A site notice was erected at the Shaws Gate to the Sabi Sand Game Reserve on the 30th of January 2014. A photograph of this is presented below (*Figure 6*) and in Appendix 2. An advert of the proposed activity was posted in the Lowvelder, the local news media for the Sabi Sand area, on the 24th of January 2014. A copy of this advert is presented in Appendix 2.

Figure 6: Site notice at Shaws Gate.

LIST OF I & AP'S

A full list of the registered I & AP's is provided in appendix 2.

SUMMARY OF COMMENTS AND RESPONSES

The Bushbuck Ridge Local Municipality was notified of the proposed development via e-mail on 30 January 2014. The municipality had not submitted any comments at the time of finalising the draft BA report.

The Mpumalanga Tourism and Parks Agency and Kruger National Park were contacted by e-mail, on 30 January 2014. No comments have been received.

The neighbouring landowners were sent an information document via e-mail to inform of the proposed development also on 30 January.

Copies of correspondence with I&AP's are included in Appendix 2.

No comments or concerns has been received from the interested and affected parties at this stage.

6 NEED AND DESIRABILITY

The Londolozi Private Game Reserve is a dynamic tourism operation, supplying the high end of tourists. This requires facilities and services to be constantly maintained and updated. The applications in this assessment are brought on by this need.

RIVER HOUSE

Londolozi are experienced wildlife tourism operators and owners in the Sabi Sand Game Reserve. Through their operation of delivering high quality and high end tourism experiences, they have identified a demand in the market place, that of being able to hire an entire lodge for private groups. The proposed lodge will also facilitate the closure of camps for renovation as required.

DECK EXTENSION – TREE CAMP SALA

As mentioned above, Londolozi has identified a need for shelter during dining in inclement weather and has proposed the addition of a thatch roof to the existing deck, similar to other dining decks at Londolozi.

ADDONS TO ROOM 1-3 FOUNDERS

Londolozi has identified the need for, and wishes to be able to cater for, families with young children, by offering 2 bedroom family units. The proposed expansions of the Founders rooms 1-3 aims at filling this niche.

SENIOR STAFF HOUSES

Londolozi has identified the need to accommodate staff with young families. At present they are not able to cater for staff with this requirement, potentially causing affected staff members to look for alternative employment or not be able to live together with their families.

7 ALTERNATIVE ACTIVITY AND SITES

All of the below proposed activities and associated activities in line with the recommended activities for the area according to the Mpumalanga Biodiversity Conservation Plan (Lotter, M.C. & Ferrar, A.A. 2006. Mpumalanga Biodiversity Conservation Plan, MTPA, Nelspruit). Where possible, alternative activities have been assessed, but in some casesthis is not possible due the existing infrastructure.

RIVER HOUSE

Several sites were initially identified for the proposed River House lodge. These sites then went through an evaluation and exclusion process and the current three alternatives were selected as the most viable. The preferred site was selected due to its exclusivity. The aim of the lodge as proposed is to offer a private feeling of not being disturbed by other guests, whilst still being close enough to be serviced from central camp. The two alternative sites are located within the

existing camp, and as such may lack some of the feeling of exclusiveness. Both the alternative sites currently support infrastructure. This infrastructure would need to be demolished and removed prior to the construction of the proposed lodge.

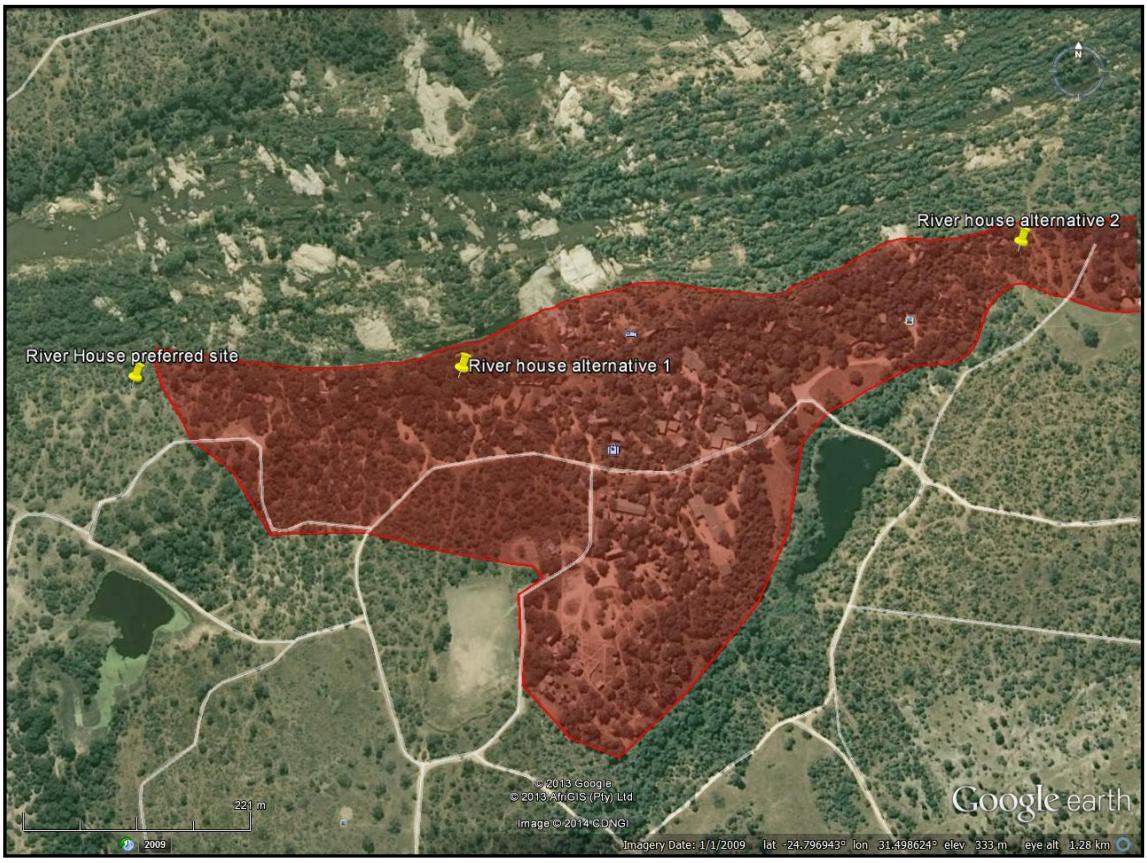


Figure 7: The three proposed lodge sites, the red area is the existing camp fence.

EXPANSION OF TREE CAMP DECK

There is no alternative location for the deck expansion, it can only be done as proposed, or not at all.

EXPANSION OF UNITS AT FOUNDERS CAMP

There is no alternative location for these expansions, due to the layout of the existing buildings and the site topography.

SENIOR STAFF FAMILY HOUSES

There is no alternative to the general area where these houses are proposed located, locally there is the option to place the houses where they will cause the least damage and nuisance. Six alternative sites have been assessed for the location of the three houses.

THE NO-GO ALTERNATIVE

The no-go alternative is the option of not undertaking the proposed activity or any of its alternatives. The no-go alternative also provides the baseline against which the impacts of other alternatives should be compared. Should the proposed building activities not go ahead, any potential environmental impacts, associated with building and operating the various facilities, would be avoided.

The proposed developments will be fitted in with minimum impact to vegetation. The proposed developments will cause some unavoidable impact to the respective sites. However, with the proposed designs and construction methods, it is assessed that much of this impact can be mitigated. The vegetation type, although in a protected area, is not locally threatened and no irreplaceable habitat will be damaged by the footprint of the proposed development.

Further, viable wildlife and tourism businesses on private land are important components in the financing the conservation management costs of the area.

As the facilities are desirable and the need established as well as the ability to mitigate environmental damage (as discussed below), there is no requirement to recommend the no-go option for any of the activities.

8 POTENTIAL ENVIRONMENTAL IMPACTS

Potential environmental impacts that should be considered when planning, designing and constructing the various developments are considered below.

The proposed development could potentially impact on or be impacted by main components of the physical environment:

Flooding could cause damage to infrastructure and related pollution:

The proposed lodge, deck expansion and the Founders rooms are close to the river bank and thus could be vulnerable to flooding events. Flooding has generally been infrequent in the past, however the past 3 years have provided three floods and extremely high river flows. Climate change and the trend towards extremes in weather may well make flooding a more regular event. Neither of the proposed development sites were affected by the 2012, 2013 or 2014 flood events.

Trenching for Services may lead to habitat fragmentation:

The provision of services (water, power, sewage) are required to some of the sites and will necessitate some trenching, depending on the final options chosen. Trenching is necessary as these services must be placed underground to protect wildlife and prevent damage (and resultant issues) caused by wildlife such as elephant. Trenching will also cause a temporary habitat barrier.

Only River House and the staff houses will require service installation. It is envisaged that the staff houses will be off-grid, but will connect to existing sewage and water reticulation of the camp.

The following figures (7 & 8) indicates the required services.

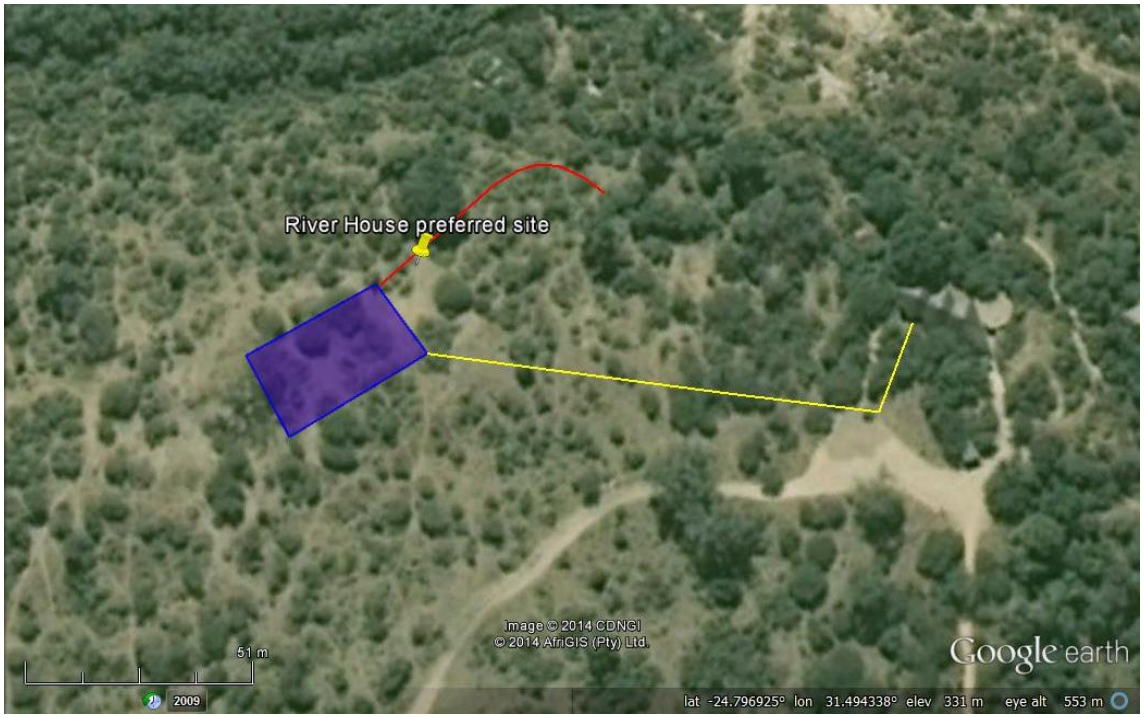


Figure 7: Services for the preferred River House site (red is sewage, yellow is electricity), the two alternative sites already have services installed.

Figure 8: Services for the preferred staff housing sites where

blue is water, red is sewage and yellow is electricity. The layout is approximate.

In summary, the lengths and the impact value is provided in the table below:

Site	Trench length	Impact value (10% of length)
Preferred site	62.5m / 125m	6.2 +12.5 = 18.7
Alternative 1	0	0
Alternative 2	0	0

Table 1: Service Trenching Distance to Various River House Sites.

Site	Trench length (m)	Impact value (10% of length)
Preferred sites sewage	75	7.5
Preferred sites water	94	9.4
Preferred sites power	84	8.4
Alternative sewage	160	16
Alternative water	175	17.5
Alternative power	102	10.2

Table 2: Service Trenching Distance to Various Staff House Sites.

Development footprint will lead to a loss of habitat:

All development has a footprint, and developed footprint is lost habitat. In this case the proposed developments are inside the existing fenced off camp where the habitat is mostly transformed to accommodate the tourism activities. The proposed developed area will therefore not really be lost as it was already unavailable to most of the animals the protected area is set out to protect. Options have been considered carefully so as to minimise development footprint, by using already impacted footprint where possible.

Lack of rehabilitation leading to loss of soil and alien plant establishment:

The lack of or insufficient rehabilitation of the construction areas, following construction, may lead to erosion and the establishment of alien plants. The best way to ensure good rehabilitation is by enforcing good soil management practices during construction. Londolozi Game Reserve has a comprehensive management plan in place and are carefully managing any potential impacts.

BUILDINGS IN GENERAL

The proposed development could potentially impact on main components of the physical environment:

Soils

Soil erosion, loss of topsoil and deterioration of soil quality are the main potential impacts that could be caused during the construction. Once disturbed, soil becomes more susceptible to erosion. Changes to natural drainage patterns may be created by the building. Diversion of storm-water may result in large volumes of water being concentrated in certain areas, thereby increasing the risk of erosion. Erosion of the soil surface greatly increases the risk of losing topsoil to erosion, impairing the soils ability to support vegetation growth. It also may provide sites for the establishment of alien plants.

During construction, hydrocarbons leaking from construction vehicles, refuelling depots and concrete mixing areas, may result in the contamination of soils.

The sourcing of sand and gravel for the construction of the building, may result in erosion and degradation of soil. Sand and stone brought onto site may carry with it alien plants and other biota.

Surface and Ground Water

The risk of contamination of ground and surface water may increase during construction.

As mentioned above disturbance to soils caused by construction activities may cause erosion. Elevation of sediment loads due to eroded particles entering watercourses may effect sun penetration, water temperature and levels of oxygen available to aquatic species.

Temporary ablution facilities for the construction crew has the potential to impact on surface water in the form of chemicals, pathogens and nutrients.

Contamination of surface water with cement or concrete can be detrimental to aquatic organisms as it is very alkaline.

Hydrocarbon spills from construction vehicles may have a detrimental impact on surface water.

Flora

Natural vegetation can be impacted by construction activities such as stock piling of materials and clearing of development footprint. Flora may also be impacted by increased access to a site, leading to harvest or disturbance to certain plants.

Fauna

Increased traffic and disturbance to a site may have an impact on the wildlife of an area, both during construction and operation. Human presence and noise may disturb animals resulting in the animals moving away from an area. Impact can also be directly in the form of killing the animals either by accident or intentionally. Impact on flora will very often have an associated impact on particular animals.

Cultural – Historical / Socio – Economic Impacts

Construction activities may disturb archaeological or cultural artefacts, if any such are present. This is dealt with in the Environmental Management Programme.

IMPACTS ON THE AESTHETIC NATURE AND 'SENSE OF PLACE'

- **Noise Pollution**

Construction activities, may result in noise pollution, mainly from traffic from vehicles and machinery, but also from the construction crew. This will be strictly monitored as this noise will stress the animals and also potentially detract from the experience of paying guests at nearby facilities.

Once constructed the noise generated at the site will be limited.

- **Light Pollution**

Light pollution may be created if construction takes place outside of daylight hours, which is unlikely.

During operation of the facility the use of outside lights may cause light pollution and increase the visual impact. This is a particular concern in a reserve, even though the sites are close to or within an existing development.

- **Dust Pollution**

Dust may be produced during construction, but will be limited to the construction site. Dust can be a nuisance but can, to a large extend, be controlled.

Dust generated during operation of the facility will be limited to vehicle generated dust on the roads. This should be limited as most travels will be at a slow pace or on foot.

Visual Impact

As sense of place is very important in an eco-tourism and game reserve context, and this is true for both the provision of and loss of sense of place. Care must be given in both site selection and building design to make the development blend in and give the right impression. In addition, the use of natural vegetation can assist in reducing the visual impact of the development. Due to the elevation of the proposed development, the visual impact of the development, without mitigation, could be noticed some distance away. It is important for the feel of exclusiveness that the new facilities are not in view of the existing facilities.

RESOURCES

Water use

Water will be obtained from the existing boreholes serving the camp. The new facility will create a small additional burden on the water supply. The water supply is an important sustainability component of the entire operation.

Energy consumption

Power will be from the nearby distribution point and standby generator. Power will be supplied by underground cable, or if practical, via a solar system. The buildings must meet the national building standards in terms of water heating and energy use.

Wildlife Interaction

Poor waste management, poor kitchen practices or ill-informed staff and guests can lead to a situation where food rewards are easily available to opportunistic animals which will result in

undesirable learned behaviour. Once this has become established it is difficult to manage the animal-human problems.

9 POSSIBLE AND RECOMMENDED MITIGATION MEASURES

Definition of ‘mitigation measures’:

Mitigation means 'to make something less severe'. This may be by implementation of practical measures to reduce, limit and eliminate adverse impacts or enhance project benefits and protect public and individual rights.

The potential environmental concerns have been considered and investigated. Where appropriate, mitigation measures have been proposed. In many cases, the existing procedures are sound environmental impact prevention measures themselves and little or no additional mitigation is necessary in many aspects.

The mitigation measures provided below cut across various potential impacts and thus have not been presented against one or another particular impact, but should be considered as a suite of mitigation measures that may be implemented.

The possible impacts discussed above are considered and mitigation measures for these have been proposed below. Some measures address more than one aspect and so they are provided in point form.

The Following Mitigation Measures and Procedures are Recommended:

- Minimise the area of vegetation clearance and avoid exposing soils that are vulnerable to erosion. The cleared area must be as minimal as possible.
- Areas susceptible to erosion must be protected by installing appropriate temporary or permanent drainage works and storm water energy dispersion structures.
- When excavating trenches, top soil and sub soils should be kept separate in order to facilitate the soils being replaced in the right order following construction. Topsoil, the upper 5-10cm of soil often contains the right amounts of humus and seeds to assist good rehabilitation of vegetation once the construction is finalised. The purchase of new topsoil or compost and seeds can be very costly. A cost which can be avoided by conserving and replacing topsoil. Imported topsoil highly increase the risk of importing weedy alien invasive plants.
- All services (water, sewage and power) can be combined in the same trench
- All materials to be trenched must be on site prior to excavating the trench in order to minimise the period the trench is open.
- When soil and vegetation is disturbed, the ideal conditions are created for colonising plant species. Alien invasive plants rely on these opportunities and therefore sound and rapid rehabilitation is desirable. Rehabilitation must be promoted and any alien plants removed.
- Implement appropriate topsoil management practices (stripping, stockpiling and reuse during rehabilitation of disturbed areas).

- All materials for building must be sourced off site from sustainable and appropriately licensed source (sand, stone etc.) and are free from contaminants.
- Rehabilitate areas disturbed during construction, including spoil dumps and stockpile areas, as soon as possible after the disturbance has ceased.
- Ensure compliance with legislation such as the Conservation of Agricultural Resources Act, Hazardous Substances Act, and the Integrated Pollution and Waste Management Act.
- Ensure appropriate handling of hazardous substances. Must be stored in bunded containers in locked area.
- Remediate polluted soils. This can be done *in situ* with appropriate hydrocarbon destroying microbe solution.
- Ensure correct waste management. Waste sorting and recycling should be carried out where possible.
- Waste management must be undertaken such that wildlife conflict will be avoided.
- Ensure that the placing of concrete batching plants and vehicle servicing areas etc. avoid areas susceptible to soil and water pollution, particularly drainage lines.
- It should be kept in mind that archaeological deposits often occur below ground level. Should artefacts or skeletal remains be revealed during the construction of the building, the project proponent must be notified in order for an investigation and evaluation of the find(s), by a qualified archaeologist or a professional in the related field, to take place according to the National Heritage Resources Act (Act 25, 1999).
- Working hours should be kept to normal working hours from 6am to 5pm or as per the reserve regulations.
- Suitable site toilet facilities should be put in place. The use of evaporative or eco-loos is suggested rather than chemical toilets.
- Keep the building site orderly at all times and use screening for especially unsightly areas such as temporary ablution facilities and storage areas.
- External lights should be positioned such that they point at the ground and are shielded. Where possible all point light sources should be shaded and no naked lights visible from outside the buildings.
- Care must be taken when considering the roofing materials, colours used and the use of highly reflective surfaces must be avoided. Sunlight reflected can create a visual impact and affect sense of place.
- If dust becomes problematic, roadways should be dampened. Following construction, these areas should be vegetated.
- Water use must be continually monitored and all water must be clean.
- Water saving measures are implemented wherever practical.

- The energy use increase will be mitigated by the extensive use of LED and CFL light bulbs. Any water heating and other energy uses will be made as environmentally friendly as possible.
- Where reasonably possible power saving solutions will be sought and the building must meet the national building standards in terms of water heating and energy use

10 SUSTAINABILITY CONSIDERATIONS

Consideration and effort is being applied to sustainability measures in the design of the various developments. These include green building techniques, reduced environmental footprint, minimal disturbance and aesthetics to compliment the surroundings and location.

11 ENVIRONMENTAL IMPACT EVALUATION

An 'environmental impact' is the likely environmental consequences, whether positive or negative, of a proposed development. The significance of an environmental impact depends on its extent, intensity and duration, the sensitivity of the receiving environment along with the degree of change and probability of the impact to occur.

METHOD AND CRITERIA

Based on responses to issues identified for the proposed site, and adopting the precautionary principle in cases of uncertainty, potential impacts associated with each issue were subjectively classified according to the direction of impact viz. positive, negative or neutral. Whereas negative impacts need to be addressed by management intervention, positive and neutral impacts are considered accounted for.

Table 2-4 identifies the potential impacts identified for the River House sites, during construction and operation. Table 5 identifies the impacts of The Tree Camp SALA deck for construction and operation. Table 6 identifies the impacts of The Founders Camp room additions for construction and operation, and Table 7 identifies the impacts of the staff family houses for construction and operation. The potential impacts are described and assessed for significance. Significance is assessed by scoring each impact on the basis of four variable: it's probability, severity, duration and it's spatial implications.

On the understanding that a significant impact is one which, either in isolation or in combination with other impacts, could have a material influence on the decision making process, including the specification of mitigating measures; significance in this study is scaled according to impact scores as follows:

Low (scoring less than 10)
Medium (scoring 10 – 15)
High (scoring more than 15)

The four variables, with their score criteria are detailed below:

Frequency / Probability (FR)
(Frequency or likelihood of activities impacting on the environment)
1. Almost never / almost impossible.
2. Very seldom / highly unlikely.
3. Infrequent / unlikely / seldom.

4. Often / regularly / likely / possible.
5. Daily / highly likely / definitely.

Severity (SV).
(Degree of change to the baseline environment in terms of reversibility of impact; sensitivity of receptor; duration of impact; controversy potential and precedent setting; threat to environmental and health standards).
1. Insignificant / non-harmful.
2. Small / potentially harmful.
3. Significant / slightly harmful.
4. Great / harmful.
5. Disastrous / extremely harmful.

Duration (DR).
(length of time over which activities will cause a change on the environment or vegetation).
1. One day to one month.
2. One month to one year.
3. One year to ten years.
4. Life of operation.
5. Post closure.

Spatial scope (SS).
(geographical coverage).
1. Activity specific.
2. Area specific.
3. Whole site.
4. Regional (neighbouring areas).
5. National.

Score is calculated for each aspect as the sum of the mitigated impacts to provide an impact value.

The impact values are summed to a total score.

These are added to the scores from the other assessments to achieve a final impact score. The trenching value is from the table above in section 8. The ecological score is from the ecological report.

ASSESSMENT OF POTENTIAL IMPACTS

Results of impact assessment are summarised in Tables below. Although sites are similar in terms of the potential environmental impacts, they are assessed separately so as to consider various aspects of potential impacts.

Table 3: Assessment of the Potential Impacts. **PREFFERED SITE**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
GREENFIELDS SITE								
Loss of sense of place	4	2	4	2	4	4	12	Medium
Loss of habitat	5	3	4	2	4	4	13	Medium
Cumulative impact	4	3	4	3	4	4	14	Medium
Loss of ecosystem services	4	3	3	2	5	4	14	Medium
Soil loss potential	5	2	4	1	2	2	7	Low
Light pollution	5	1	4	1	4	4	10	Low
Noise pollution	3	1	2	1	4	4	10	Low
Visual impact	5	1	4	1	4	4	10	Low
Waste pollution	3	1	3	1	4	3	9	Low
Risk of flooding and pollution	4	1	5	2	3	3	9	Low
Long lasting footprint	4	3	4	2	4	3	12	Medium
Sub Total							**120**	
Trenching length							187	
Ecological score							230	
TOTAL							**537**	

Table 4: Assessment of the Potential Impacts **ALTERNATIVE SITE 1**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
FOUNDERS SITE								
Loss of sense of place	2	2	2	2	4	4	12	Low
Loss of habitat	2	2	2	2	4	3	11	Low
Cumulative impact	2	2	2	2	4	3	11	Low
Loss of ecosystem services	2	2	2	2	4	3	11	Low
Soil loss potential	4	2	4	1	2	2	7	Low
Light pollution	5	1	4	1	4	4	10	Low
Noise pollution	3	1	2	1	4	4	10	Low
Visual impact	5	1	4	1	4	4	10	Low
Waste pollution	3	1	3	1	4	3	9	Low
Risk of flooding and pollution	3	2	3	2	4	3	11	Low
Long lasting footprint	4	3	4	2	4	3	12	Medium
Sub Total							**114**	
Trenching length							0	
Ecological score							240	
TOTAL							**354**	

Table 5: Assessment of the Potential Impacts **ALTERNATIVE SITE 2**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
TREE SITE								
Loss of sense of place	3	2	3	2	4	4	12	Medium
Loss of habitat	3	2	3	2	4	3	11	Low
Cumulative impact	2	2	2	2	4	3	11	Low
Loss of ecosystem services	2	2	2	2	4	3	11	Low
Soil loss potential	4	2	4	1	2	2	7	Low
Light pollution	5	1	4	1	4	4	10	Medium
Noise pollution	3	1	2	1	4	4	10	Medium
Visual impact	5	1	4	1	4	4	10	Medium
Waste pollution	3	1	3	1	4	3	9	Low
Risk of flooding and pollution	2	2	2	2	4	3	11	Low
Long lasting footprint	4	3	4	2	4	3	12	Medium
Sub Total							**114**	
Trenching length							0	
Ecological score							280	
TOTAL							**394**	

Services:

The proximity of services is important as the trenching and laying of pipelines and cables is both costly and carries an environmental impact (on site and externalised). As the two alternative sites are already developed services are present on the sites. The distance to services at the preferred site is not excessive and as such the impact of trenching to the preferred site is considered to be of medium significance.

Conclusions:

The potential impact on the surrounding natural systems are very similar. However, it is difficult to quantify the potential impact on for example the business operations on site, caused by the demolition and construction of a lodge on the two alternative sites which are close to current developments. It is also the intention to create an exclusive feel of having the bush to yourself. Some of this sense of solitude and place may be lost should either of the alternative sites be used for the lodge development.

TREE CAMP SALA DECK

Table 6: Assessment of the Potential Impacts. **PREFFERED SITE**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
PREFERRED SITE								
Loss of sense of place	2	2	1	1	4	2	9	Low
Loss of habitat	1	1	1	1	4	1	7	Low
Cumulative impact	3	2	1	1	4	2	9	Low
Loss of ecosystem services	1	1	1	1	1	1	4	Low
Soil loss potential	2	1	1	1	1	1	4	Low
Light pollution	3	2	2	2	4	3	11	Low
Noise pollution	2	1	1	1	1	1	4	Low
Visual impact	2	1	1	1	4	1	7	Low
Waste pollution	1	1	1	1	1	1	4	Low
Risk of flooding and pollution	3	3	1	1	1	2	7	Low
Long lasting footprint	3	1	1	1	4	1	7	Low
Sub Total							**73**	
Trenching length							0	
Ecological score							0	
TOTAL							**73**	

Services:

There are no services required for these developments.

Conclusions:

The potential impact on the surrounding natural systems are very low, as this developments is a small expansion of existing infrastructure. The developments as proposed will not cause destabilisation of riverbanks if installed correctly and are not at high risk of flood damage based on the 2012, 2013 and 2014 high river levels.

FOUNDERS CAMP ROOM ADDITIONS

Table 7: Assessment of the Potential Impacts. **PREFFERED SITES**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
PREFERRED SITES								
Loss of sense of place	3	2	2	1	4	2	9	Low
Loss of habitat	2	2	1	1	4	1	8	Low
Cumulative impact	4	3	2	1	4	3	11	Low
Loss of ecosystem services	1	1	1	1	1	1	4	Low
Soil loss potential	3	1	2	1	2	1	5	Low
Light pollution	2	2	1	1	4	2	9	Low
Noise pollution	3	2	3	2	2	1	7	Low
Visual impact	2	2	1	1	4	1	8	Low
Waste pollution	3	1	2	1	2	1	5	Low
Risk of flooding and pollution	1	1	1	1	1	2	5	Low
Long lasting footprint	3	3	1	1	4	1	9	Low
Sub Total							**80**	
Trenching length							0	
Ecological score							0	
TOTAL							**80**	

Services:

There are no services required for these developments.

Conclusions:

The potential impact on the surrounding natural systems is very low, as this development involves small expansions of existing infrastructure footprint. The developments, as proposed, will not cause destabilisation of riverbanks if built with the measures described and as they are not within the 1:100 year flood line, there is a limited risk of flooding.

SENIOR STAFF FAMILY HOUSES

Table 8: Assessment of the Potential Impacts. **PREFFERED SITES**

ISSUE	FREQUENCY		SEVERITY		DR	SS	IMPACT	SIGNIFICANCE
	Unmitigated	Mitigated	Unmitigated	Mitigated				
PREFERRED SITE								
Loss of sense of place	3	3	2	2	4	2	11	Low
Loss of habitat	4	3	2	2	4	2	11	Low
Cumulative impact	3	2	2	2	4	3	11	Low
Loss of ecosystem services	2	2	1	1	4	2	9	Low
Soil loss potential	3	2	2	1	2	1	6	Low
Light pollution	5	2	4	2	4	3	11	Low
Noise pollution	5	3	2	2	4	3	11	Low
Visual impact	3	2	2	1	4	2	9	Low
Waste pollution	4	2	4	1	4	2	9	Low
Risk of flooding and pollution	-	-	-	-	-	-	0	-
Long lasting footprint	3	3	1	1	4	2	10	Low
Sub Total							**98**	
Trenching length							253	
Ecological score							0	
TOTAL							**351**	

Services:

The proximity of services is important as the trenching and laying of pipelines and cables is both costly and carries an environmental impact (on site and externalised). The houses should be placed where there will be the least need for trenching and where possible services should be placed in the same trench.

Conclusions:

The potential impact on the surrounding natural systems is very low. The assessment revealed that the proposed staff housing sites had received some past impacts through previous activities in the area such as the disused and rehabilitated road.

12 SPECIALIST RECOMMENDATIONS

RIVER HOUSE

The ecological impact assessment (appendix 4) considers the three sites, and concludes that construction on alternative site 2, will have the greatest ecological impact. Alternative site 1 and the preferred site are very similar and would result in very similar impact.

All sites are situated along the Sand River and as such the risk of flooding must be kept in mind.

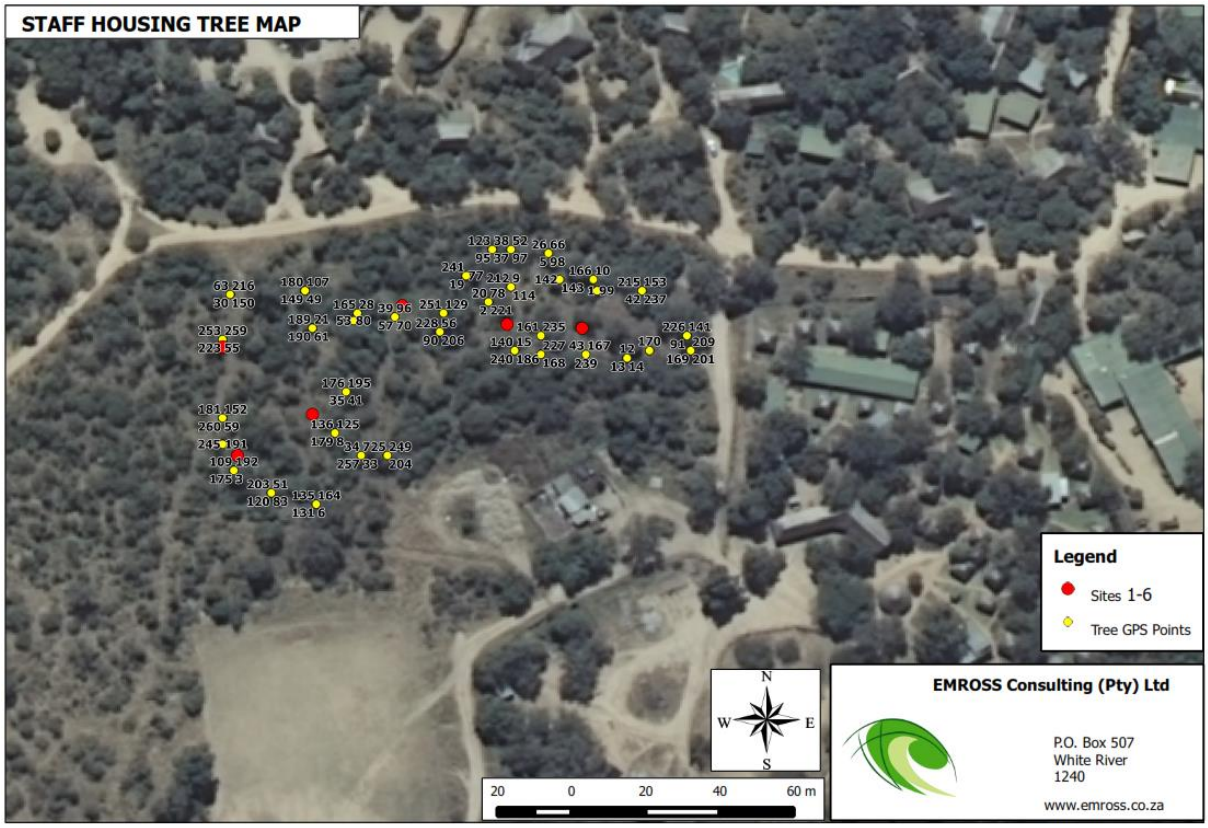
From an ecological point of view there are no fatal flaws that suggest that the preferred site should not be recommended for the construction of the lodge. The preferred site will be the most aesthetically pleasing option.

TREE CAMP SALA DECK

It is assessed that the potential impact to vegetation is minimal. No red data list or protected plant or tree species were encountered during the surveying of the proposed deck expansion footprint. From an ecological point of view there are no fatal flaws that suggest that the deck expansion should not be constructed. The ecological score for the deck expansion is zero.

SENIOR STAFF FAMILY HOUSES

The ecological impact assessment considers 6 potential sites within the same greater 5000m^2 area. It was assessed the impact caused to the vegetation by the proposed three family houses would be very similar on all six sites. The recommendation is that the layout of the houses should be adjusted to accommodate as little clearing of vegetation as possible. The three sites which require the least trenching for services and lowest impact on trees should be selected.



Map : Trees in excess of 1.8m tall. The preferred sites 1-3 will benefit the most from the shading and shielding by the tall trees.

Other assessments:

No other specialist assessments were deemed necessary.

Process:

The proposed and alternative sites have been subjected to the same level of assessments.

13 DRAFT ENVIRONMENTAL MANAGEMENT PROGRAM

Londolozi already have a comprehensive environmental management programme in place. This EMPr will be used for the construction of the proposed activities.

Parts of this EMP have already been approved by the competent authority (Watercourse Management Plan).

14 ASSUMPTIONS AND LIMITATIONS

The Basic Assessment Report has been prepared on the strengths of the information available, from our field surveys, specialist reports and that provided by the applicant, at the time of the assessment. The assessment was conducted as a desktop and field survey. Topographical and Ecological maps were used. The assumptions made and constraints that were prevalent did not obviously have any restrictive or negative implications on the study.

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

- The information provided by the client is accurate;
- The scope of this investigation is limited to assessing the environmental impacts associated with the construction of the proposed infrastructure.
- Should the project be authorised, the applicant will effect any layout changes, recommendations and mitigation measures outlined in this assessment and the authorisation provided into the detailed design and construction contract specifications of the proposed project.

15 EAP RECOMMENDATIONS

The critical environmental impacts may be mitigated. All the potential developments are assessed to have minimal potential impacts.

The difference in impact level between the various sites is limited. Based on the assessment and information gathered, the EAP recommends that the various activities are authorised on the preferred sites.

PREFERRED ALTERNATIVES

The River House Lodge may be constructed in the preferred site.

The tree camp SALA deck may be constructed.

The expansions to the Founders rooms may be constructed.

The staff family houses may be constructed in the preferred sites 1-3.

No-go alternative

There is no requirement to recommend the no-go option as the assessed impacts are low and potential impacts may be mitigated.

ADDITIONAL MITIGATION MEASURES

The environmental management programme (EMPr) should form part of the contract between the construction company and the client. This will help ensure that the EMPr is adhered to.

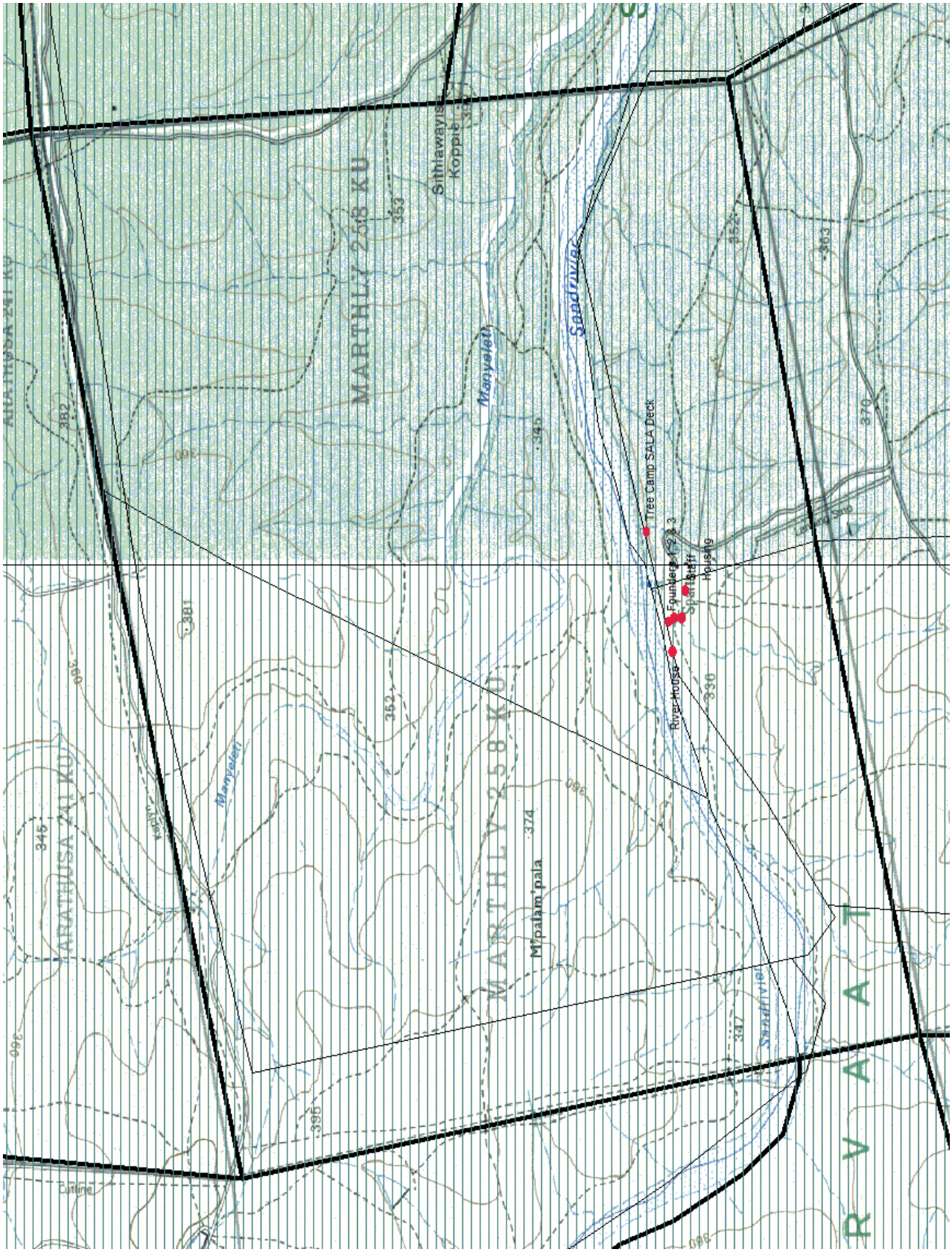
An Environmental Control Officer (ECO) should be appointed for the various construction activities, on a separate project basis. This will assist the contractor overcoming any unforeseen issues at the time of construction and be able to provide a level of assurance and oversight to stakeholders that the site is being well managed.

ECO involvement in the various projects are recommended as follows:

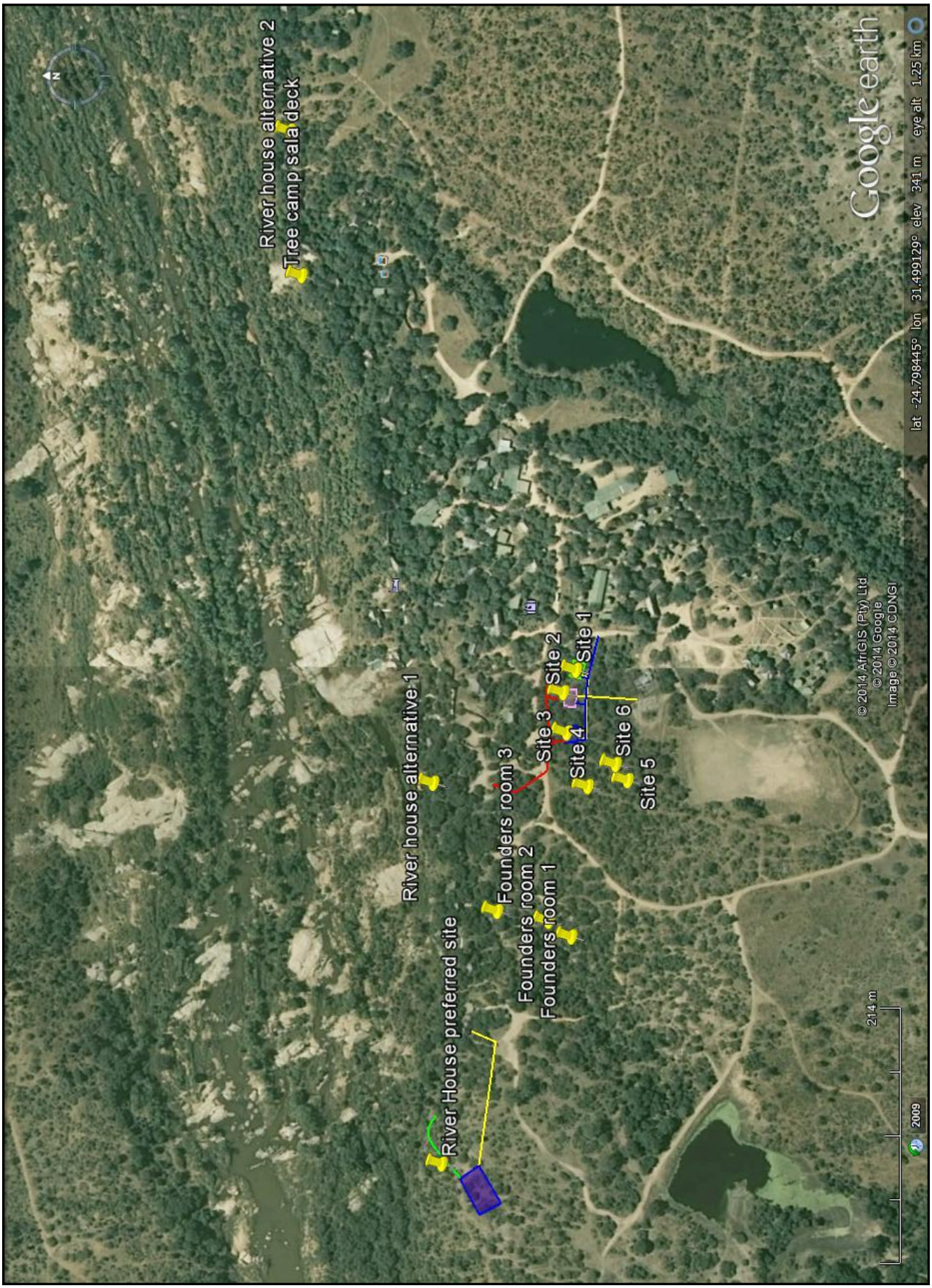
- The River House build should have a minimum of monthly audits.
- The three staff houses should have a minimum of monthly audits.
- The deck expansion should have an initial audit and contractor initiation and a final audit on completion.
- The expansions to the Founders rooms should have an initial audit and contractor initiation and a final audit on completion.
-

16 CONCLUSION

Based on the information contained in this report, it is the opinion of the environmental assessment practitioner that provided the negative aspects of the proposed developments are mitigated in accordance with the mitigation measures proposed (and as reflected in the Environmental Management Programme), that the construction of all the proposed infrastructure



Topographic map 2431 CD&DC


River house alternative 2
Tree camp sala deck
River house alternative 1
Founders room 3
Founders room 2
Founders room 1
River House preferred site
Site 1
Site 2
Site 3
Site 4
Site 5
Site 6
Google earth
© 2014 AfriGIS (Pty) Ltd
© 2014 Google
Image © 2014 CDNGI
lat -24.798445° lon 31.499129° elev 341 m eye alt 1.25 km
214 m
2009

CORRESPONDENCE WITH LOCAL MUNICIPALITY AND NEIGHBOURS

The various authorities and neighbours were contacted via e-mail on 30 January 2014, with information of the proposed development.

Correspondence is included in the following pages.

Identified Interested and Affected Parties:

Contact person	Title	Connection / interest
Graham Kennedy	Singita General Manager	Neighbour West
General Manager	Mala Mala	Neighbour East
Bruce Watson	Marthly	Neighbour North
Edwin Pierce / Dave Powrie		CEO at Sabi Sand Game Reserve
Sampie Shabangu	Control Biodiversity Officer	DWA
Thomas Gyedu-Ababio	Chief Operations Officer	Inkomati CMA
Tracy-Lee Ann Petersen	Tracy-Lee Petersen	KNP
Frans Kriege	Frans Krige	MTPA
Municipal Manager	Municipal Manager	Bushbuck Ridge LM

The environmental assessment process was advertised in the Lowvelder Local Newspaper on 24 January 2014.

A Site Notice was erected at the Shaws Gate on 30 January 2014.

Photo: Site notice at Shaws Gate

Classifieds

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JU451

0735 SPARES & ACCESSORIES

JU654

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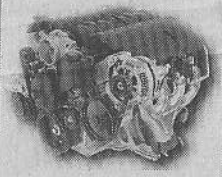

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JU001378

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R210,000
Nicky 083-417-5722
JU1362

0745 VEHICLE MAINTENANCE /

0910 PUBLIC / LEGAL NOTICES

NOTICE
Please take note that LEE MASEKO intends on making application to the Commissioner of the CIPC for the restoration of UNBRIDLED TRADING 217 CC, with registration number: 2002 /079248/23, who was previously deregistered. Any objections to this application must be lodged with the Commissioner of the CIPC within 21 days of publication hereof.CIPC , PO Box 429, Pretoria, 0001, Tel: 012-394-9973,
AC004561

NOTICE
Be pleased to take notice that EUGENE LE RICHE SWANEPOEL intends making application to the Companies and Intellectual Property Commission (CIPC) for the reinstatement of the Close Corporation, WINNETKA LEISURETIME CC, Registration No. 1989/005436/23. Be pleased to take notice that any objection to this application must be lodged with the Companies and Intellectual Property Commission (CIPC), DTI Campus, 77 Meintjies Street, Sunnyside, Pretoria, within twenty one (21) days of the date of publication hereof.
AC004566

KENNISGEWING
VERKOOP VAN BESIGHEID
In terme van artikel 34(1) van die Insolvensie Wet 24 van 1936, soos gewysig, word hiermee kennis gegee, aan alle belanghebbende partye en krediteure, dat RILOPLEX (EDMS) BPK H/A JOHN DORY`S RIVERSIDE MALL, (Registrasie Nommer: 2009/003676 /07), van voorneme is om die besigheid te Winkelnommer 241, Riverside Mall, R40 White River Road, Nelspruit, tesame met al sy bates as `n lopende saak te verkoop aan JD NELSPRUIT INVESTMENTS (EDMS) BPK (Registrasie Nommer: 2014/011489 /07) hierin verteenwoordig deur Herman Jacobus Geldenhuys, welke maatskappy die besigheid sal bedryf vir sy eie rekening en voordeel. Kennis word verder gegee dat die effektiewe datum van die oordrag van die besigheid 30 dae na die publikasie van hierdie kennisgewing sal wees. BRAAM VAN RENSBURG PROKUREUR, POSBUS 6340, NELSPRUIT, 1200, Tel: 013-755-2484, Verw Nr : AS Jnr (cb)
AC004570

NOTICE
Please note that PIET POSTHUMUS intends on making application to the Commissioner of the CIPC for the reinstatement of KAAPSCHEHOOP - DIGGERS GOLD CC, with registration number: CK93/06765/23, who was previouly deregistered. Any objections to this application must be lodged with the Commissioner of the CIPC within 21 days of publication hereof. CIPC, Po Box 429, Pretoria, 000,1Tel: 012-394-9973
AC004571

NOTICE
SALE OF BUSINESS
Notice is hereby given in terms of section 34(1) of the Insolvency Act No. 24 of 1936, as amended, to interested parties and creditors, that RILOPLEX (PTY) LTD T/A JOHN DORY`S RIVERSIDE MALL (Registration Number: 2009/003676/07), intends to sell its business situated at Shop number 241, Riverside Mall, R40 White River Road, Nelspruit, together with its assets as a going concern, to JD NELSPRUIT INVESTMENTS (PTY) LTD (Registration Number: 2014 /011489/07) herein represented by Herman Jacobus Geldenhuys, which will carry on the business for its own account and benefit. Notice is further given that the effective date of the transfer of the business will be 30 days after publication hereof. BRAAM VAN RENSBURG PROKUREUR POSBUS 6340, NELSPRUIT 1200,Tel: 013-755-2484 Verw Nr : AS Jnr (cb)
AC004569

0915 SALES IN EXECUTION

Vezi&DeBeer Inc.

NOTICE
IN THE HIGH COURT OF SOUTH AFRICA
(NORTH GAUTENG HIGH COURT, PRETORIA)
CASE NO: 63927/2012
In the matter between
STANDARD BANK OF SOUTH AFRICA PLAINTIFF And GUGU JUDITH MKHABA
ID: 870104 1114 088
DEFENDANT NOTICE OF SALE IN EXECTUTION
IN EXECUTION of a Judgment of the North Gauteng High Court (Republic of South Africa) the abovementioned suite, a sale without reserve will be held at the Sheriff, BARBERTON at 1 OLIENHOUT STREET, HECTORSPRUIT EXT 1, BARBERTON on WEDNESDAY THE 6TH OF FEBRUARY 2014 AT 10h00 of the undermentioned property of the defendants subject to the conditions of sale which are available for inspection at the Sheriff Offices, BARBERTON at 56 CROWN STREET, BARBERTON.
PTN 90 OF ERF 187 HECTORSPRUIT EXTENTION 1 TOWNSHIP, REGISTRATION DIVISION J.U., MPUMALANGA. MEASURING:
1040 (ONE THOUSAND AND FOURTY) SQUARE METRES; HELD BY DEED OF TRANSFER NO T010326/2008
ALSO KNOWN AS: 1 OLIENHOUT STREET, HECTORSPRUIT EXTENTION 1
The following information is furnished with regard to improvements on the property although nothing in this respect is guaranteed:
Vacant stand. DATED AT PRETORIA ON 13TH DAY OF JANUARY 2013| PLAINTIFF`S ATTORNEY
VEZI & BEER INC | ATTORNEY FOR PLAINTIFF | 319 ALPINE ROAD
LYNNWOOD, PRETORIA
PO BOX 13461 | HATFIELD, 0028 | DX 28, HATFIELD
TEL: 012-361-5640 | FAX: 086-685-4170 | REF: S1361/LH /M MOHAMED
E-mail: ronelr@vezidebeer.co.za
AC004528

NOTICE
IN THE MAGSTRATE`S COURT OF THE DISTRICT OF VILJOENSKROON, HELD AT VILJOENSKROON
CASE NO: 297/2013
In the matter between: MEC FOR POLICE, ROADS AND TRANSPORT, PLAINTIFF AND, T JULIUS CONSTRUCTION, 1ST DEFENDANT, THLEDI JULIUS MAMBOSH, 2ND DEFENDANT
NOTICE OF SALE IN EXECUTION
In pursuant of a Judgment of the Magistrate`s Court Viljoenskroon dated 2 October 2013 shall the following be sold in Auction on Friday, 7 February 2014 at 10h00 at Plot 69, White River by the Sheriff of White River and Nsikazi for the Magistrate`s Court to the highest bidder, namely:
1 x CBR 18H Crane
Take further notice that:
1. This is a sale in execution, pursuant to the judgment obtained in the above Court;
2. Rules of this auction is available 24 hours foregoing the sale at the office of the Sheriff, White River and Nsikazi, 36 Hennie Van Till Street, White River.
3. Registration as a buyer, subject to certain conditions, required i.e.
3.1 Directors of the Consumer Protection Act 68 of 2008;
3.2 Fica-legislation in respect of identity and address particulars;
3.3 Payment of registration money;
3.4 Registration conditions.
4. The office of the Sheriff for White River and Nsikazi will conduct the sale with auctioneers.
5. Advertising costs at current publication tariffs and sale costs according to court rules will apply.
DATED at BLOEMFONTEIN on this 8th day of JANUARY 2014.
JMA ENGELBRECHT
ATTORNEY FOR PLAINTIFF
STATE ATTORNEY
C/O CLERK OF THE COURT
PRIVATE BAG X3
VILJOENSKROON, 9520
POSTAL ADDRESS: PRIVATE BAG X20630, BLOEMFONTEIN, 9300, TEL: 051-400-4312, FAX: 051-447-3146, REF: 610 /201201394 K15M/HP
AC004531

SEYMORE DUTOIT 3 BASSON
Attorneys • Conveyancers • Notary Public
Member of the Phatshoane Henney Group of Associated Firms

NOTICE
IN THE NORTH GAUTENG HIGH COURT, PRETORIA
REPUBLIC OF SOUTH AFRICA
CASE NUMBER: 57006/2013
In the matter between:
FIRSTRAND BANK LIMITED, Plaintiff and DEBORAH SUSAN JOOSTE, Defendant
NOTICE OF SALE
IN PURSUANCE OF A JUDGMENT of the abovementioned Court and a Writ for Execution issued thereafter, the under mentioned property will be sold in execution on 5TH OF FEBRUARY 2013 at 09:00 AM by the Sheriff of the High Court at 99 JACARANDA STREET, WEST ACRES, NELSPRUIT, to the highest bidder.
PORTION 47 OF ERF 1957 WEST ACRES, EXTENSION 13 TOWNSHIP
REGISTRATION DIVISION J.T., TRANSVAAL
MEASURING 559 (FIVE HUNDRED AND FIFTY NINE) SQUARE METRES
HELD BY DEED OF TRANSFER NUMBER T91743/1992
The physical address of the property supra is known as 13 ZIRCONIA STREET, WEST ACRES, NELSPRUIT.
IMPROVEMENTS - (Not guaranteed):
Main Dwelling;1 X LOUNGE;1 X KITCHEN; 2 X BEDROOMS; 1 X BATHROOM
1 X WC; 1 X SERVANTS WC;
THE PROPERTY IS ZONED: RESIDENTIAL
1. The sale shall be subject of the terms and conditions of the High Court Act and the Rules made thereunder.
2. The Purchaser shall pay a deposit of 10% (TEN PER SENT) of the purchase price and the auctioneer`s commission in cash immediately after the sale and the balance against transfer to be secured by a Bank or Building Society Guarantee, to be furnished to the Plaintiff`s attorneys within 14 (FOURTEEN) days after the date of sale, to be approved by the Plaintiff`s Attorneys.
3. Transfer shall be effected by the attorneys for the Plaintiff and the Purchaser shall pay all transfer dues, including transfer duty, current and/or arrear levies /rates and/or Value Added Tax and other necessary charges to effect transfer upon request by the sale attorneys. 4. The full conditions of sale may be inspected at THE SHERIFF, 99 JACARANDA STREET, WEST ACRES, NELSPRUIT. DATED at NELSPRUIT this 03RD day of DECEMBER 2013. ATTORNEYS FOR EXECUTION CREDITOR SEYMORE DU TOIT & BASSON ATTORNEYS, TEL: 013-752-4459, REF: FJ0011
AC004525

323780NF

BIDDERSCHOICE
AUCTIONS, PROPERTY SALES & VALUATIONS

ON AUCTION

LAEVELD KORPORATIEWE BELEGGINGS BK

NOTICE OF BASIC ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is hereby given that an application has been lodged with Mpumalanga Department of Economic Development, Environment and Tourism in terms of Regulation 56(2)(a) of the regulations published

0735 SPARES & ACCESSORIES

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Teen beste pryse
Willie 082-954-3227
JU001298

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KOOP MOTORS VIR KONTANT BESTE PRYSE
Louw 082-338-9866
JU001277

Legals

NOTICE OF BASIC ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is hereby given that an application has been lodged with Mpumalanga Department of Economic Development, Environment and Tourism in terms of Regulation 56(2)(a) of the regulations published in the Government Notice No. R543 of 18 June 2010 published under section 24(2)(c) of the National Environmental Management Act, 1998 (Act 107 of 1998) of intent to carry out the following activity:

VARIOUS CONSTRUCTION AT LONDOLOZI CAMP, SABI SAND GAME RESERVE
MDEDET Ref. No. 17/2/3/E-252

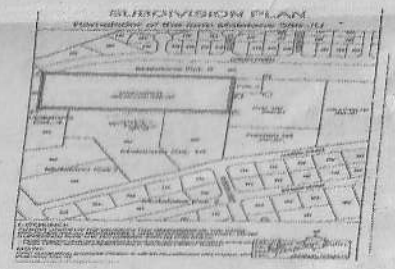
Description of proposed activity: Londolozi wishes to construct a 6 bed lodge, expand 3 existing rooms, expand an existing deck and to construct an additional 3 staff family houses, all within or close by the existing Londolozi Camp. The camp is located within the Sabi Sand Game Reserve, on the farm Marthly 258KU, Bushbuckridge Local Municipality, Mpumalanga Province.

Name of Proponent:	Londolozi Game Reserve Trust PO Box 6, Skukuza, 1350
Name of Consultant:	Emross Consulting (Pty) Ltd PO Box 507, White River, 1240 Tel: 013-750-2782 e-mail: andrew@emross.co.za
Contact person:	Andrew Rossaak @ 082-339-9627

The date of publication of this advertisement is Friday 24 January 2013. In order to ensure that you are identified as an interested and/or affected party, if you so wish, please submit your name, contact information and interest in the above mentioned project to the contact person given above within 30 days of publication of this advertisement.

AC4565

LAEVELD KORPORATIEWE BELEGGINGS BK



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pgeldenhuys@bidderschoice.co.za

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11:00

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Portion 60 of Erf 1029
Stonehenge Ext 1 JT
Mpumalanga
Extent: 744m²
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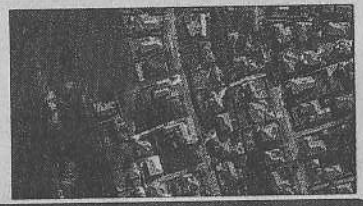

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- 2 X 2 BEDROOMS
- 2 BATHROOMS
- LOUNGE
- FAMILY ROOM
- ESTABLISHED GARDEN AND MORE
- 2 KITCHENS
- LAUNDRY AND SERVANT QUARTERS

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ESTABLISHED 1926

LONDOLOZI

BACKGROUND INFORMATION DOCUMENT

January 2014.

PROJECT:
The upgrade and expansion of various facilities in the Londolozi Camp, Sabi Sand Game Reserve

CONSULTANT:
EMROSS Consulting
P.O. Box 507
White River
1240
Phone: 013 750 2782
Cell: 082 3399 627
Fax: 086 675 4320
Email: andrew@emross.co.za

APPLICANT:
Londolozi Game Reserve Trust
Contact: Chris Goodman
Postal address: PO Box 6
Skukuza
1350
Phone: 013 735 5653
Fax: 013 735 5100
Email: chrisgoodman@londolozi.co.za

PROPERTY:
Pt 1, 2 and re of Marthly 258KU

EMROSS
CONSULTING (PTY) LTD

1 INTRODUCTION

As part of a an upgrade and continual improvement program, Londolozi Game Reserve Trust (the applicant) has contracted Emross Consulting, as independent environmental consultants, to undertake the required actions to apply for environmental authorisation from the Mpumalanga Provincial Government Department of Economic Development, Environment and Tourism (MDEDET, the decision-making authority) for a number of proposed developments in and around the Londolozi Camp in the Sabi Sands Game Reserve.

Government notices no. R 544-546 stipulates activities which require authorisation, in terms of the National Environmental Management Act (Act 107 of 1998). Government notice 543 prescribes the manner in which the assessment must be undertaken.

2 PROPOPSED DEVELOPMENT

Londolozi currently consists of five luxury camps situated close together along the banks of the Sand river. The planning of these camps have put them all in relatively close proximity to one another and has thus negated the necessity for a number of staff camps and has allowed service and management structures to be combined and located centrally. The footprint of the operation has therefore been contained to the minimum while ensuring the ability to provide guests with a world class product. The new developments listed below have been planned with this ethos of a limited environmental footprint in mind.

In terms of GNR 546 activity 18: "*The expansion of lodge facilities where the development footprint will be expanded"* requires environmental authorisation in protected areas. Other activities requiring authorisation will also be applicable. This is explained in section 3 below.

A number of proposed activities are being put forward in the assessment, each with viable alternatives where possible. Each of these activities are outlined below.

2.1 River House

The proposed development comprises a 500m^2 private guest facility with a 12 bed capacity, similar to the private Granite Suites already at Londolozi. Three different alternative sites have been identified for the River House, all on portion 1 of the farm Marthly 258 KU, within or very close to the existing camp area.

2.2 An Extension to the Existing Deck at Tree Camp SALA.

Currently dining in inclement weather is a challenge at the Tree Camp, therefore it is proposed that the existing deck is extended with an 8m x 8m section with a thatch roof covering, similar to the existing deck at Founders Camp. Apart from the no-go option, no alternative sites are considered as it is the expansion of existing infrastructure.

2.3 Additions to units one two and three at Founders Camp

In order to increase the promoted child friendliness of the Founders Camp, it is desired to redesign units one, two and three, to become two bedroom family units. The units currently are a single room with en suite. The proposal is to extend the side room into an additional room of approximately 25m^2, with the possibility of an additional bathroom.

2.4 Senior Staff Family houses

Londolozi has an obligation as a business to focus on an effective growth strategy. Part of this strategy is staff retention. Thus it has become necessary to develop staff accommodation suited to the needs of young families. With this in mind the construction of three, two bedroom family houses of approximately 120m^2 each has been proposed. These units are intended to utilize sound environmentally friendly systems.

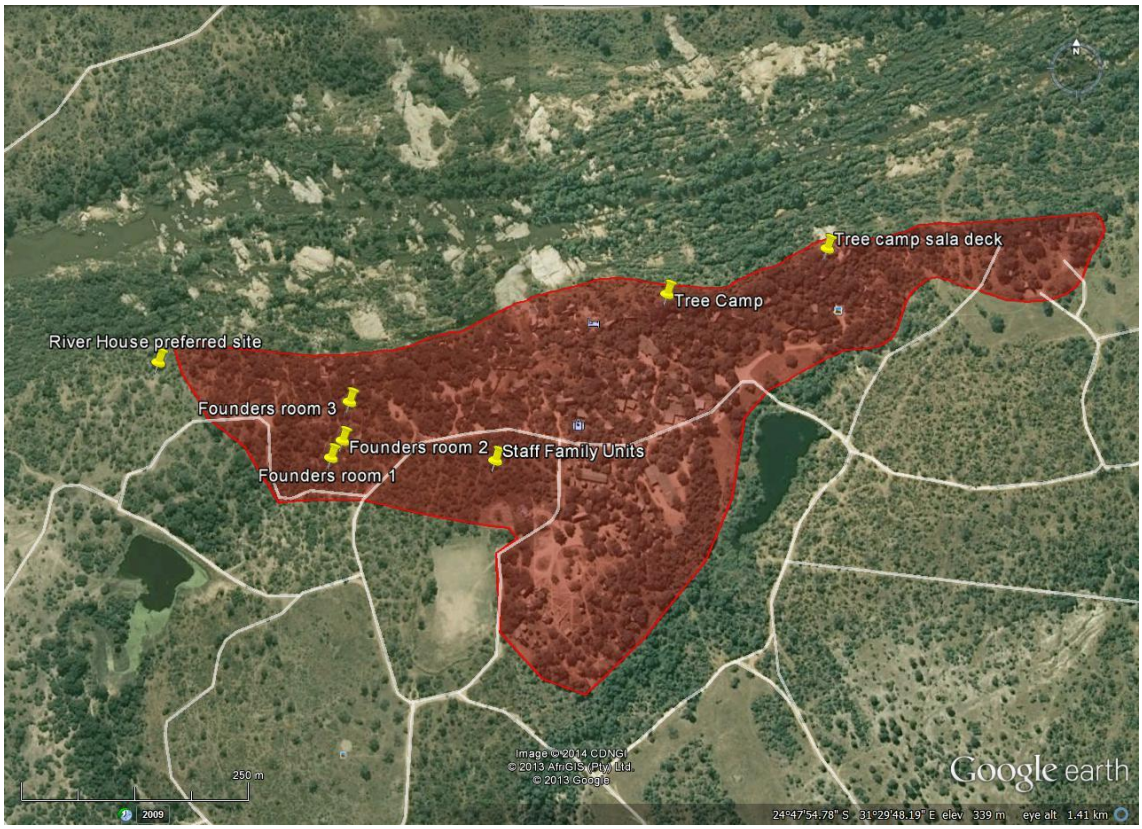


Figure 1: Satellite image indicating the location of the various proposed activities. The red colour indicates the existing Londolozi Camp fence.

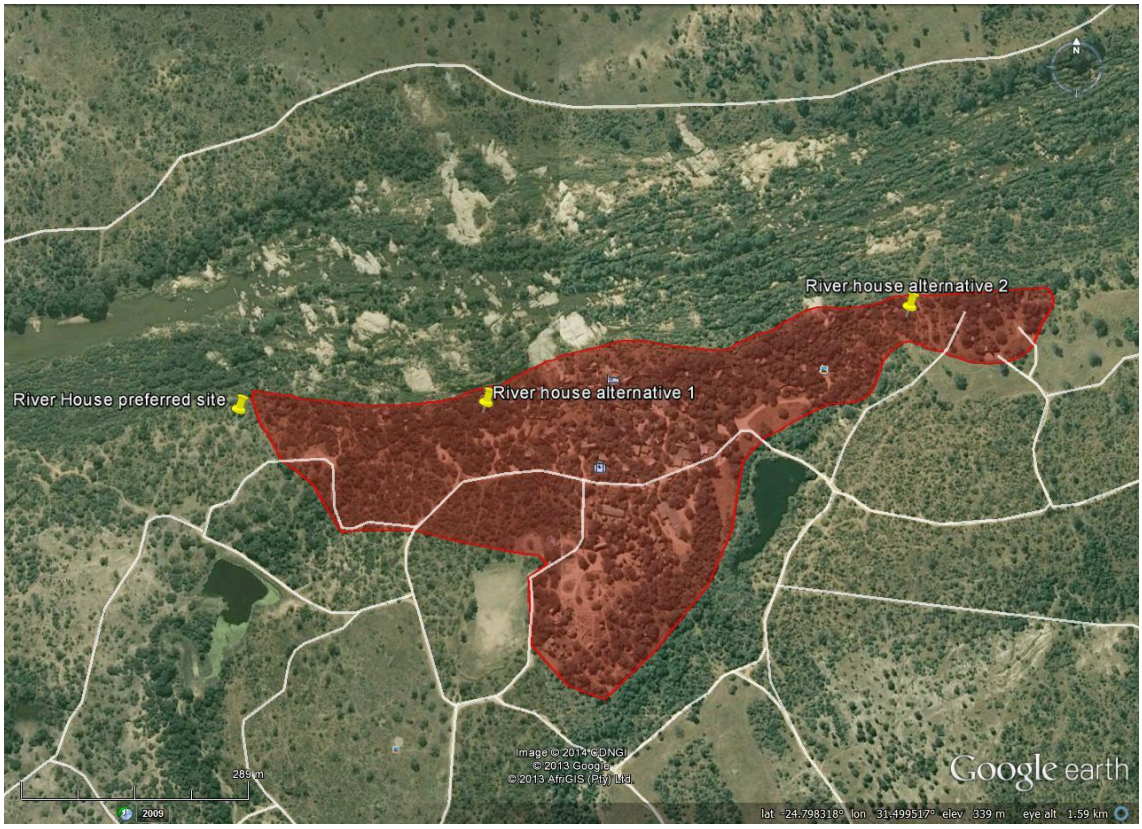


Figure 2: Satellite image indicating the identified sites for River House.

Figure 3: Satellite Image indicating location of the Tree Camp Deck.

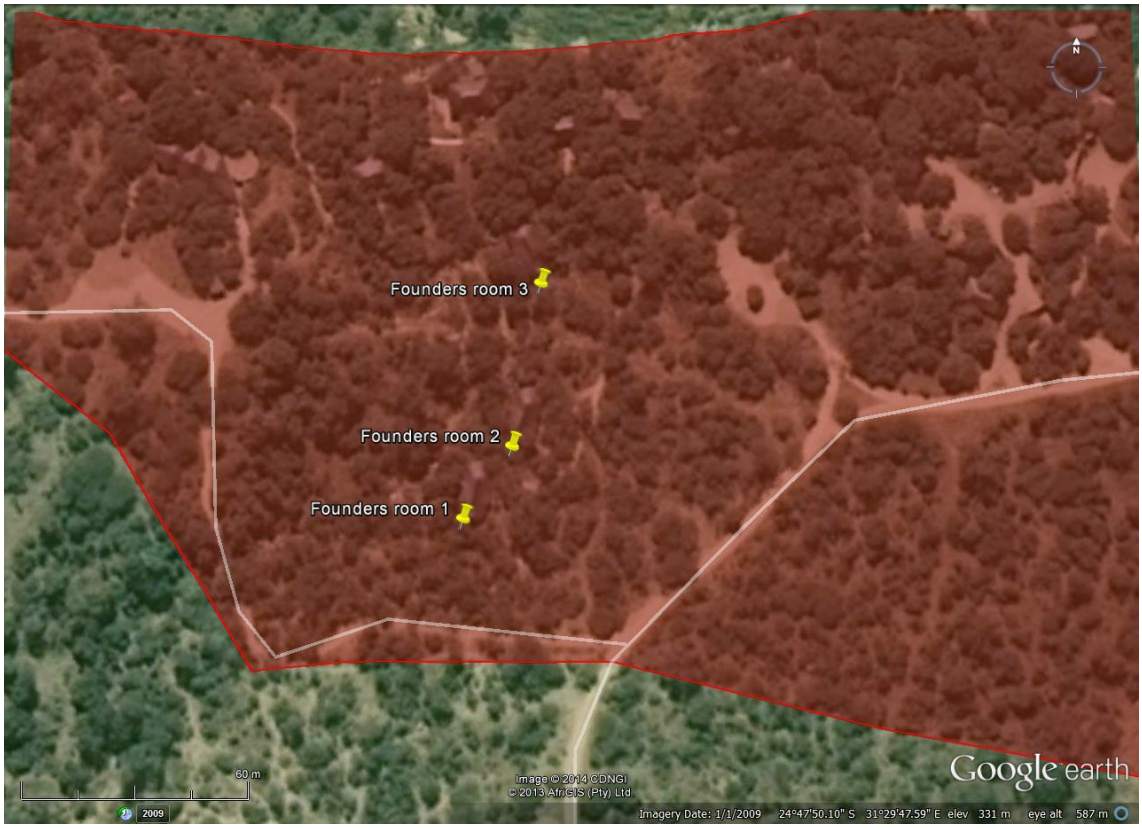


Figure 5: Founders Camp units to be extended to Family Units

Figure 6: The proposed sites assessed for three staff family houses

3 LEGISLATIVE CONTEXT

In terms of the National Environmental Management Act (NEMA), the activities proposed are regarded as listed activities under schedule of activities as follows:

GN R 544, activity # 24;*"The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of coming into effect of this schedule, or thereafter, such land was zoned open space, conservation or had an equivalent zoning"*

GN R 546, activity # 18(a)ii(aa); "*The expansion of a resort, lodge and tourism or hospitality facilities where the development footprint will be expanded".*

GN R 546, activity 5(a); *"The construction of resorts, lodges or other tourism accommodation facilities that sleep less than 15 people".*

GN R 546, activity 16(iv)(a)iii(aa) *"The construction of buildings with a footprint exceeding 10m^2 in size; where such construction occurs within 32m of a watercourse....".*

GN R 546, activity 16(iv)(a)iv(aa) *"The construction of infrastructure covering 10m^2 or more; where such construction occurs within 32m of a watercourse....".*

This means that the proposed development requires a Basic Environmental Assessment in order to obtain environmental authorisation.
The proposed developments may also be subject to regulations contained in other legislation, such as the:

- National Heritage Resources Act (No 25 of 1999, Section 38);
- Conservation of Agricultural Resources Act (No 43 of 1983);
- National Water Act (No 36 of 1998);
- National Environmental Management Act (No 107 of 1998);
- Constitution of the Republic of South Africa (Act 108 of 1996);
- Promotion of Access to Information Act (No 2 of 2000); and
- Mpumalanga Nature Conservation Act (No 10 of 1989).

4 THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The legislation calls for a basic assessment to establish potential environmental and social impacts of the proposed developments. The assessment will look at avoiding or minimising potential environmental damage and promote sustainable development.

The assessment process commences with a planning stage. During this stage;

- An application is lodged with the decision making authority, in this case the Mpumalanga Department of Economic Development, Environment and Tourism.
- Site visits by specialists may be required if deemed necessary to assess the site and potential impacts that could be caused by the proposed development, and

- Potential interested and affected parties to the development are identified.

The planning stage is followed by a participation stage. During this stage;

- A site visit is conducted with the decision making authority, and
- Notices and advertisements are publicised and identified interested and affected parties are consulted.

Then there is a reporting stage, during which:

- Property information and public comment along with, various assessments and specialist inputs are incorporated into a report, assessing the proposed development in context of the site.

The final stage is again Public Participation:

- The compiled report is made available for comment and finally submitted with comments to the lead authority for decision making.

Please refer to the appended flow diagram and time frames for a Basic Assessment.

5 PUBLIC PARTICIPATION PROCESS

According to the Constitution of the Republic of South Africa everybody has the right to have the environment protected, amongst others through sustainable development. Everybody also have the right to be informed and to access information.

Therefore a very important part of the Environmental Impact Assessment is to identify and receive comment from interested and affected parties relating to the proposed development.

This is done by contacting neighbouring landowners, by advertising the process in the Lowvelder, by erecting notices on site, and also by contacting special affected parties such as the Kruger National Park and Mpumalanga Tourism and Parks Agency.

Registered interested and affected parties have the right to comment on reports regarding the development to be submitted by the consultant to the department.

In return the registered interested and affected party is expected to:

- Submit all comments in writing to the consultant;
- Adhere to time frames given for commenting or submit a written motivation for why a longer commenting period is needed; and
- Disclose any direct business, financial, personal or other interest in the development and/or approval or refusal of the development.

6 WHO TO CONTACT

Should you wish to register as an interested and affected party to this process and should you have any special concerns that you wish to be addressed during the assessment process, please send your name and contact details and issues to be addressed to:

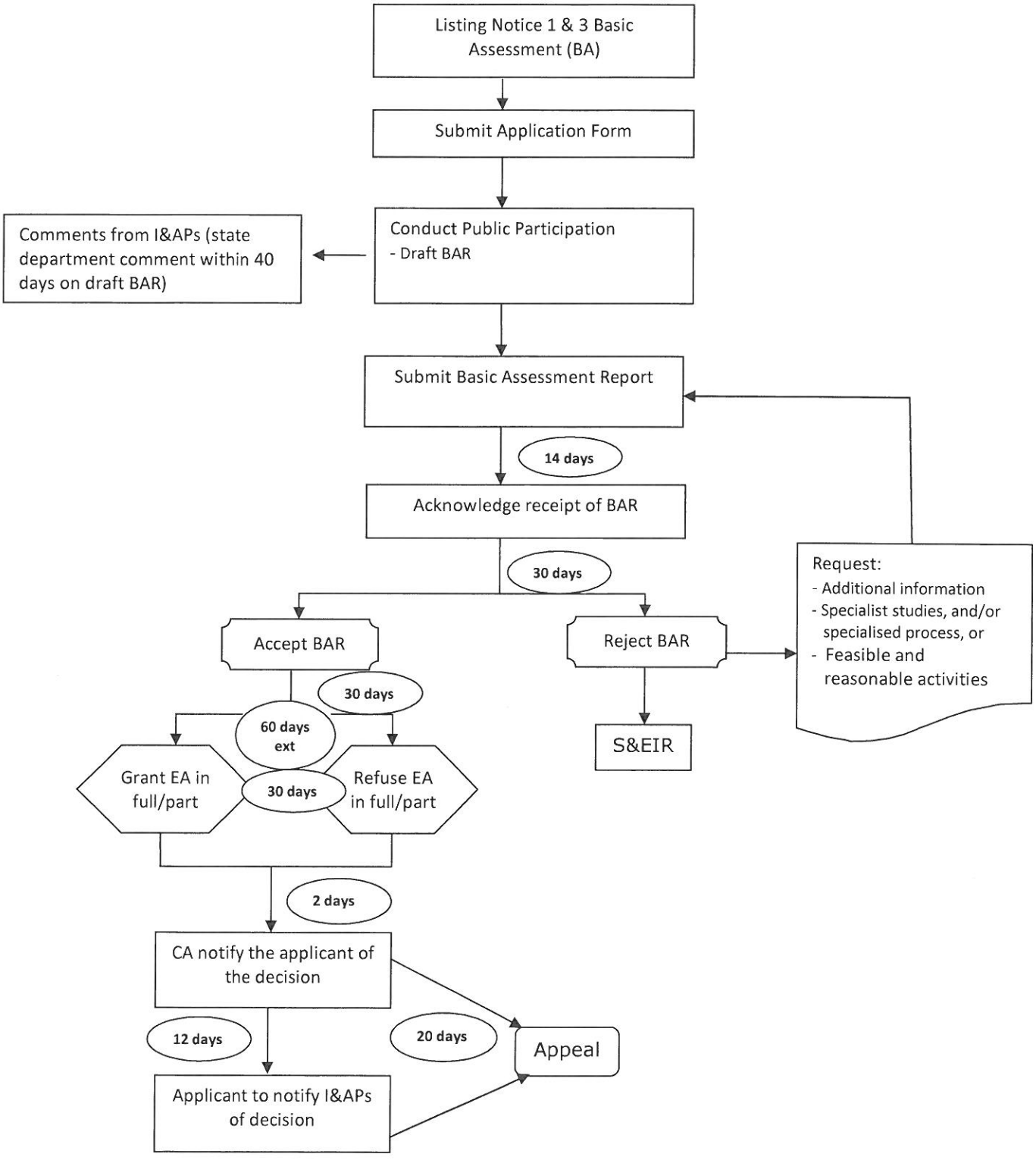
Emross Consulting Pty Ltd.
Andrew Rossaak
PO Box 507
White River
1240
Cell: 082 339 9627
Fax: 086 675 4320
E-mail: andrew@emross.co.za

There is also a simple registration form on our website which you may wish to use.

Website: www.emross.co.za

Notice will be published in the Lowvelder and a site notice will be erected at Newington and Shaws Gates. Interested and affected parties have **30 days to register**. We will, however, be accepting comments throughout the process. In order for issues to be fully assessed, it would be preferable to receive these at the start of this process.

BASIC ASSESSMENT



NEMA TIME FRAMES

BASIC ASSESSMENT PROCESS
Submit Application form to CA
CA acknowledges and accepts application form within **14** days
Public participation process commences, which includes providing I&AP's **30** days to register
Submit draft Basic Assessment Report (BAR) to CA
Submit draft BAR to I&AP's and State Departments & provide **40** days for comment (30 for I&AP's)
Compile final BAR after receipt of comments
Provide I&AP's and State Departments with **21** days to comment on final BAR
Submit final BAR with comments received to CA
CA acknowledges receipt of final BAR within **14** days
Within **30** days of acknowledging receipt of BAR, CA to accept or reject the report, or request additional information
Within **30** days of accepting the BAR, CA to grant or refuse authorisation
On reaching a decision, the CA must, within **2** days notify the applicant of the decision.
The applicant must, within 12 days of the date of the decision, notify I&AP's of the decision and publish a notice

- **Highlighted rows refer to compulsory minimum time frames for public participation. The time frames are legislated and cannot be reduced.**
- **Public participation minimum timeframe for BAR process = 91 days (3 months).**
- **Where reports are required to be amended, additional public review periods may be required.**

Subject: Application for Environmental Approval Londolozi River House and Upgrades
From: Mette Rossaak <mette@emross.co.za>
Date: 2014/01/30 10:06 PM
To: undisclosed-recipients:;
BCC: Frans Kriege <franskrige@telkomsa.net>, Tracy-Lee Petersen <TracyP@sanparks.org>, Graham Kennedy <graham.k@singita.com>, manager@malamalacamp.co.za, bruce.watson@dimensiondata.com, Edwin Pierce <ecologist@sabisand.co.za>, warden@sabisand.co.za, shabangud@bushbuckridge.gov.za

Dear Sir/ Madam,

You may be aware that Londolozi Private Game reserve are planning to undertake various upgrade and improve various facilities within their camp, in the Sabi Sand Game Reserve.

Emross Consulting has been appointed as independent environmental consultants to apply for environmental authorisation for these activities and in that connection investigate the potential environmental risks in connection with the construction and to propose mitigation measures where possible.

An important part of this process is the participation of interested and potentially affected parties. You have been identified as an interested and affected party as your property is neighbouring to Londolozi, or because you represent an authority with jurisdiction, and as such we would value any comments you may have.

I have attached, for your information, a background document that outlines the proposals for the developments. We have identified some studies that need to be undertaken in the evaluation of the various proposed sites, and the information provided is what we have at present.

If you wish to register you can use the online form on the downloads page of our website (www.emross.co.za) or simply reply to this email.

We are available to meet with you, or your representative in the Sabi Sand, to discuss the proposals, and hear and document your concerns or comments. Please let us know if you wish to have a face-to-face meeting so that we can make an arrangement.

If you have no comments or concerns at this stage, that is fine (and common) – please just let us know. You will still have an opportunity to view the draft and final report prior to submission to the authorities.

Should you **not** wish to receive further correspondence regarding these assessments, please inform us to that effect by replying to this email.

If you have any questions, please feel free to contact me.

Many thanks for your time, and kind regards
--
Mette Rossaak
Certified Environmental Assessment Practitioner

Emross Consulting (Pty) Ltd.
Tel 013 750 2782
Cell 082 3399 627
Fax 086 675 4320

Attachments:

BID Londolozi_opt.pdf 715 KB

Subject: RE: Application for Environmental Approval Londolozi River House and Upgrades
From: "Edwin Pierce" <ecologist@sabisand.co.za>
Date: 2014/01/31 08:01 AM
To: <mette@emross.co.za>

Morning Mette

Thank you very much for the notification.

I will contact you if I have any queries.

Regards,

Edwin

EDWIN PIERCE
SSW NORTHERN SECTION RANGER /ECOLOGIST
Tel: 013 735-5102 | *Mobile:* 078 804-0347
Website: www.sabisand.co.za

River House - Preferred Site:

North

East

River House - Preferred Site (cont.):

South

West

River House - Alternative Site 1:

North

North east

North east in front of building

River House - Alternative Site 1 (cont.):

East

South west

West

North west

River House - Alternative Site 2:

West

North west

North

River House - Alternative Site 2 (cont.):

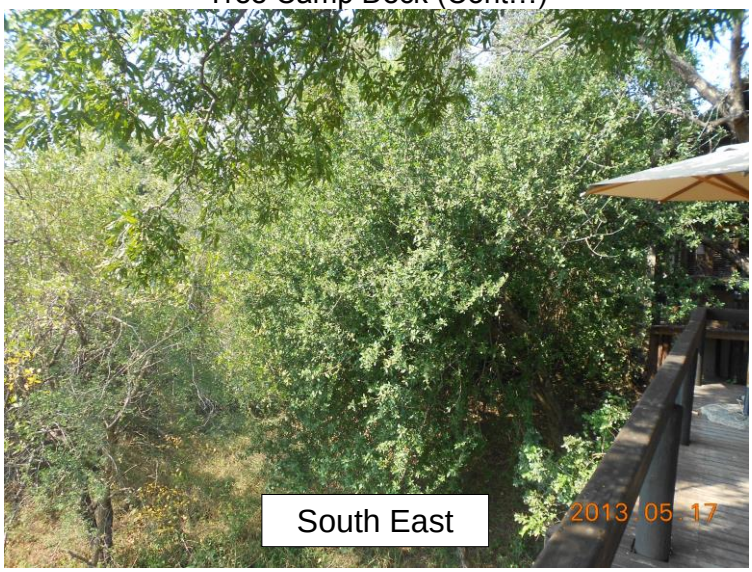
North east

East

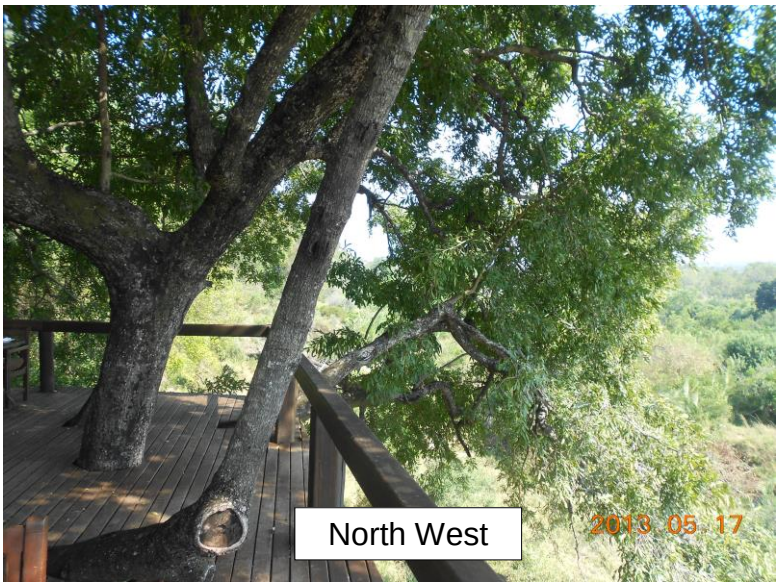
South east

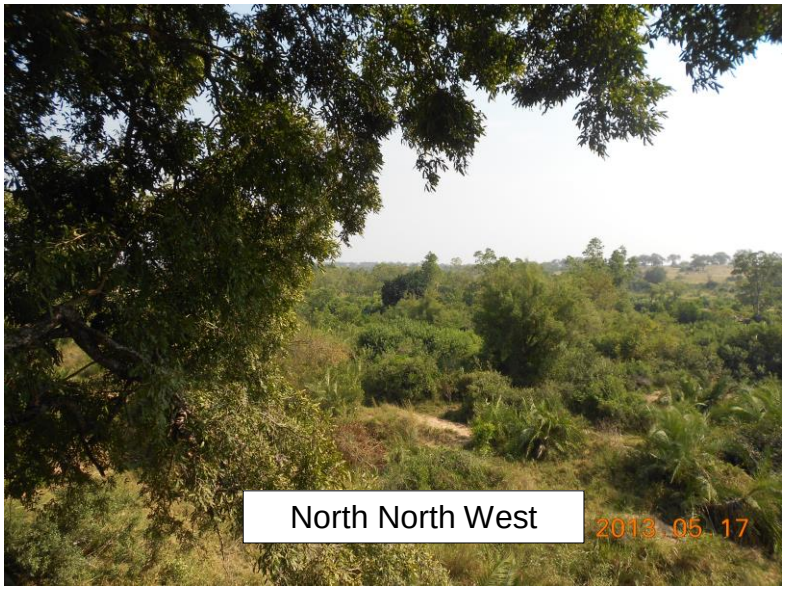
Tree Camp Deck

Tree Camp Deck (Cont…)

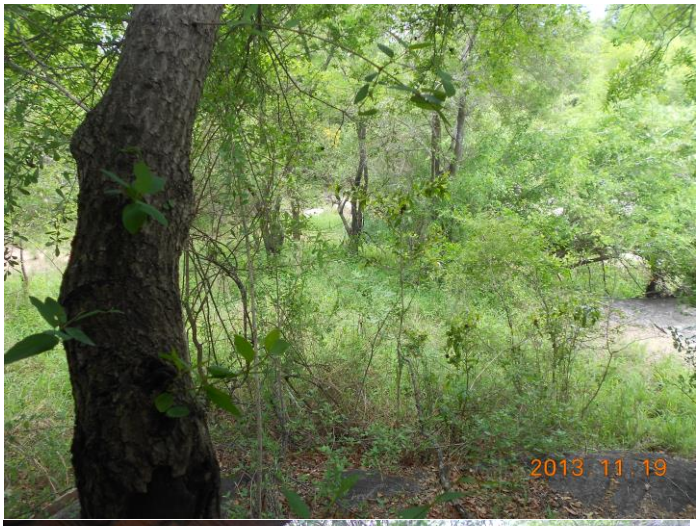


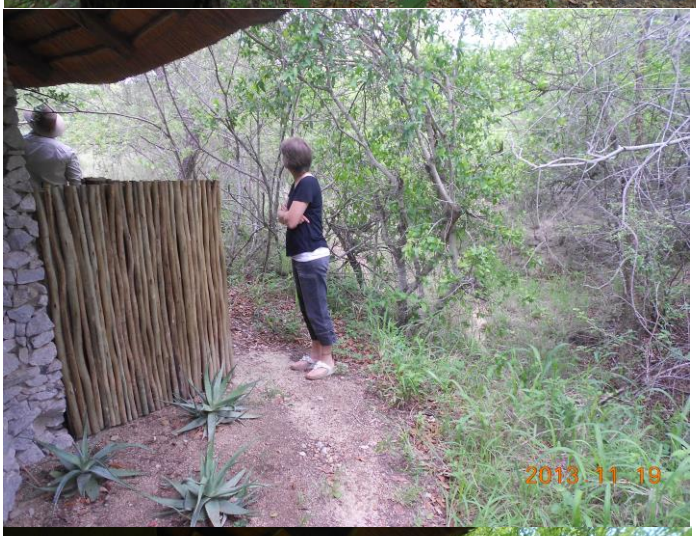
Tree Camp Deck (Cont…)

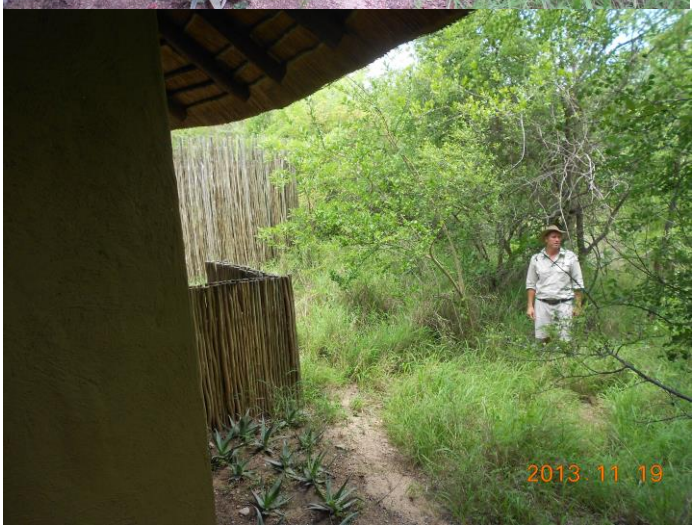




Founders Room extension
The following photo's are of the areas where the rooms will be expanded into.



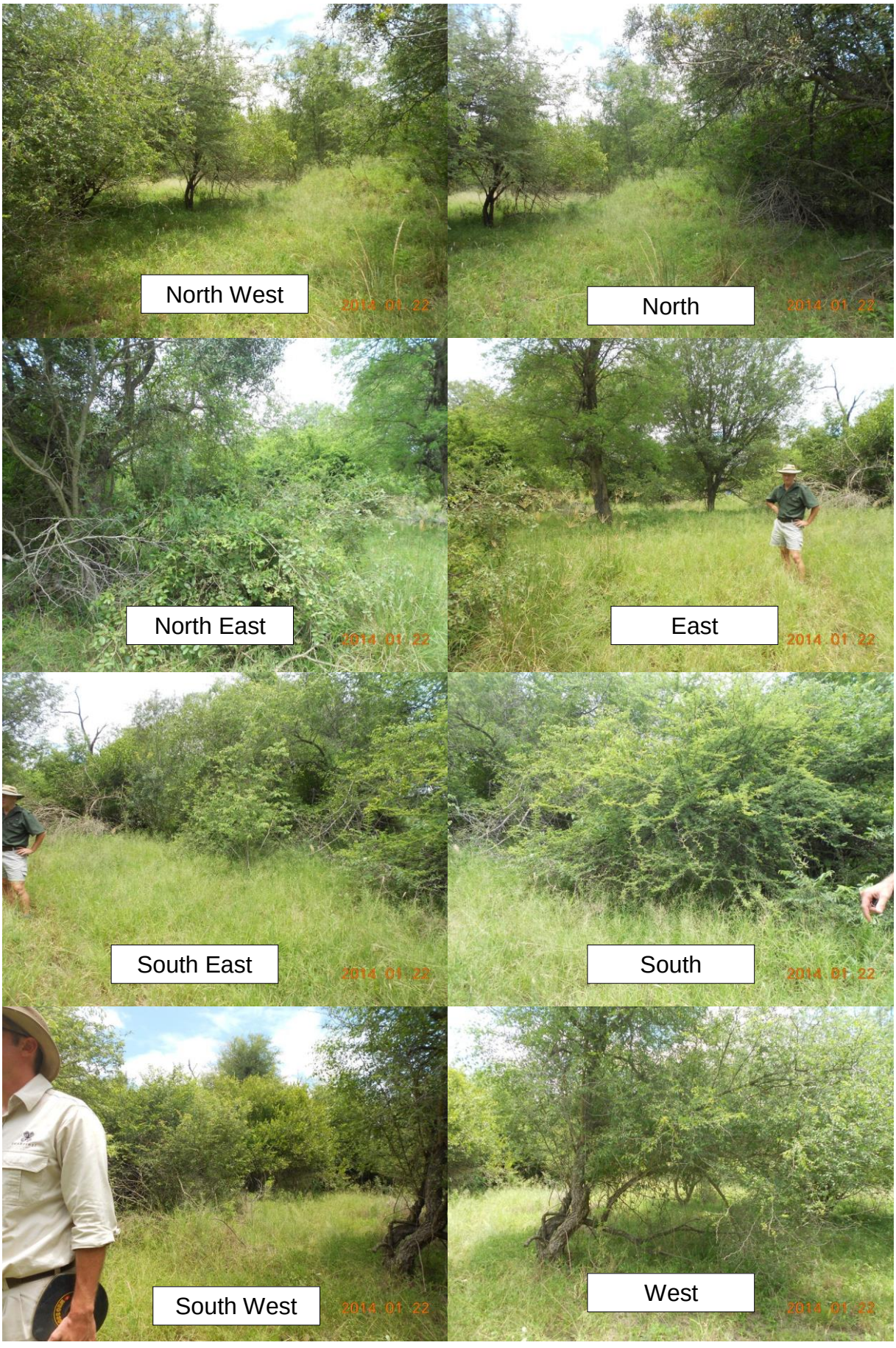




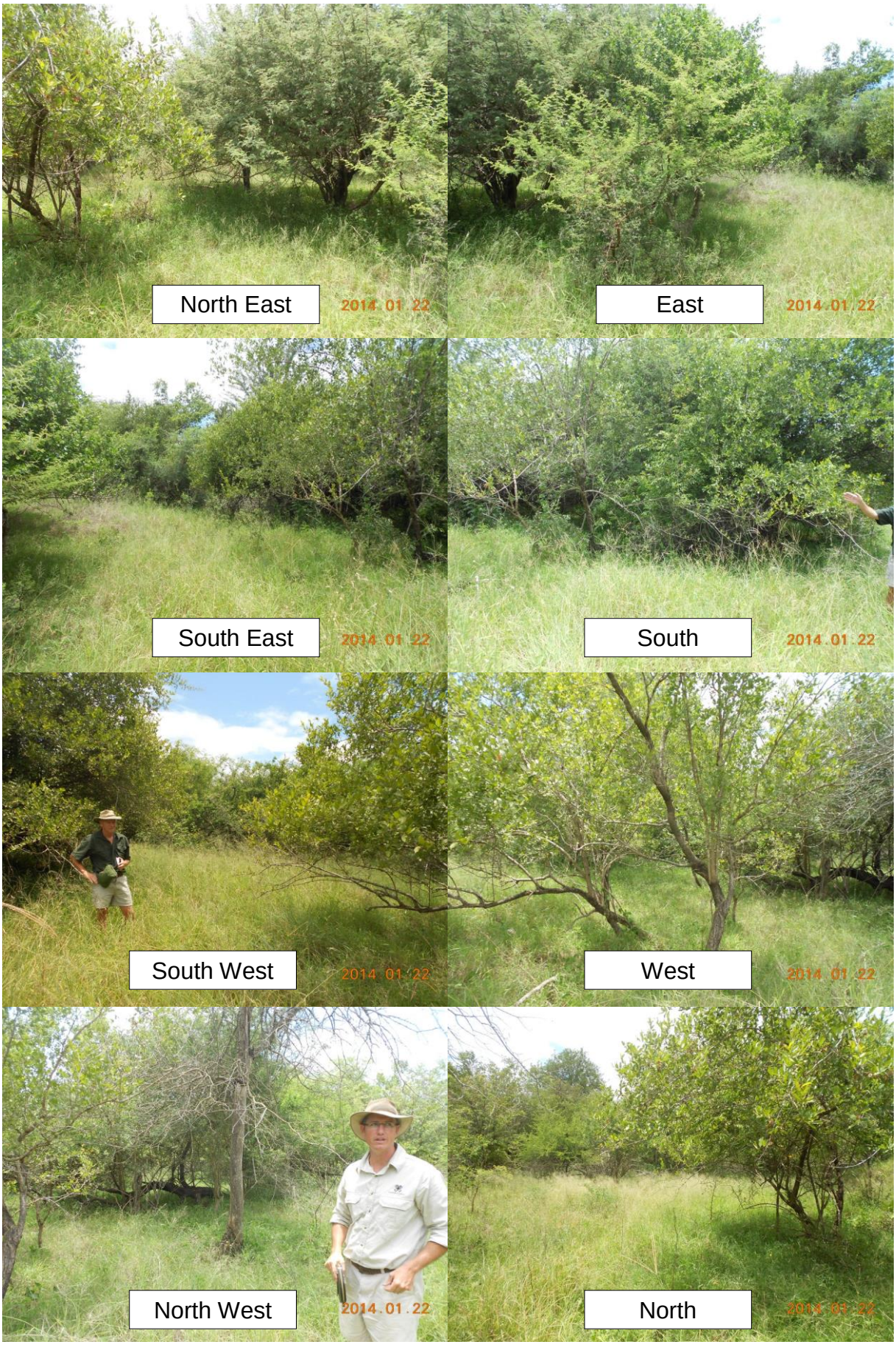
Founders Room extension

The photo are of the areas inside rooms that will be expanded through removal of the curved wall.

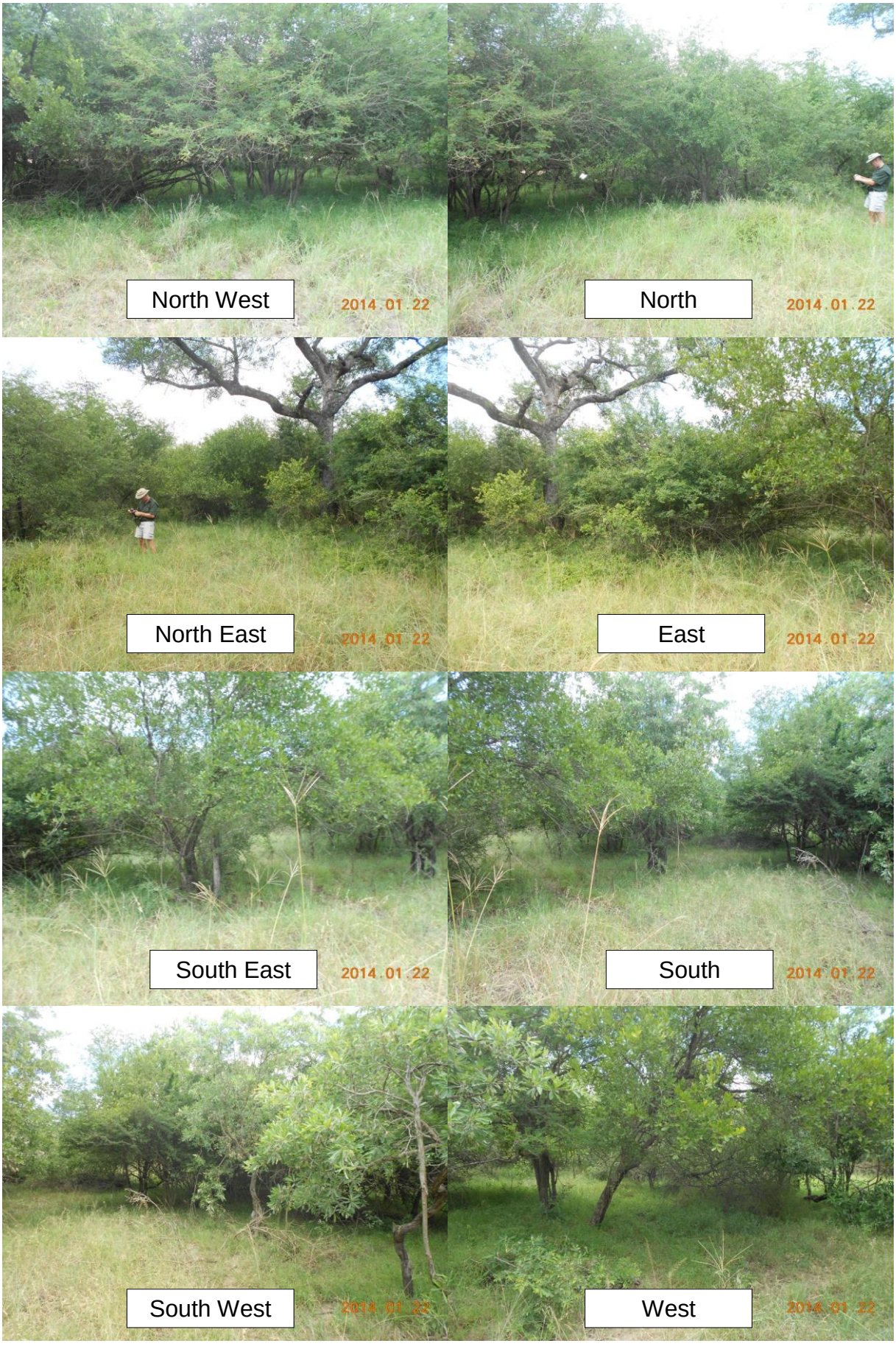
New staff houses - Site 1



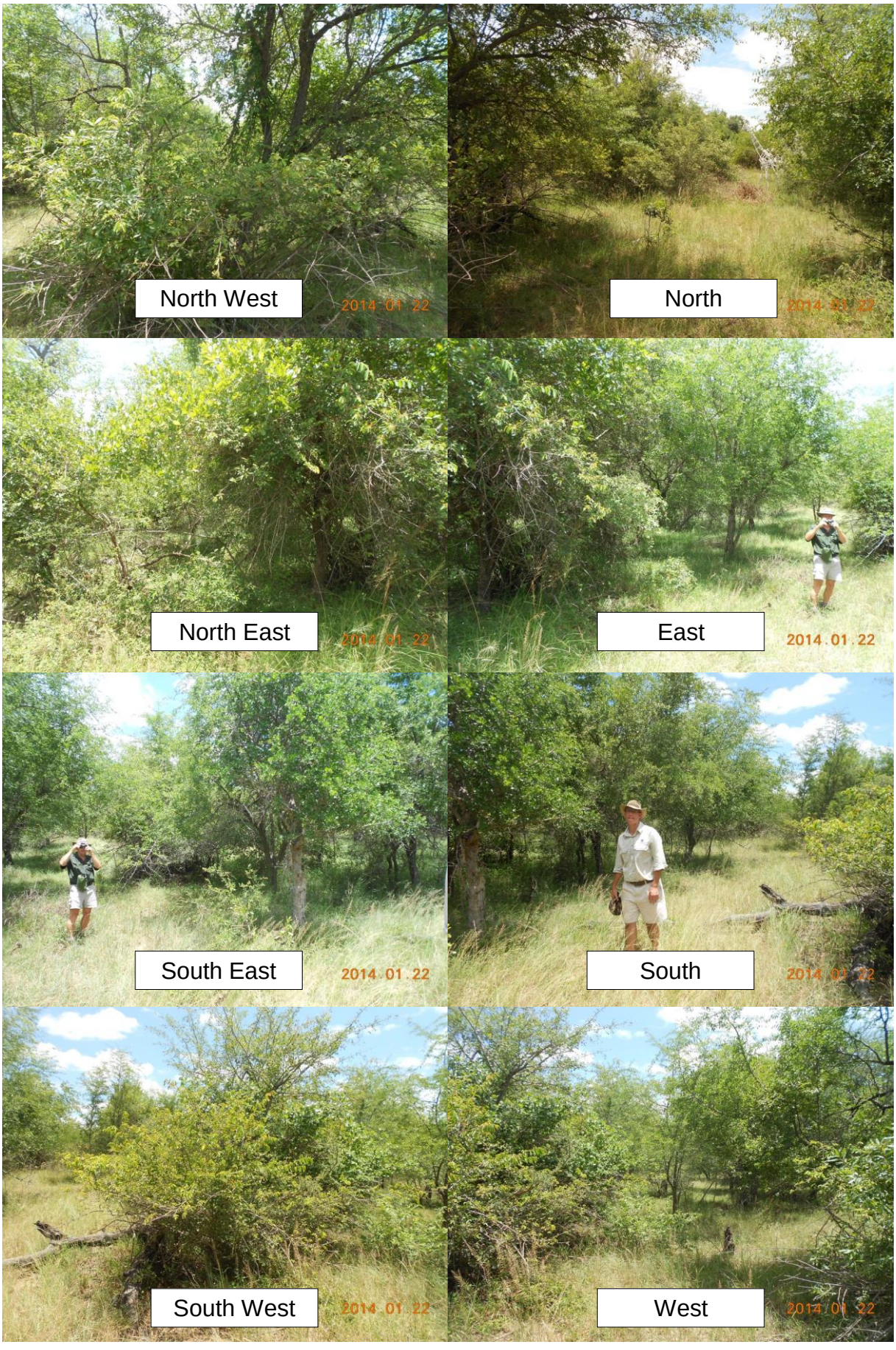
New staff houses Site 2



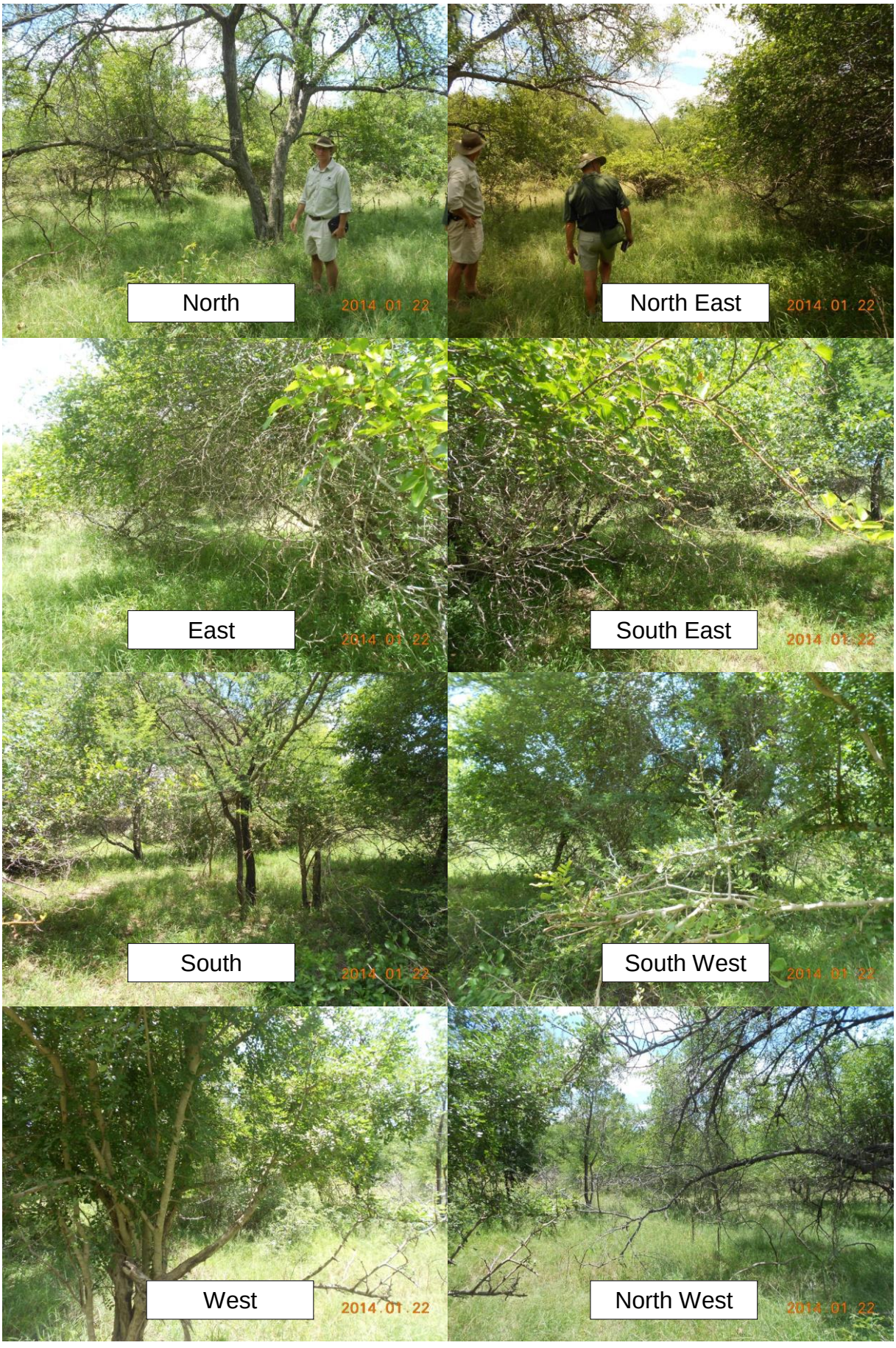
New staff houses Site 3



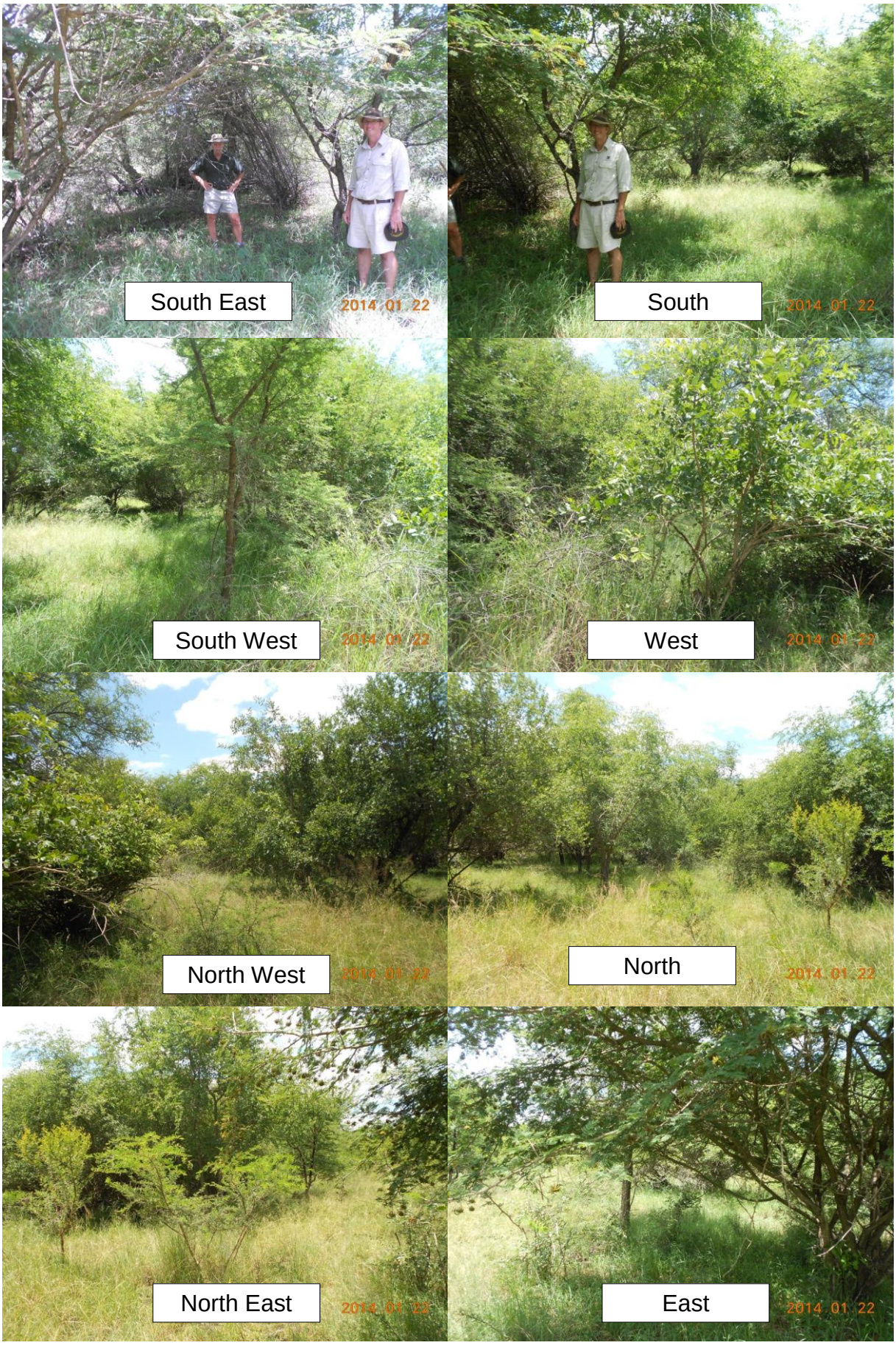
New staff houses Site 4



New staff houses Site 5



New staff houses Site 6



VEGETATION ASSESSMENT

VEGETATION ASSESSMENT:
PROPOSED VILLA DEVELOPMENT LONDOLOZI
SABI SAND WILDTUIN

ESTABLISHED 1926
LONDOLOZI

June 2013©$_{v1}$

Prepared for: Emross Consulting (Pty) Ltd
Prepared by: Dr Mike Peel
P.O. Box 7063
Nelspruit
1200

EXECUTIVE SUMMARY

A vegetation assessment was done to determine the vegetation elements that would be impacted on at potential sites for a villa development at Londolozi in the Sabi Sand Wildtuin (SSW). The objective of this assessment was to conduct a survey of the footprint within the proposed sites.

The study area is situated within the Granite Lowveld (Mucina & Rutherford 2006). This plant vegetation type is considered to be vulnerable due to transformation through human activities largely outside of protected areas.

Some 42 tree species were recorded within the study area during the fieldwork although there are many more on these areas. Three species, *Sclerocarya birrea*, *Combretum imberbe* and *Philenoptera violacea* are classified as protected species according to the 'Notice of List of Protected tree Species under the National Forest Act 1998 (ACT NO. 84 of 1998 – updated 2012) while *Spirostachys africana* is considered a protected species in Mpumalanga (MPUMALANGA NATURE CONSERVATION ACT: NO. 10 OF 1998). More than 30 grass species, dominated by palatable species were recorded on the various sites.

A list of mammal species that are considered to have a high likelihood of occurring in the study area is included. 'Threatened' species include: Critically endangered – Black rhinoceros (*Diceros bicornis*); Endangered – African elephant (*Loxodonta africana*) and Wild dog (*Lycaon pictus*); Vulnerable – Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*).

In terms of reptiles, the Nile crocodile (*Crocodylis niloticus*) and the African Rock Python (*Python sebae natalensis*) are considered vulnerable. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey.

Regarding the sites proposed for possible lodge construction, there are no major areas of concern as the sites are all located relatively close to existing infrastructure. Objectively ranked, the 'Tree' Site is the most likely to be impacted on in terms of measured diversity

parameters. The preferred ‘Greenfields’ site has two relatively open areas which means that it will be possible to reduce the impact on the vegetation if sensitively approached and there are no compelling reasons not to erect the villa at this site. The site provides a highly suitable location for the proposed ‘villa’ as it is located slightly away from the main camp but close to the river which therefore presents a diversity of habitats from riparian to sought after low-lying grazing lands. This all contributes to an aesthetically pleasing site for a lodge. In addition the high quality grazing will attract herbivores which in turn will attract predators to the area thus further enhancing the wildlife product.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

We thank Chris Goodman for his assistance, Andrew and Mette Rossaak and Andrew Emery for their logistic support. Andrew Rossaak also provided the photographs for this report.

The team working on this project included:
Mike Peel
Andre Jacobs
Lukas Manaka

Declaration of Independence

We declare that we have been appointed as independent consulting ecologists with no affiliation with or vested financial interests in the proponent, other than for work performed. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. Remuneration for our services is not linked to approval by any decision-making authority responsible for authorising this development.

Mike J.S. Peel June 2013

1) INTRODUCTION

EMROSS Environmental Consulting (Pty) Ltd ("Emross") appointed Mike Peel to conduct an assessment of the vegetation within the proposed footprint of potential infrastructure development nodes viz. three potential sites for the erection of a luxury villa at Londolozi. This part of the study comprised a survey of the vegetation of each potential villa site.

2) TERMS OF REFERENCE

Conduct an assessment of the terrestrial ecosystems within the proposed impact footprint (vertebrate fauna and flora), which will include the following:

a) Description of vegetation communities and provide statement of vegetation type noting sensitive/special habitat present and conservation importance;
b) Appropriateness of the proposed development at each site calculated objectively using a diversity index, number of protected species and total number of each protected species surveyed at each site;
c) Appropriateness of the proposed 'deck extension' calculated objectively using a diversity index, number of protected species and total number of each protected species surveyed at each site;
d) Reference, if found, all protected, endemic and/ or red list species with a co-ordinate and a comment;
e) Provide co-ordinates and species for all trees taller than 1.8m;
f) Supply lists of plants, mammals and reptiles one could expect to find on the sites within this habitat/ vegetation type (presented in a table format).

3) THE STUDY AREA

All of the sites are on the remainder portion of the farm Marthly 258KU within the Sabi Sand Wildtuin (Figure 1). This area of the Lowveld is underlain by the basement gneisses and granites. Using Walraven (1989) the Sabi Sand Wildtuin contains the following: A central band running from close to the eastern boundary to the western boundary is dominated by medium to coarse grained, sphene bearing tonalite. A narrow band of Timbavati Gabbro, a medium- to coarse-grained gabbro, olivine gabbro and quartz gabbro is found on the

eastern boundary of Ravenscourt stretching to the northern boundary as well as over much of Castleton. These are basic rocks with an irregular outcrop pattern distinguished by a clearly recognizable vegetation type. A very prominent dyke (Rykoppies), consisting of fine to medium grained, hybridized gabbro, with abundant inclusions of acid rocks extends in a west-east direction across the granites and gneisses of the pre-Transvaal basement. This dyke protrudes above the flat topography formed by the granite and gneiss. In the SSW it stretches in a narrow band from Wallingford in the west, where it is most pronounced, through Ravenscourt, Marthly and into Marthly and Eyrefield in the neighbouring Mala Mala Reserve. There are dykes that generally run slightly east of north and diabasic dykes scattered throughout the SSW.

In terms of the vegetation, the study area is situated entirely in the Savanna Biome. Acocks (1988) divides the study area into Lowveld and Arid Lowveld, while Low & Rebelo (1996) classify the area into Mixed Lowveld Bushveld and Sweet Lowveld Bushveld. According to the latest South African classification (Mucina & Rutherford 2006) the larger part of the vegetation of the SSW is classified as Granite Lowveld (SVI3 with elements of SVI6). Peel *et al.* (2007) provide a description of vegetation patterns of the area at a spatial scale that allows for the meaningful examination and comparison of the structure, functioning, and ultimately effective management, of these savannas and include the Thornveld on Gabbro element as described by Gertenbach (1983).

Figure 1 illustrating the position of the potential villa sites on Londolozi (Google Earth 2013).

4) METHODS

The vegetation survey was undertaken as per the terms of reference received from the principal consultants.

a) Sampling Sites

All three potential sites are located along close to the Sand River and existing infrastructure associated with the Londolozi main lodge. Subjectively speaking – the preferred Greenfields site is relatively less transformed than the Founders and Tree sites.

One approximately 100 m x 100 m ‘quadrat’ (representing an area of 1ha) was surveyed around the central point (Table 1) of each potential site in order to quantitatively survey the vegetation (Table 1). Transects were systematically traversed and individual trees and bush clumps were recorded and geo-referenced. In addition a list of grass species and any other noteworthy life form or feature was noted.

Table 1 Sampling sites in the study area.

Site	Co-ordinates	Altitude (masl)	Landscape position	Vegetation/Soil association
Founders	24 47 47.5S 31 29 51.0E	328	Bottomland	Granitic template
Greenfields (preferred)	24 47 48.1S 31 29 38.2E	329	Bottomland	Granitic template
Tree	24 47 42.7S 31 30 10.0E	323	Bottomland	Granitic template

b) Other Vertebrate Fauna

Historically, the SSW is expected to have carried a full complement of the megafauna traditionally associated with these savannas (large grazers and browsers that occurred historically (du Plessis 1969) (Appendix C). A wide range of carnivores and other smaller mammals have been recorded (Pienaar *et al.* 1983; Rautenbach 1982; Skinner & Smithers 1999) (Appendix D). A list relating to the conservation status of various species of reptiles and mammals that may occur on Londolozi is provided.

5) RESULTS

a) Herbaceous layer

The results for the herbaceous layer are presented in Table 2 for each of the potential sites. A more comprehensive list of grasses that may be encountered is provided in Appendix A.

b) Woody layer

The results for the woody layer are presented in Tables 3-6 for each of the potential sites. As stated above the aappropriateness of the proposed development at each site is calculated objectively using: a diversity index; the number of protected species on the site; and the total number of each protected species surveyed at each site. This means that the site with the lowest ranking is ecologically the least sensitive and thus the most suitable for the lodge as the chance of impacting protected species is the lowest. A short subjective discussion is included at the end of each Table. A more comprehensive list of woody species that may be encountered is provided in Appendix B. Tree species protected under the following Act are highlighted in the Tables.

8 No. 35648 GOVERNMENT GAZETTE, 7 SEPTEMBER 2012

No. 716 7 September 2012

NOTICE OF THE LIST OF PROTECTED TREE SPECIES UNDER THE NATIONAL FORESTS ACT, 1998 (ACT NO 84 OF 1998)

By virtue of powers vested in me under Section 15(3) of the National Forests Act, 1998, I, Tina Joemat-Pettersson, Minister of Agriculture, Forestry and Fisheries hereby publish a list of all protected trees belonging to a particular species under Section 12(1) (d) set out in Schedule below.

The effect of this declaration is that in terms of Section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.

Contravention of this declaration is regarded as a first category offence that may result in a person who is found guilty of being sentenced to a fine or imprisonment for a period up to three years, or to both a fine and imprisonment.

Table 2 Some grass species recorded on potential lodge sites(Figures 2 - 4).

Species	
Aristida spp.	*Heteropogon contortus*
Bothriochloa radicans	*Melinis repens*
Brachiaria nigropedata	*Panicum coloratum*
B. deflexa	*P. deustum*
Chloris virgata	*P. maximum*
Digitaria eriantha	*Perotis patens*
Cymbopogon plurinodis	*Pogonarthria squarrosa*
Eragrostis racemosa	*Schmidtia pappophoroides*
E. heteromera	*Sporobolus africana*
E. lehmanniana	*S. fimbriatus*
E. rigidior	*S. nitens*
E. superba	*Themeda triandra*
E. trichophera	*Tragus berteronianus*
Forbs	

Figure 2 showing the area representing ‘Founders’ site (Photograph Andrew Rossaak).

Figure 3 showing the area representing ‘Greenfield’ site (Photograph Andrew Rossaak).

Figure 4 showing the area representing the ‘Tree’ site (Photograph Andrew Rossaak).

Table 3 Woody species recorded on 'Founders' site (national protected species in yellow and Mpumalanga in green).

Species 'Founders'	Co-ordinates (S)	Co-ordinates (E)	Species	Co-ordinates (S)	Co-ordinates (E)
Combretum imberbe	244747.4	312951.3	Sclerocarya birrea	244747.4	312950.8
Gymnosporia buxifolia	244747.4	312950.8	Euclea natalensis	244747.4	312950.8
Combretum erythrophyllum	244747.5	312951.0	Strychnos madagascariensis	244747.6	312951.0
Acacia nigrescens	244747.5	312951.1	Diospyros mespiliformis	244747.5	312951.1
Euclea divinorum	244747.4	312951.0	Combretum apiculatum	244747.3	312950.9
Grewia flavescens	244747.3	312950.9	Diospyros mespiliformis	244747.5	312950.9
Grewia flavescens	244747.2	312951.4	Schotia brachypetala	244747.2	312951.4
Strychnos madagascariensis	244747.2	312951.5	Strychnos madagascariensis	244747.3	312951.6
Acacia nigrescens	244747.3	312951.6	Strychnos madagascariensis	244747.3	312951.6
Philenoptera violacea	244747.4	312951.7	Acacia grandicornuta	244747.5	312951.5
Creeper	244747.3	312951.6	Acacia nigrescens	244747.3	312951.6
Strychnos madagascariensis X4	244747.3	312951.6	Acacia nigrescens	244747.3	312951.6
Strychnos madagascariensis	244747.3	312951.6	Protoasparagus spp.	244747.3	312951.6
Dichrostachys cinerea	244746.9	312951.6	Rhus pentheri	244746.9	312951.7
Combretum apiculatum	244746.9	312951.7	Combretum apiculatum	244746.8	312951.5
Diospyros mespiliformis	244746.7	312951.8	Dichrostachys cinerea	244747.0	312951.7
Diospyros mespiliformis	244746.8	312951.5	Dichrostachys cinerea	244747.0	312951.6
Euclea natalensis	244747.1	312951.7	Diospyros mespiliformis	244746.9	312951.6
Combretum erythrophyllum	244746.9	312951.6	Diospyros mespiliformis	244746.7	312951.3
Diospyros	244746.8	312951.2	Diospyros	244746.8	312951.3

mespiliformis			mespiliformis		
Schotia brachypetala	244746.9	312951.1	Acacia nigrescens	244746.9	312951.0
Berchemia zeyheri	244747.1	312950.6	Diospyros mespiliformis	244747.1	312950.7
Grewia flavescens	244747.2	312950.6	Bauhinia galpinii	244747.2	312950.9
Acacia e.g.	244747.2	312950.8	Senna petersiana	244747.3	312951.2

Parameter	Index or Number	Ranking 3 lodge sites
Shannon Diversity Index	2.4	2
Number of protected tree species	3 +0 = 3	2
Number of individuals of protected tree species	1 (Pv) + 1 (Ci) + 1 (Sa) = 3	3
Grass species	High quality associated with bottomlands.	
General Comments: Overall the site ranks third in terms of the three woody parameters indicating that should this site be selected there is little chance of impacting on protected species. There are reasonable numbers of aesthetically pleasing trees such as *Diospyros mespiliformis* and *Acacia nigrescens* that would need to be considered should the lodge be constructed at this site.		

Table 4 Woody species recorded on 'Greenfields' site (national protected species in yellow and Mpumalanga in green).

Species 'Greenfields'	Co-ordinates (S)	Co-ordinates (E)	Species	Co-ordinates (S)	Co-ordinates (E)
Acacia nilotica	244747.8	312939.1	Acacia nilotica	244748.1	312938.9
Ziziphus mucronata	244747.9	312938.7	Acacia nilotica X4	244748.2	312938.6
Philenoptera violacea	244748.1	312938.4	Euclea natalensis	244748.1	312938.4
Ziziphus mucronata	244748.1	312938.2	Euclea natalensis X2	244748.2	312938.0
Diospyros mespiliformis	244748.2	312938.0	Gymnosporia buxifolia	244748.2	312937.9
Gardenia volkensii	244748.2	312937.9	Grewia bicolor	244748.2	312937.9
Spirostachys africana X2	244748.3	312937.8	Ziziphus mucronata	244748.3	312937.8
Euclea divinorum X2	244748.3	312937.8	Ziziphus mucronata	244748.3	312937.8
Dichrostachys cinerea X2	244748.3	312937.8	Gymnosporia senegalensis	244748.3	312937.7
Acacia tortilis	244748.6	312937.3	Dichrostachys cinerea	244748.8	312937.1
Gymnosporia senegalensis X6	244748.9	312936.9	Acacia nigrescens	244748.9	312936.9
Flueggea virosa	244748.9	312936.9	Gardenia volkensii	244749.1	312936.9
Dichrostachys cinerea	244749.1	312936.9	Acacia nilotica X2	244749.1	312936.9
Ziziphus mucronata	244749.3	312937.0	Acacia grandicornuta	244749.3	312937.0
Philenoptera violacea X2	244749.3	312937.0	Dichrostachys cinerea X2	244749.4	312937.0
Acacia nilotica	244749.3	312937.1	Gymnosporia senegalensis X4	244749.8	312937.2
Flueggea virosa	244750.0	312937.1	Acacia grandicornuta	244750.2	312937.4
Acacia nilotica	244750.2	312937.4	Dichrostachys cinerea X4	244750.2	312937.6
Acacia nilotica	244750.2	312937.6	Dichrostachys cinerea	244750.1	312937.7
Flueggea virosa	244750.3	312937.9	Dichrostachys cinerea	244750.3	312937.9
Acacia nilotica	244750.1	312938.1	Acacia nilotica	244750.2	312938.3
Acacia nilotica	244750.1	312938.6	Acacia nilotica	244750.1	312938.6
Acacia nilotica	244750.0	312938.6	Acacia nilotica X2	244749.9	312938.7
Acacia nilotica	244749.7	312938.9	Acacia nilotica	244749.6	312939.2
Dichrostachys cinerea X3	244749.3	312938.9	Dichrostachys cinerea	244749.2	312939.6
Combretum imberbe	244749.2	312939.9	Dichrostachys cinerea X5	244749.0	312939.9
Gymnosporia senegalensis	244748.8	312939.7	Flueggea virosa	244748.9	312939.5
Dichrostachys cinerea	244748.9	312939.5	Gymnosporia senegalensis	244748.9	312939.5
Euclea natalensis	244748.9	312939.3	Acacia nilotica	244748.8	312939.2
Acacia nilotica	244748.8	312939.1	Acacia nilotica	244748.6	312939.1

Euclea divinorum	244748.5	312939.1	Euclea divinorum	244748.5	312938.8
Combretum imberbe	244748.4	312938.5	Sclerocarya birrea	244748.5	312938.4
Euclea divinorum X3	244748.6	312938.3	Gymnosporia senegalensis	244748.6	312938.3
Gardenia volkensii	244748.5	312938.2	Dichrostachys cinerea	244748.5	312938.1
Acacia nilotica	244748.6	312938.2	Gymnosporia senegalensis X3	244748.6	312938.5
Acacia nilotica X3	244748.9	312938.4	Acacia nilotica X4	244749.0	312938.7
Acacia nilotica X2	244749.1	312938.9			

Parameter	Index or Number	Ranking 3 lodge sites
Shannon Diversity Index	2.3	3
Number of protected tree species	3 + 1 = 4	1
Number of individuals of protected tree species	1 (Pv) + 1 (Cb) + 1 (Sb) + 2 (Sa) = 5	2
Grass species	High quality associated with bottomlands and sodic sites.	

General Comments:
Overall the site ranks second (very similar to 'Founders') in terms of the three woody parameters indicating that should this site be selected there is little chance of impacting on protected species. There are reasonable numbers of aesthetically pleasing trees such as *Acacia nilotica, Diospyros mespiliformis, Acacia tortilis* and *Acacia grandicornuta* that would need to be considered should the lodge be constructed at this site.

Table 5 Woody species recorded on the 'Tree' site (national protected species in yellow and Mpumalanga in green).

Species 'Tree'	Co-ordinates (S)	Co-ordinates (E)	Species	Co-ordinates (S)	Co-ordinates (E)
Acacia nigrescens	244745.2	313006.0	Grewia bicolor	244742.8	313010.2
Combretum zeyheri X2	244742.8	313010.1	Combretum zeyheri	244742.8	313010.2
Diospyros mespiliformis	244742.8	313010.2	Acacia grandicornuta	244742.7	313010.1
Spirostachys africana	244742.7	313009.0	Manilkara mochisia	244742.7	313009.0
Euclea divinorum	244742.7	313010.0	Acacia nigrescens X2	244742.6	313010.2
Spirostachys africana X5	244742.6	313010.4	Euclea natalensis	244742.6	313010.4
Spirostachys africana	244742.6	313010.4	Euclea natalensis	244742.6	313010.4
Acacia grandicornuta	244742.6	313010.5	Acacia grandicornuta	244743.0	313010.4
Euclea divinorum	244743.0	313010.4	Maytenus spp.	244743.0	313010.4
Berchemia zeyheri	244742.9	313010.4	Combretum apiculatum	244742.9	313010.4
Grewia flavescens	244742.9	313010.5	Gymnosporia senegalensis	244742.9	313010.5
Spirostachys africana	244742.9	313010.6	Ziziphus mucronata	244742.9	313010.6
Combretum apiculatum	244742.9	313010.6	Philenoptera violacea	244743.0	313010.5
Spirostachys africana	244743.1	313010.7	Strychnos madagascariensis	244743.1	313010.7
Spirostachys africana	244743.1	313010.8	Combretum apiculatum	244743.1	313010.8
Acacia nigrescens	244743.1	313010.7	Combretum apiculatum	244743.1	313010.9
Grewia flavescens	244743.1	313010.9	Plectroniella armata	244743.2	313010.2
Diospyros mespiliformis	244743.3	313010.2	Plectroniella armata	244743.3	313010.3
Diospyros mespiliformis	244743.3	313010.3	Plectroniella armata	244743.3	313010.3
Strychnos madagascariensis	244743.4	313010.3	Philenoptera violacea	244743.5	313010.3

Combretum apiculatum	244743.5	313010.3	Dalbergia melanoxylon	244743.6	313010.5
Ziziphus mucronata	244743.6	313010.6	Grewia flavescens	244743.6	313010.6
Cordia grandicalyx	244743.6	313010.6	Grewia bicolor	244743.8	313010.5
Ziziphus mucronata	244743.8	313010.6	Acacia nigrescens	244743.9	313009.9
Combretum apiculatum	244743.9	313009.9	Grewia flavescens	244743.9	313009.9
Combretum hereroense	244743.8	313010.7	Grewia flavescens	244743.8	313010.7
Grewia flavescens X2	244743.8	313010.7	Ziziphus mucronata X2	244743.8	313010.7
Grewia flavescens	244743.8	313010.7	Ziziphus mucronata	244743.8	313010.7
Grewia bicolor	244743.8	313010.7	Philenoptera violacea	244744.0	313010.7
Grewia bicolor	244744.0	313010.7	Ziziphus mucronata X2	244744.0	313010.7
Grewia bicolor	244744.0	313010.6	Grewia bicolor	244744.0	313010.6
Acacia grandicornuta	244744.0	313010.9	Ziziphus mucronata	244744.0	313010.9
Grewia flavescens X3	244744.0	313010.9	Acacia nigrescens	244744.0	313010.9
Berchemia zeyheri	244744.0	313010.9	Rhus spp.	244744.0	313010.9
Lannea bicolor	244744.0	313010.9	Grewia bicolor	244742.2	313010.5
Grewia flavescens X2	244742.2	313010.5	Acacia nigrescens	244744.0	313010.9
Ziziphus mucronata	244744.0	313010.9	Grewia bicolor	244744.1	313010.8
Strychnos madagascariensis	244744.1	313010.2	Grewia flavescens	244744.1	313010.2
Grewia bicolor X5	244743.9	313010.0	Acacia nigrescens	244744.1	313009.8
Ziziphus mucronata	244744.0	313009.9	Grewia flavescens	244744.0	313009.9
Grewia bicolor	244744.0	313009.9	Grewia bicolor	244743.9	313010.0
Acacia nigrescens	244743.7	313010.0	Grewia flavescens X2	244743.7	313010.0
Plectroniella armata	244743.7	313010.1	Grewia flavescens X4	244743.7	313010.1
Acacia nigrescens x2	244743.6	313010.0	Strychnos madagascariensis	244743.6	313010.0
Grewia bicolor	244743.6	313010.0	Strychnos madagascariensis X2	244743.6	313010.0
Plectroniella armata X2	244743.6	313010.0	Cassia abbreviata	244743.4	313010.2
Euclea natalensis	244743.4	313010.3	Rhoicissus tridentata	244743.4	313010.2
Rhus guenzii	244743.7	313009.8	Cordia grandicalyx	244743.7	313009.8
Grewia flavescens	244743.7	313009.8	Ziziphus	244743.5	313006.2

			mucronata		
Acacia nigrescens	244743.8	313006.3	Combretum apiculatum	244743.7	313006.3
Spirostachys africana	244743.9	313006.3	Pappea capensis	244743.8	313006.3
Dichrostachys cinerea	244743.9	313006.2	Dichrostachys cinerea	244743.8	313006.3
Schotia brachypetala	244743.8	313006.3			
Lannea schweinfurthii	244744.0	313006.2			

Parameter	Index or Number	Ranking 3 lodge sites
Shannon Diversity Index	2.8	1
Number of protected tree species	1 + 1 = 2	3
Number of individuals of protected tree species	3 (Pv) + 11 (Sa) = 14	1
Grass species	High quality associated with bottomlands.	

Comments:
Overall the site ranks highest in terms of the three woody parameters indicating that should this site be selected there is the greatest chance of impacting on the diverse as well as protected species. There are reasonable numbers of aesthetically pleasing trees such as *Acacia nigrescens, Acacia grandicornuta, Manilkara mochisia, Diospyros mespiliformis* and *Lannea schweinfurthii* that would need to be considered should the lodge be constructed at this site.

c) Other Vertebrate Fauna

Appendix C and Appendix D indicate species that are known to occur/have occurred in the SSW (Rautenbach 1982; Skinner & Smithers 1999). The following species fall in the 'Threatened' IUCN category (Baillie & Groombridge 1996):
Critically endangered – Black rhinoceros (*Diceros bicornis*); Endangered – African elephant (*Loxodonta africana*) and Wild dog (*Lycaon pictus*); Vulnerable – Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*). In terms of reptiles, the Nile crocodile (*Crocodylis niloticus*) and the African Rock Python (*Python sebae natalensis*) are considered vulnerable. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey

6) DISCUSSION

The results indicate that:

1. Using the Shannon index the 'Tree' site has a higher diversity than both the 'Founders' and 'Greenfield' (significant) sites. The latter two are very similar in this instance;
2. The preferred 'Greenfields' site has the highest number of protected species, followed by 'the Founders' and 'Tree' site;
3. The 'Tree' site had the highest number of individual trees within the protected species category followed by the 'Greenfields' and 'Founders' site respectively. The numbers within this 'protected' category were relatively low on all sites.

Objectively speaking therefore this makes the 'Tree' site the most sensitive to impact in terms of biodiversity followed by 'Greenfields' and 'Founders' which are quite similar in terms of the measured parameters. The relatively high biodiversity (Shannon) would ease the decision to one between 'Greenfields' and 'Founders'. The difference between the latter sites is negligible and the preferred 'Greenfields' site could therefore be developed.

Notwithstanding the above results, the preferred 'Greenfield' site due it being slightly separate from the main lodge and its close proximity to the Sand River provides a most aesthetically pleasing location for tourism infrastructure development. The proximity of the site to the Sand River results in a diversity of habitat (both compositional and structural) which provides excellent grazing (in the form of desirable grazing species) and browsing which in turn attracts a wide diversity of associated herbivores and predators. With a sensitive approach to infrastructure location and construction this site will provide an excellent tourist destination.

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Appendix A

Expanded list of grass species found within the study area.

SPECIES	
Aristida spp.	*Fingeruthia africanum*
Andropogon spp.	Forbs
Bothriochloa radicans	*Heteropogon contortus*
Brachiaria deflexa	*Melinis repens*
Brachiaria nigropedata	*Michrochloa caffra*
Brachiaria xantholeuca	*Oropetium* spp.
Chloris virgata	*Panicum coloratum*
Enneapogon scoparius	*Panicum maxim*
Cymbopogon plurinodis	*Perotis patens*
Cynodon dactylon	*Pogonarthria squarrosa*
Dactyloctenium aegyptium	*Schmidtia pappophoroides*
Dactyloctenium geminatum	*Setaria sagittifolia*
Digitaria eriantha	*Setaria sphacelata*
Diheteropogon amplectens	*Setaria ustilata*
Enneapogon spp.	*Sporobolus fimbriatus*
Enteropogon monostachys	*Sporobolus ioclades*
Cenchrus ciliaris	*Sporobolus nitens*
Eragrostis gummiflua	*Sporobolus panicoides*
Eragrostis cylindriflora	*Sporobolus pyramidalis*
Eragrostis lehmanniana	*Themeda triandra*
Eragrostis heteromera	*Tragus berteronianus*
Eragrostis rigidior	*Tricholaene monachne*
Eragrostis superba	*Trichoneura grandiglumis*
Eragrostis trichophora	*Urochloa mossambicensis*
Eustachys paspaloides	*Urochloa panicoides*

Appendix B

Expanded list of woody species that may be found within the study area (yellow background protected under the National Forest Act, 1998; Green background protected under the Mpumalanga nature Conservation Act, 1998) .

Species		
Acacia borleae	*Cassine transvaalensis*	*Manilkara mochisia*
Acacia burkei	*Combretum apiculatum*	*Maytenus undata*
Acacia erubescens	*Combretum collinum*	*Mundulea sericea*
Acacia exuvialis	*Combretum hereroense*	*Ormocarpum trichocarpum*
Acacia gerrardii	*Combretum imberbe*	*Ozoroa paniculosa*
Acacia grandicornuta	*Combretum molle*	*Pappea capensis*
Acacia nigrescens	*Combretum mossambicense*	*Peltophorum africanum*
Acacia nilotica	*Combretum zeyheri*	*Protoasparagus*
Acacia robusta	*Commiphora africana*	*Ptaeroxylon obliquum*
Acacia Senegal	*Commiphora harveyi*	*Pterocarpus angolensis*
Acacia tortilis	*Commiphora mollis*	*Pterocarpus rotundifolius*
Catunaregam spinosa	*Commiphora schimperi*	*Rhoicissus tridentata*
Cissus cornifolia	*Cordia grandicalyx*	*Rhus chirindensis*
Euclea crispa	*Dalbergia melanoxylon*	*Rhus dentata*
Euclea divinorum	*Dichrostachys cinerea*	*Rhus gueinzii*
Euclea natalensis	*Diospyros mespiliformis*	*Rhus pentheri*
Gardenia spatuifolia	*Dombeya rotundifolia*	*Rhus pyroides*
Gardenia volkensii	*Ehretia amoena*	*Schotia brachypetala*
Philenoptera violacea	*Ehretia rigida*	*Sclerocarya birrea*
Strychnos madagascariensis	*Flueggea virosa*	*Senna petersiana*
Strychnos spinosa	*Grewia bicolor*	*Spirostachys africana*
Albizia harveyi	*Grewia caffra*	*Sterculia rogersii*
Balanites maughamii	*Grewia flava*	*Terminalia prunioides*
Berchemia zeyheri	*Grewia flavescens*	*Terminalia sericea*
Bolusanthus speciosus	*Grewia hexamita*	*Vangueria infausta*
Boscia albitrunca	*Grewia monticola*	*Vepris carringtoniana*
Boscia foetida	*Grewia villosa*	*Xanthocercis zambesiaca*
Canthium inerme	*Gymnosporia buxifolia*	*Ximenia americana*
Carissa bispinosa	*Gymnosporia senegalensis*	*Ximenia caffra*
Cassia abbreviata	*Lannea schweinfurthii*	*Ziziphus mucronata*

Appendix C

A list of mammal species known to occur/have occurred in the Sabi Sand Wildtuin.

Species	
Black rhinoceros - *Diceros bicornis*	Nyala - *Tragelaphus angasii*
Blue wildebeest - *Connochaetes taurinus*	Roan antelope - *Hippotragus equinus*
Buffalo - *Syncerus caffer*	Sable antelope - *Hippotragus niger*
Bushbuck - *Tragelaphus scriptus*	Southern (common) reedbuck - *Redunca arindinum*
Bushpig - *Potamochoerus porcus*	Steenbuck - *Raphicerus campestris*
Eland - *Taurotragus oryx*	Tsessebe – *Damaliscus lunatus*
Elephant – *Loxodonta africana*	Warthog - *Phacochoerus aethiopicus*
Giraffe – *Giraffa camelopardalis*	Waterbuck - *Kobus ellipsiprymnus*
Grey duiker - *Sylvicapra grimmia*	White rhinoceros – *Ceratotherum simum*
Hippopotamus - *Hippopotamus amphibius*	Zebra - *Equus burchelli*
Impala - *Aepyceros melampus*	Nyala - *Tragelaphus angasii*
Klipspringer - *Oreotragus oreotragus*	

Critically endangered; Endangered;

Appendix D

Carnivores and other small mammals recorded in the SSW.

Species	
Aardwolf – *Proteles cristatus*	Leopard – *Panthera pardus*
African wild cat – *Felis lybica*	Lion – *Panthera leo*
Antbear – *Orycteropis afer*	Lesser bushbaby – *Galago moholi*
Banded mongoose – *Mungos mungo*	Pangolin – *Manis temminckii*
Bat-eared fox – *Otocyon megalotis*	Porcupine – *Hystrix africaeaustralis*
Black-backed jackal – *Canis mesomelas*	Rock dassie – *Procavia capensis*
Brown hyaena – *Hyaena brunnea*	Serval – *Felis serval*
Cape clawless otter – *Aonyx capensis*	Sharpe's grysbok – *Raphicerus sharpei*
Cape fox – *Vulpes chama* ?	Scrub hare – *Lepus saxatilis*
Caracal – *Felis caracal*	Side-striped jackal – *Canis adustus*
Chacma baboon – *Papio ursinus*	Slender mongoose – *Gallerella sanguinea*
Cheetah – *Acinonyx jubatus*	Small-spotted genet – *Genetta genetta*
Civet – *Civettictis civetta*	Spotted hyaena – *Crocuta crocuta*
Dwarf mongoose – *Helogale parvula*	Spring hare – *Pedetes capensis*
Greater cane rat – *Thryonomys swinderianus*	Striped polecat – *Ictonyx striatus*
Hedgehog – *Atelerix frontalis* ?	Striped weasel – *Poecilogale albinucha*
Honey badger – *Mellivora capensis*	Thick-tailed bushbaby – *Otolemur crassicaudatus*
Jameson's red rock rabbit – *Pronolagus randensis*	Tree squirrel – *Paraxerus cepapi*
Large grey mongoose – *Herpestes ichneumon*	Vervet monkey – *Cercopithecus aethiops*
Large-spotted genet – *Genetta tigrina*	Water mongoose – *Atilax paludinosus*
Large white-tailed mongoose – *Ichneumia albicauda*	Wild dog - *Lycaon pictus*
Meller's mongoose – *Rhynchogale melleri*	Yellow-spotted rock dassie – *Heterohyrax brucei*

Endangered; Vulnerable

VEGETATION ASSESSMENT:
PROPOSED DECK EXTENSION LONDOLOZI
SABI SAND WILDTUIN

ESTABLISHED 1926
LONDOLOZI

June 2013©$_{v1}$

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EXECUTIVE SUMMARY

An assessment was done to determine the vegetation elements that would be impacted on if an existing deck at Londolozi in the Sabi Sand Wildtuin (SSW) was extended. The objective of this assessment was to conduct a survey of the footprint at the site.

The study area is situated within the Granite Lowveld (Mucina & Rutherford 2006). This plant vegetation type is considered to be vulnerable due to transformation through human activities largely outside of protected areas.

Some seven tree species were recorded within the small area during the fieldwork although there are many more on these areas. No species classified as protected species under the 'Notice of List of Protected tree Species under the National Forest Act 1998 (ACT NO. 84 of 1998 – updated 2012) or under the MPUMALANGA NATURE CONSERVATION ACT: NO. 10 OF 1998) were noted.

For completeness a list of mammal species that are considered to have a high likelihood of occurring in the study area is included. 'Threatened' species include: Critically endangered – Black rhinoceros (*Diceros bicornis*); Endangered – African elephant (*Loxodonta africana*) and Wild dog (*Lycaon pictus*); Vulnerable – Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*).

In terms of reptiles, the Nile crocodile (*Crocodylis niloticus*) and the African Rock Python (*Python sebae natalensis*) are considered vulnerable. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey.

Regarding the proposed deck extension there are no areas of concern as the site only represents an extension to the existing infrastructure, is elevated and will contribute to further enhancing the aesthetically pleasing location.

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ACKNOWLEDGEMENTS

We thank Chris Goodman for his assistance, Andrew and Mette Rossaak and Andrew Emery for their logistic support. Andrew Rossaak also provided the photographs for this report.

The team working on this project included:
Mike Peel
Andre Jacobs
Lukas Manaka

Declaration of Independence

We declare that we have been appointed as independent consulting ecologists with no affiliation with or vested financial interests in the proponent, other than for work performed. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. Remuneration for our services is not linked to approval by any decision-making authority responsible for authorising this development.

Mike J.S. Peel June 2013

1) INTRODUCTION

EMROSS Environmental Consulting (Pty) Ltd ("Emross") appointed Mike Peel to conduct an assessment of the vegetation within the proposed footprint of potential infrastructure development viz. the extension of an existing deck at Londolozi in the Sabi Sand Wildtuin (SSW).

2) TERMS OF REFERENCE

Conduct an assessment of the terrestrial ecosystems within the proposed impact footprint (vertebrate fauna and flora), which will include the following:

a) Description of vegetation communities and provide statement of vegetation type noting sensitive/special habitat present and conservation importance;
b) Appropriateness of the proposed development at the site calculated the number of protected species and total number of each protected species surveyed at each site;
c) Reference, if found, all protected, endemic and/ or red list species with a co-ordinate and a comment;
d) Provide co-ordinates and species for all trees taller than 1.8m;
e) Supply lists of plants, mammals and reptiles one could expect to find on the sites within this habitat/ vegetation type (presented in a table format).

3) THE STUDY AREA

All of the sites are on the remainder portion of the farm Marthly 258KU within the Sabi Sand Wildtuin (Figure 1). This area of the Lowveld is underlain by the basement gneisses and granites. Using Walraven (1989) the Sabi Sand Wildtuin contains the following: A central band running from close to the eastern boundary to the western boundary is dominated by medium to coarse grained, sphene bearing tonalite. A narrow band of Timbavati Gabbro, a medium- to coarse-grained gabbro, olivine gabbro and quartz gabbro is found on the eastern boundary of Ravenscourt stretching to the northern boundary as well as over much of Castleton. These are basic rocks with an irregular outcrop pattern distinguished by a clearly recognizable vegetation type. A very prominent dyke (Rykoppies), consisting of fine to medium grained, hybridized gabbro, with abundant inclusions of acid rocks extends in a

west-east direction across the granites and gneisses of the pre-Transvaal basement. This dyke protrudes above the flat topography formed by the granite and gneiss. In the SSW it stretches in a narrow band from Wallingford in the west, where it is most pronounced, through Ravenscourt, Marthly and into Marthly and Eyrefield in the neighbouring Mala Mala Reserve. There are dykes that generally run slightly east of north and diabasic dykes scattered throughout the SSW.

In terms of the vegetation, the study area is situated entirely in the Savanna Biome. Acocks (1988) divides the study area into Lowveld and Arid Lowveld, while Low & Rebelo (1996) classify the area into Mixed Lowveld Bushveld and Sweet Lowveld Bushveld. According to the latest South African classification (Mucina & Rutherford 2006) the larger part of the vegetation of the SSW is classified as Granite Lowveld (SVI3 with elements of SVI6). Peel *et al.* (2007) provide a description of vegetation patterns of the area at a spatial scale that allows for the meaningful examination and comparison of the structure, functioning, and ultimately effective management, of these savannas and include the Thornveld on Gabbro element as described by Gertenbach (1983).

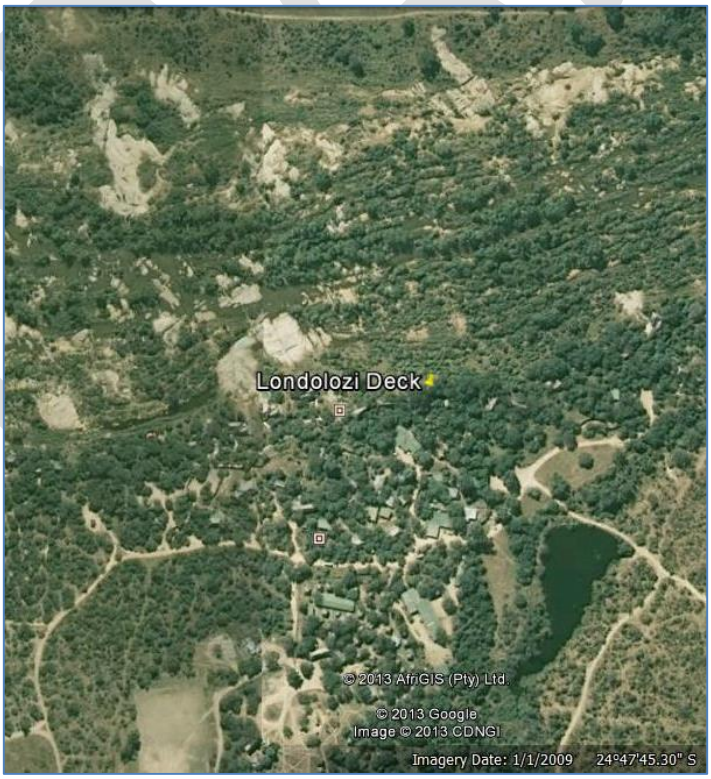


Figure 1 illustrating the site of the proposed deck extension at Londolozi (Google Earth 2013).

4) METHODS

The vegetation survey was undertaken as per the terms of reference received from the principal consultants.

a) Sampling Sites

The site is linked to the existing infrastructure associated with the Londolozi main lodge.

The area in question was surveyed from the edge of the existing deck (Table 1. The small area was systematically traversed and individual trees recorded and geo-referenced.

Table 1 Sampling sites in the study area.

Site	Co-ordinates	Altitude (masl)	Landscape position	Vegetation/Soil association
Deck Extension Londolozi	244745.3S 312959.8E	326	Bottomland	Granitic template

b) Other Vertebrate Fauna

Historically, the SSW is expected to have carried a full complement of the megafauna traditionally associated with these savannas (large grazers and browsers that occurred historically (du Plessis 1969) (Appendix C). A wide range of carnivores and other smaller mammals have been recorded (Pienaar *et al.* 1983; Rautenbach 1982; Skinner & Smithers 1999) (Appendix D). A list relating to the conservation status of various species of reptiles and mammals that may occur on Londolozi is provided.

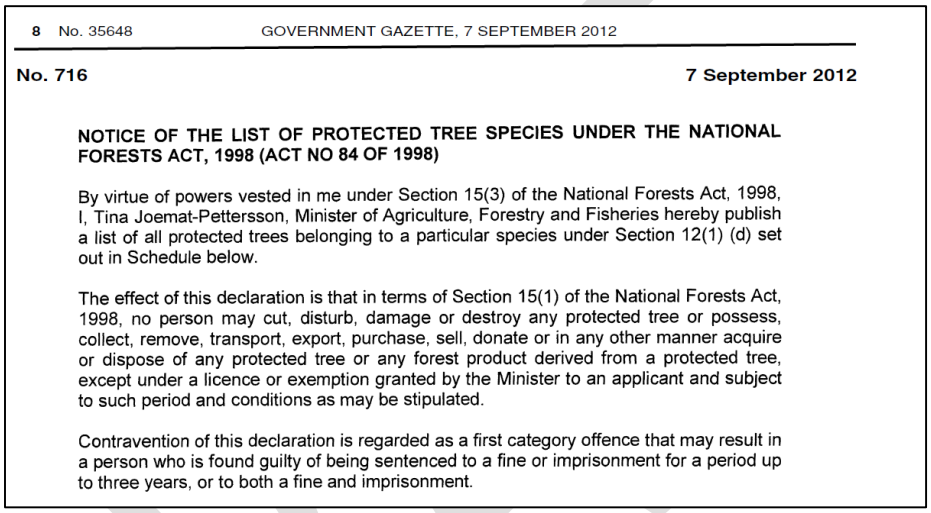
5) RESULTS

a) Herbaceous layer

A comprehensive list of grasses that may be encountered is provided in Appendix A.

b) Woody layer

The results for the woody layer are presented in Table 3. As stated above the appropriateness of any proposed development is calculated objectively using: a diversity index; the number of protected species on the site; and the total number of each protected species surveyed at each site. A short subjective discussion is included at the end of Table 3. A more comprehensive list of woody species that may be encountered is provided in Appendix B. Tree species protected under the following Act are highlighted in the Table if present.



8 No. 35648 GOVERNMENT GAZETTE, 7 SEPTEMBER 2012

No. 716 **7 September 2012**

NOTICE OF THE LIST OF PROTECTED TREE SPECIES UNDER THE NATIONAL FORESTS ACT, 1998 (ACT NO 84 OF 1998)

By virtue of powers vested in me under Section 15(3) of the National Forests Act, 1998, I, Tina Joemat-Pettersson, Minister of Agriculture, Forestry and Fisheries hereby publish a list of all protected trees belonging to a particular species under Section 12(1) (d) set out in Schedule below.

The effect of this declaration is that in terms of Section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.

Contravention of this declaration is regarded as a first category offence that may result in a person who is found guilty of being sentenced to a fine or imprisonment for a period up to three years, or to both a fine and imprisonment.

Table 2 Some grass species recorded on surrounding areas (Figure 2 - 3).

Species	
Aristida spp.	*Heteropogon contortus*
Bothriochloa radicans	*Melinis repens*
Brachiaria nigropedata	*Panicum coloratum*
B. deflexa	*P. deustum*
Chloris virgata	*P. maximum*
Digitaria eriantha	*Perotis patens*
Cymbopogon plurinodis	*Pogonarthria squarrosa*
Eragrostis racemosa	*Schmidtia pappophoroides*
E. heteromera	*Sporobolus africana*
E. lehmanniana	*S. fimbriatus*
E. rigidior	*S. nitens*
E. superba	*Themeda triandra*
E. trichophera	*Tragus berteronianus*
Forbs	

Figure 2 showing the area representing the deck extension (Photograph Andrew Rossaak).

Figure 3 showing the area representing the deck extension (Photograph Andrew Rossaak).

Table 3 Woody species recorded in the immediate vicinity of the deck extension (national protected species in yellow and Mpumalanga in green).

Species 'Deck Extension'	Co-ordinates (S)	Co-ordinates (E)	Species	Co-ordinates (S)	Co-ordinates (E)
Grewia flavescens	244745.3	312959.8	*Croton megalobotrys*	244745.3	312959.8
*Acacia eg**	244745.3	313000.3	*Croton megalobotrys*	244745.3	313000.3
*Acacia eg**	244745.3	313000.3	*Bauhinia galpinii*	244745.7	313000.1
Diospyros mespiliformis	244745.7	313000.3			

Parameter	Index or Number	Ranking
Shannon Diversity Index	N/A	N/A
Number of protected tree species	0 +0 = 0	N/A
Number of individuals of protected tree species	0	N/A
Grass species	High quality associated with bottomlands.	
General Comments: Overall the this extension, not only as it is elevated, will have little impact on the vegetation.		

*to be confirmed

c) Other Vertebrate Fauna

Appendix C and Appendix D indicate species that are known to occur/have occurred in the SSW (Rautenbach 1982; Skinner & Smithers 1999). The following species fall in the 'Threatened' IUCN category (Baillie & Groombridge 1996):
Critically endangered – Black rhinoceros (*Diceros bicornis*); Endangered – African elephant (*Loxodonta africana*) and Wild dog (*Lycaon pictus*); Vulnerable – Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*). In terms of reptiles, the Nile crocodile (*Crocodylis niloticus*) and the African Rock Python (*Python sebae natalensis*) are considered vulnerable. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey

6) DISCUSSION

The results indicate that:

1. The deck extension will have little negative impact on the vegetation.
2. The fact that it is elevated further reduces the impact.

With a sensitive approach to construction this extension will further enhance the aesthetically pleasing nature of this site.

7) REFERENCES AND OTHER READING

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Appendix A

Expanded list of grass species found within the study area.

SPECIES	
Aristida spp.	*Fingeruthia africanum*
Andropogon spp.	Forbs
Bothriochloa radicans	*Heteropogon contortus*
Brachiaria deflexa	*Melinis repens*
Brachiaria nigropedata	*Michrochloa caffra*
Brachiaria xantholeuca	*Oropetium* spp.
Chloris virgata	*Panicum coloratum*
Enneapogon scoparius	*Panicum maxim*
Cymbopogon plurinodis	*Perotis patens*
Cynodon dactylon	*Pogonarthria squarrosa*
Dactyloctenium aegyptium	*Schmidtia pappophoroides*
Dactyloctenium geminatum	*Setaria sagittifolia*
Digitaria eriantha	*Setaria sphacelata*
Diheteropogon amplectens	*Setaria ustilata*
Enneapogon spp.	*Sporobolus fimbriatus*
Enteropogon monostachys	*Sporobolus ioclades*
Cenchrus ciliaris	*Sporobolus nitens*
Eragrostis gummiflua	*Sporobolus panicoides*
Eragrostis cylindriflora	*Sporobolus pyramidalis*
Eragrostis lehmanniana	*Themeda triandra*
Eragrostis heteromera	*Tragus berteronianus*
Eragrostis rigidior	*Tricholaene monachne*
Eragrostis superba	*Trichoneura grandiglumis*
Eragrostis trichophora	*Urochloa mossambicensis*
Eustachys paspaloides	*Urochloa panicoides*

Appendix B

Expanded list of woody species that may be found within the study area (yellow background protected under the National Forest Act, 1998; Green background protected under the Mpumalanga nature Conservation Act, 1998) .

Species		
Acacia borleae	*Cassine transvaalensis*	*Manilkara mochisia*
Acacia burkei	*Combretum apiculatum*	*Maytenus undata*
Acacia erubescens	*Combretum collinum*	*Mundulea sericea*
Acacia exuvialis	*Combretum hereroense*	*Ormocarpum trichocarpum*
Acacia gerrardii	*Combretum imberbe*	*Ozoroa paniculosa*
Acacia grandicornuta	*Combretum molle*	*Pappea capensis*
Acacia nigrescens	*Combretum mossambicense*	*Peltophorum africanum*
Acacia nilotica	*Combretum zeyheri*	*Protoasparagus*
Acacia robusta	*Commiphora africana*	*Ptaeroxylon obliquum*
Acacia Senegal	*Commiphora harveyi*	*Pterocarpus angolensis*
Acacia tortilis	*Commiphora mollis*	*Pterocarpus rotundifolius*
Catunaregam spinosa	*Commiphora schimperi*	*Rhoicissus tridentata*
Cissus cornifolia	*Cordia grandicalyx*	*Rhus chirindensis*
Euclea crispa	*Dalbergia melanoxylon*	*Rhus dentata*
Euclea divinorum	*Dichrostachys cinerea*	*Rhus gueinzii*
Euclea natalensis	*Diospyros mespiliformis*	*Rhus pentheri*
Gardenia spatuifolia	*Dombeya rotundifolia*	*Rhus pyroides*
Gardenia volkensii	*Ehretia amoena*	*Schotia brachypetala*
Philenoptera violacea	*Ehretia rigida*	*Sclerocarya birrea*
Strychnos madagascariensis	*Flueggea virosa*	*Senna petersiana*
Strychnos spinosa	*Grewia bicolor*	*Spirostachys africana*
Albizia harveyi	*Grewia caffra*	*Sterculia rogersii*
Balanites maughamii	*Grewia flava*	*Terminalia prunioides*
Berchemia zeyheri	*Grewia flavescens*	*Terminalia sericea*
Bolusanthus speciosus	*Grewia hexamita*	*Vangueria infausta*
Boscia albitrunca	*Grewia monticola*	*Vepris carringtoniana*
Boscia foetida	*Grewia villosa*	*Xanthocercis zambesiaca*
Canthium inerme	*Gymnosporia buxifolia*	*Ximenia americana*
Carissa bispinosa	*Gymnosporia senegalensis*	*Ximenia caffra*
Cassia abbreviata	*Lannea schweinfurthii*	*Ziziphus mucronata*

Appendix C

A list of mammal species known to occur/have occurred in the Sabi Sand Wildtuin.

Species	
Black rhinoceros - *Diceros bicornis*	Nyala - *Tragelaphus angasii*
Blue wildebeest - *Connochaetes taurinus*	Roan antelope - *Hippotragus equinus*
Buffalo - *Syncerus caffer*	Sable antelope - *Hippotragus niger*
Bushbuck - *Tragelaphus scriptus*	Southern (common) reedbuck - *Redunca arindinum*
Bushpig - *Potamochoerus porcus*	Steenbuck - *Raphicerus campestris*
Eland - *Taurotragus oryx*	Tsessebe – *Damaliscus lunatus*
Elephant – *Loxodonta africana*	Warthog - *Phacochoerus aethiopicus*
Giraffe – *Giraffa camelopardalis*	Waterbuck - *Kobus ellipsiprymnus*
Grey duiker - *Sylvicapra grimmia*	White rhinoceros – *Ceratotherum simum*
Hippopotamus - *Hippopotamus amphibius*	Zebra - *Equus burchelli*
Impala - *Aepyceros melampus*	Nyala - *Tragelaphus angasii*
Klipspringer - *Oreotragus oreotragus*	

Critically endangered; Endangered;

Appendix D

Carnivores and other small mammals recorded in the SSW.

Species	
Aardwolf – *Proteles cristatus*	Leopard – *Panthera pardus*
African wild cat – *Felis lybica*	Lion – *Panthera leo*
Antbear – *Orycteropis afer*	Lesser bushbaby – *Galago moholi*
Banded mongoose – *Mungos mungo*	Pangolin – *Manis temminckii*
Bat-eared fox – *Otocyon megalotis*	Porcupine – *Hystrix africaeaustralis*
Black-backed jackal – *Canis mesomelas*	Rock dassie – *Procavia capensis*
Brown hyaena – *Hyaena brunnea*	Serval – *Felis serval*
Cape clawless otter – *Aonyx capensis*	Sharpe's grysbok – *Raphicerus sharpei*
Cape fox – *Vulpes chama* ?	Scrub hare – *Lepus saxatilis*
Caracal – *Felis caracal*	Side-striped jackal – *Canis adustus*
Chacma baboon – *Papio ursinus*	Slender mongoose – *Gallerella sanguinea*
Cheetah – *Acinonyx jubatus*	Small-spotted genet – *Genetta genetta*
Civet – *Civettictis civetta*	Spotted hyaena – *Crocuta crocuta*
Dwarf mongoose – *Helogale parvula*	Spring hare – *Pedetes capensis*
Greater cane rat – *Thryonomys swinderianus*	Striped polecat – *Ictonyx striatus*
Hedgehog – *Atelerix frontalis* ?	Striped weasel – *Poecilogale albinucha*
Honey badger – *Mellivora capensis*	Thick-tailed bushbaby – *Otolemur crassicaudatus*
Jameson's red rock rabbit – *Pronolagus randensis*	Tree squirrel – *Paraxerus cepapi*
Large grey mongoose – *Herpestes ichneumon*	Vervet monkey – *Cercopithecus aethiops*
Large-spotted genet – *Genetta tigrina*	Water mongoose – *Atilax paludinosus*
Large white-tailed mongoose – *Ichneumia albicauda*	Wild dog - *Lycaon pictus*
Meller's mongoose – *Rhynchogale melleri*	Yellow-spotted rock dassie – *Heterohyrax brucei*

Endangered; Vulnerable

VEGETATION ASSESSMENT:
LONDOLOZI STAFF HOUSING
SABI SAND WILDTUIN

March 2014v$_1$©

Prepared for: Emross Consulting (Pty) Ltd
By: Dr Mike Peel
P.O. Box 7063, Nelspruit, 1200

1

EXECUTIVE SUMMARY

An ecological assessment was done at Londolozi Main Camp to determine the potential impact of the erection of three staff houses on the vegetation and other wildlife elements at the site. The objective of this assessment was to conduct a survey of the footprint at six closely located potential sites within the existing camp area.

The study area is situated within the Granite Lowveld (Mucina & Rutherford 2006). This vegetation type is considered to be vulnerable due to transformation through human activities largely outside of protected areas.

Forty two tree species were recorded during the fieldwork. In terms of the 'Notice of List of Protected tree Species under the National Forest Act 1998 (ACT NO. 84 of 1998) (November 2013) three relatively common protected species that occur in the SSW were recorded, viz. *Sclerocarya birrea, Balanites maughamii* and *Philenoptera violacea*. These species are present in low numbers (two, one and one specimen respectively). One tree species protected under the Mpumalanga Nature Conservation Act was recorded, viz. *Berchemia zeyheri* (one specimen). The status of specific plants, according to the Mpumalanga Nature Conservation Act of 1998 is presented. Some 17 grass genera were recorded although this was by no means a comprehensive survey.

A list of mammal species considered to have a high likelihood of occurring in the study area is included. The proposed site is within a wild life reserve and as such most naturally occurring protected mammals, including species requiring special protection, are likely to be present. The status of mammals, according to the Mpumalanga Nature Conservation Act of 1998 is also presented.

In terms of reptiles, the African Rock Python (*Python sebae natalensis*) is considered vulnerable and could well occur at the site of the proposed development. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey.

The six proposed sites are located adjacent to one another in the same vegetation community. The development as proposed is not envisaged to have a significant impact on vegetation, fauna or ecosystem infrastructure (e.g. termite mounds), therefore it is concluded that other factors may determine the site preference. Given the proximity of sites I consider it preferable that adjacent sites be selected in order to minimise impact and infrastructural (construction and utility) costs. Notwithstanding the latter I believe that from an ecological point of view all of the proposed sites are suitable for the proposed development.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

We thank Mette and Andrew Rossaak and Anthony Emery for their logistic support.

The team working on this project included:
Mike Peel
John Peel
Moloko Manaka

Declaration of Independence

We declare that we have been appointed as independent consulting ecologists with no affiliation with or vested financial interests in the proponent, other than for work performed. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. Remuneration for our services is not linked to approval by any decision-making authority responsible for authorising this development.

Mike J.S. Peel March 2014

1) INTRODUCTION

EMROSS Environmental Consulting (Pty) Ltd ("Emross") appointed Mike Peel to conduct an assessment of the vegetation within the proposed footprint of a potential infrastructure development node viz. a site for the erection of three staff houses at Londolozi (main camp) (Figure 1). This part of the study comprised a survey of the vegetation and other wildlife and ecosystem infrastructure elements.

2) TERMS OF REFERENCE

Conduct an assessment of the terrestrial ecosystems within the proposed impact footprint (vertebrate fauna and flora), which will include the following:

a) Description of vegetation communities and provide statement of vegetation type noting sensitive/special habitat present and conservation importance;
b) Appropriateness of the proposed development at each site;
c) Reference, if found, all protected, endemic and/ or red list species with a co-ordinate and a comment;
d) Provide co-ordinates and species for all trees taller than 1.8m;
e) Supply lists of plants, mammals, reptiles and invertebrates one could expect to find on the sites within this habitat/ vegetation type (presented in a table format).

Figure 1 illustrating the location of the potential staff housing at Londolozi Main Camp in relation to protected species (from Google Earth 2013).

3) THE STUDY AREA

The study area is situated on Londolozi within the Sabi Sand Wildtuin (Figure 1). This area of the Lowveld is underlain by the basement gneisses and granites Walraven (1989). A narrow band of Timbavati Gabbro, yields basic rocks with an irregular outcrop pattern distinguished by a clearly recognizable vegetation type. There are dykes that generally run slightly east of north and diabasic dykes scattered throughout the area.

In terms of the vegetation, the study area is situated entirely in the Savanna Biome. Acocks (1988) divides the study area into Lowveld and Arid Lowveld, while Low & Rebelo (1996) classify the area into Mixed Lowveld Bushveld and Sweet Lowveld Bushveld. According to the latest South African classification (Mucina & Rutherford 2006) the larger part of the vegetation of the SSW is classified as Granite Lowveld (SVI3 with elements of SVI6). Peel *et al.* (2007) provide a description of vegetation patterns of the area at a spatial scale that allows for the meaningful examination and comparison of the structure, functioning, and

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ultimately effective management, of these savannas and include the Thornveld on Gabbro element as described by Gertenbach (1983).

4) METHODS

The vegetation survey was undertaken as per the terms of reference received from the principal consultants.

a) Sampling Sites

The potential sites are located within the Londolozi Main Camp footprint. Due to the close proximity of the potential staff houses to one another we surveyed the area as 'one large site' (Table 1). The sites were systematically traversed and individual trees and bush clumps were recorded and geo-referenced. In addition a list of grass species and any other noteworthy life form or feature (ecosystem infrastructure) was noted.

Table 1 Details of the proposed overnight deck sites.

Site	Co-ordinates (central point)	Altitude (masl)	Landscape position	Vegetation/Soil association
Site 1	24.79748 S; 31.49844 E	335	Bottomland	Granitic template
Site 2	24.79747 S; 31.49824 E	334	Bottomland	Granitic template
Site 3	24.79742 S; 31.49796 E	334	Bottomland	Granitic template
Site 4	24.79753 S; 31.49748 E	335	Bottomland	Granitic template
Site 5	24.79782 S; 31.49752 E	336	Bottomland	Granitic template
Site 6	24.79771 S; 31.49772 E	336	Bottomland	Granitic template

b) Analysis

Using the Google Earth image (2013) and observing the spatial distribution of the tree layer it is apparent that all of the sites would be suitable for locating the staff houses. The following indicates other forms of wildlife/ecosystem infrastructure located on site with comment:

Site/s	Wildlife/Ecosystem infrastructure	Comment
1 and 2	Orb Spider, 4 geophytes and two termite mounds	Far enough away to not impact – but note during construction
1	2 geophytes	Relatively close be aware.
3	Termite mound close to site	Note during construction
	Butterflies, dragonflies, ants and grasshoppers	Some impact during construction.
	Nyala seen on a number of occasions	Impact during construction but will move away.
	Spiders seen on numerous occasions	There will be some impact. No protected species seen
	Monitor Lizard seen a few times	Impact during construction but will move away.
	Cisticola, Black-Headed Oriole, Neddicky, Chinspot Batis, Bulbul, Mousebird, Guinea Fowl, Grey Go-Away-Bird	Should not be affected by construction. Be aware of nests if present.
3 and between 5 and 6	Sansevieria spp. (mother in laws tongue)	Indicator of previous disturbance.

Figures 2 to 7 provide a visual representation of the potential sites.

Figures 2 - 7 illustrating the sites of the potential staff housing at Londolozi Main Camp.

c) **Other Vertebrate Fauna**

Historically, the SSW is expected to have carried a full complement of the mega fauna traditionally associated with savanna ecosystems. A range of large grazers and browsers 11

historically occurred in the region (du Plessis 1969) (Appendix C). A wide range of carnivores and other smaller mammals have been recorded for the region (Pienaar *et al.* 1983; Rautenbach 1982; Skinner & Smithers 1999) (Appendix D). A list relating to the conservation status of various species of reptiles and mammals that may be associated with the various habitats on Londolozi is provided although for mammals in particular given that this proposed development is within the camp footprint these issues are less relevant. The status of the animals, as classified by the Mpumalanga Nature Conservation Act (No. 10 of 1998) is presented in Appendixes C and D.

5) RESULTS

a) Herbaceous layer

The results for the herbaceous layer are included in Table 2 and indicate a species list that is typical of granite landscapes with dolerite intrusions within the SSW. A comprehensive list of grasses that may be encountered is provided in Appendix A.

b) Woody layer

The results for the woody layer are presented in Table 3. A comprehensive list of woody species that may be encountered is provided in Appendix B. Tree species protected under the following Act are highlighted in the Tables as are species presented in the Mpumalanga Nature Conservation Act of 1998 and the Notice Of The List Of Protected Tree Species Under The National Forests Act, 1998 (ACT NO 84 OF 1998) (November 2013).

No. 716 **7 September 2012**

NOTICE OF THE LIST OF PROTECTED TREE SPECIES UNDER THE NATIONAL FORESTS ACT, 1998 (ACT NO 84 OF 1998)

By virtue of powers vested in me under Section 15(3) of the National Forests Act, 1998, I, Tina Joemat-Pettersson, Minister of Agriculture, Forestry and Fisheries hereby publish a list of all protected trees belonging to a particular species under Section 12(1) (d) set out in Schedule below.

There are three nationally protected species in the immediate vicinity of the proposed site (in terms of the National Forest Act 84 of 1998) viz. *Sclerocarya birrea, Balanites maughamii* and *Philenoptera violacea*. One tree species protected under Mpumalanga Nature Conservation Act was recorded, viz. *Berchemia zeyheri*.

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Table 2 Some grass species recorded on the sites.

Species
Aristida spp.
Brachiaria deflexa
Chloris virgata
Digitaria eriantha
D. monodactyla
Eragrostis rigidior
E. superba
Forbs
Heteropogon contortus
Melinis repens
Panicum maximum
Pogonarthria squarrosa
Sporobolus africanus
S. fimbriatus
Themeda triandra
Tragus berteronianus
Trichoneura grandiglumis
Urochloa mossambicensis

Table 3 Woody species recorded at the proposed staff housing site on Londolozi. (MNCA species).

Tree Species> 1.8m	Co-ordinates (S)	Co-ordinates (E)	Tree Species> 1.8m	Co-ordinates (S)	Co-ordinates (E)
Acacia nigrescens	24.79735	31.49847	Gymnosporia senegalensis x1	24.79738	31.49860
Grewia bicolor	24.79735	31.49847	Sclerocarya birrea	24.79750	31.49872
Grewia flavescens x3	24.79735	31.49847	Acacia nigrescens	24.79750	31.49872
Ziziphus mucronata	24.79735	31.49847	Grewia flavescens x3	24.79750	31.49872
Acacia exuvialis	24.79738	31.49848	Euclea divinorum	24.79750	31.49872
Acacia nigrescens	24.79738	31.49848	Acacia nigrescens	24.79750	31.49872
Euclea divinorum	24.79738	31.49848	Dichrostachys cinerea x2	24.79750	31.49872
Combretum apiculatum x2	24.79738	31.49848	Combretum apiculatum x2	24.79750	31.49872
Dichrostachys cinerea x2	24.79738	31.49848	Combretum mossambicensis	24.79750	31.49872
Balanites maughamii	24.79738	31.49848	Dichrostachys cinerea	24.79754	31.49873
Acacia senegalensis x3	24.79738	31.49848	Berchemia discolor	24.79754	31.49873
Combretum apiculatum x3	24.79738	31.49848	Grewia monticola x2	24.79754	31.49873
Combretum hereroense	24.79738	31.49848	Grewia flavescens x5	24.79754	31.49873
Euclea natalensis	24.79738	31.49860	Grewia bicolor	24.79754	31.49873
Ziziphus mucronata x2	24.79738	31.49860	Grewia bicolor	24.79754	31.49862
Acacia nilotica x4	24.79738	31.49860	Ziziphus mucronata	24.79754	31.49862
Grewia flavescens x4	24.79738	31.49860	Grewia monticola	24.79754	31.49862
Grewia flavescens x4	24.79754	31.49862	Combretum apiculatum x3	24.79750	31.49833
Acacia nigrescens	24.79756	31.49856	Grewia flavescens x2	24.79750	31.49833
Ziziphus mucronata	24.79756	31.49856	Ziziphus mucronata	24.79750	31.49833
Acacia nigrescens	24.79756	31.49856	Euclea divinorum	24.79735	31.49838
Combretum apiculatum x3	24.79756	31.49856	Euclea divinorum	24.79735	31.49838

Ziziphus mucronata x2	24.79756	31.49856	Combretum apiculatum x8	24.79728	31.49835
Euclea natalensis x3	24.79756	31.49856	Acacia nigrescens x2	24.79728	31.49835
Acacia nigrescens	24.79756	31.49856	Acacia nigrescens	24.79728	31.49835
Gymnosporia buxifolia	24.79756	31.49856	Ziziphus mucronata	24.79728	31.49835
Ziziphus mucronata	24.79755	31.49845	Acacia exuvialis x2	24.79728	31.49835
Acacia nilotica	24.79755	31.49845	Grewia bicolor	24.79728	31.49835
Grewia bicolor	24.79755	31.49845	Cissus cornifolia	24.79728	31.49835
Acacia nigrescens x2	24.79755	31.49833	Combretum apiculatum x7	24.79727	31.49825
Grewia bicolor	24.79755	31.49833	Grewia flavescens x3	24.79727	31.49825
Combretum apiculatum	24.79755	31.49833	Euclea divinorum	24.79727	31.49825
Senna petersiana	24.79755	31.49833	Acacia nilotica	24.79727	31.49825
Acacia nilotica	24.79755	31.49833	Ziziphus mucronata x3	24.79727	31.49825
Combretum hereroense x3	24.79755	31.49833	Euclea divinorum	24.79727	31.49820
Grewia flavescens	24.79755	31.49833	Acacia nigrescens x2	24.79727	31.49820
Dichrostachys cinerea	24.79754	31.49826	Combretum apiculatum x4	24.79727	31.49820
Acacia nilotica	24.79754	31.49826	Dichrostachys cinerea	24.79727	31.49820
Acacia nigrescens	24.79754	31.49826	Ziziphus mucronata	24.79727	31.49820
Euclea divinorum	24.79754	31.49826	Gymnosporia senegalensis	24.79727	31.49820
Combretum apiculatum x4	24.79754	31.49826	Acacia nigrescens x2	24.79727	31.49820
Ziziphus mucronata x2	24.79754	31.49826	Grewia bicolor x2	24.79727	31.49820
Grewia flavescens	24.79754	31.49826	Acacia nigrescens	24.79744	31.49807
Acacia nilotica	24.79750	31.49833	Grewia flavescens x3	24.79744	31.49807
Gardenia volkensii	24.79750	31.49833	Ziziphus mucronata	24.79744	31.49807
Dichrostachys cinerea	24.79750	31.49833	Acacia nilotica x2	24.79749	31.49806
Euclea divinorum x1	24.79727	31.49820	Combretum apiculatum x2	24.79749	31.49806
Combretum apiculatum x3	24.79734	31.49813	Grewia bicolor	24.79749	31.49806
Acacia nigrescens x3	24.79734	31.49813	Senna petersiana	24.79749	31.49806
Ziziphus mucronata x7	24.79734	31.49813	Grewia hexamita x5	24.79749	31.49806

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Combretum apiculatum x2	24.79734	31.49813	Combretum apiculatum x1	24.79749	31.49806
Dalbergia melanoxylon	24.79734	31.49813	Dombeya rotundifolia	24.79749	31.49806
Grewia bicolor x2	24.79734	31.49813	Dichrostachys cinerea x2	24.79745	31.49794
Gardenia volkensii	24.79737	31.49825	Combretum apiculatum x5	24.79745	31.49794
Acacia gerrardii	24.79737	31.49825	Acacia nigrescens x3	24.79745	31.49794
Grewia villosa	24.79737	31.49825	Acacia nilotica x2	24.79745	31.49794
Dichrostachys cinerea	24.79737	31.49825	Ziziphus mucronata	24.79745	31.49794
Acacia exuvialis	24.79741	31.49819	Combretum apiculatum	24.79745	31.49794
Combretum apiculatum x8	24.79741	31.49819	Grewia flavescens x5	24.79744	31.49784
Acacia nigrescens x2	24.79741	31.49819	Combretum apiculatum x2	24.79744	31.49784
Grewia flavescens x1	24.79741	31.49819	Acacia nigrescens	24.79744	31.49784
Dichrostachys cinerea	24.79741	31.49819	Acacia nilotica x2	24.79744	31.49784
Rhus leptodictya	24.79741	31.49819	Euclea natalensis	24.79744	31.49784
Sclerocarya birrea	24.79744	31.49807	Plectroniella armata	24.79744	31.49784
Euclea divinorum x1	24.79744	31.49807	Gardenia volkensii x2	24.79744	31.49784
Euclea divinorum x2	24.79744	31.49807	Terminalia sericea	24.79744	31.49784
Euclea natalensis x2	24.79744	31.49807	Terminalia sericea x2	24.79746	31.49783
Grewia monticola	24.79744	31.49807	Acacia nilotica	24.79746	31.49783
Combretum apiculatum x3	24.79744	31.49807	Dichrostachys cinerea x2	24.79746	31.49783
Diospyros mespiliformis	24.79744	31.49807	Grewia flavescens	24.79738	31.49770
Dalbergia melanoxylon	24.79746	31.49783	Acacia nigrescens	24.79739	31.49750
Combretum apiculatum x2	24.79746	31.49783	Berchemia zeyheri	24.79739	31.49750
Dichrostachys cinerea x2	24.79746	31.49783	Acacia nigrescens	24.79739	31.49750
Dombeya rotundifolia	24.79746	31.49783	Schotia brachypetala x3	24.79739	31.49750
Grewia flavescens	24.79746	31.49783	Grewia monticola x2	24.79739	31.49750
Ziziphus mucronata x3	24.79746	31.49783	Euclea divinorum	24.79739	31.49750
Flueggea virosa	24.79746	31.49783	Balanites pedicillaris x2	24.79739	31.49750
Acacia nilotica	24.79746	31.49783	Acacia nilotica	24.79739	31.49750

Terminalia sericea x2	24.79746	31.49783	Philenoptera violacea	24.79739	31.49750
Grewia flavescens	24.79748	31.49772	Euclea natalensis	24.79739	31.49750
Ziziphus mucronata x4	24.79748	31.49772	Diospyros mespiliformis	24.79739	31.49750
Acacia nigrescens	24.79748	31.49772	Manilkara mochisia	24.79739	31.49750
Dichrostachys cinerea	24.79748	31.49772	Combretum apiculatum	24.79751	31.49748
Combretum apiculatum	24.79748	31.49772	Schotia brachypetala	24.79751	31.49748
Albizia harveyi	24.79748	31.49772	Ziziphus mucronata x7	24.79751	31.49748
Ziziphus mucronata x4	24.79748	31.49772	Acacia nilotica	24.79751	31.49748
Diospyros mespiliformis x2	24.79748	31.49772	Combretum apiculatum x3	24.79751	31.49748
Grewia flavescens x4	24.79748	31.49772	Euclea divinorum	24.79751	31.49748
Grewia bicolor x2	24.79748	31.49772	Ziziphus mucronata	24.79751	31.49748
Acacia nigrescens	24.79748	31.49772	Gardenia volkensii	24.79751	31.49748
Euclea divinorum	24.79738	31.49770	Grewia flavescens x4	24.79751	31.49748
Acacia nilotica x3	24.79738	31.49770	Ziziphus mucronata x9	24.79772	31.49748
Grewia bicolor x8	24.79738	31.49770	Combretum apiculatum	24.79772	31.49748
Grewia flavescens	24.79738	31.49770	Grewia flavescens	24.79772	31.49748
Acacia nigrescens x2	24.79738	31.49770	Euclea divinorum x2	24.79772	31.49748
Acacia nilotica	24.79738	31.49770	Combretum zeyheri	24.79772	31.49748
Dichrostachys cinerea x3	24.79738	31.49770	Acacia senegal	24.79772	31.49748
Dalbergia melanoxylon x4	24.79738	31.49770	Combretum molle	24.79772	31.49748
Grewia flavescens	24.79779	31.49748	Cordia ovalis	24.79772	31.49748
Grewia monticola	24.79779	31.49748	Dichrostachys cinerea	24.79772	31.49748
Dichrostachys cinerea	24.79779	31.49748	Combretum apiculatum x3	24.79772	31.49748
Combretum apiculatum x7	24.79779	31.49748	Acacia exuvialis	24.79772	31.49748
Ziziphus mucronata x2	24.79779	31.49748	Acacia exuvialis x2	24.79795	31.49773
Dalbergia melanoxylon	24.79779	31.49748	Acacia nigrescens	24.79795	31.49773
Acacia exuvialis x2	24.79786	31.49751	Ziziphus mucronata	24.79795	31.49773
Grewia bicolor x11	24.79786	31.49751	Gardenia volkensii	24.79795	31.49773
Grewia flavescens x3	24.79786	31.49751	Grewia hexamita x3	24.79795	31.49773
Combretum apiculatum x2	24.79786	31.49751	Diospyros mespiliformis	24.79795	31.49773

Acacia nilotica x2	24.79786	31.49751	Diospyros mespiliformis	24.79795	31.49773
Ziziphus mucronata (big)	24.79786	31.49751	Rhus leptodictya	24.79795	31.49773
Ziziphus mucronata	24.79786	31.49751	Diospyros mespiliformis X2	24.79776	31.497780
Dalbergia melanoxylon	24.79786	31.49751	Combretum apiculatum	24.79776	31.497780
Acacia nigrescens	24.79786	31.49751	Grewia bicolor x2	24.79776	31.497780
Grewia hexamita	24.79792	31.49761	Acacia exuvialis x3	24.79776	31.497780
Combretum apiculatum	24.79792	31.49761	Acacia nigrescens x3	24.79776	31.497780
Ziziphus mucronata x3	24.79792	31.49761	Pappea capensis	24.79776	31.497780
Grewia flavescens x2	24.79792	31.49761	Acacia nigrescens	24.79776	31.497780
Euclea natalensis x3	24.79792	31.49761	Dichrostachys cinerea	24.79776	31.497780
Dichrostachys cinerea	24.79792	31.49761	Acacia nigrescens	24.79782	31.49785
Acacia nilotica	24.79792	31.49761	Ziziphus mucronata	24.79782	31.49785
Diospyros mespiliformis	24.79795	31.49773	Combretum apiculatum x3	24.79782	31.49785
Combretum apiculatum	24.79795	31.49773	Acacia exuvialis x2	24.79782	31.49785
Diospyros mespiliformis	24.79782	31.49792	Ziziphus mucronata x4	24.79782	31.49785
Euclea natalensis	24.79782	31.49792	Acacia nigrescens	24.79782	31.49785
Dichrostachys cinerea x2	24.79782	31.49792	Pappea capensis x2	24.79782	31.49785
Grewia hexamita	24.79782	31.49792	Cissus cornifolia	24.79782	31.49785
Ziziphus mucronata	24.79782	31.49792	Ziziphus mucronata x4	24.79765	31.49781
Acacia nigrescens	24.79782	31.49792	Acacia nigrescens	24.79765	31.49781
Acacia nilotica	24.79765	31.49781	Grewia flavescens	24.79765	31.49781
Grewia bicolor x2	24.79765	31.49781			

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c) Other Vertebrate Fauna - Summary

Appendix C and Appendix D indicate herbivore species that are known to have occurred in the SSW (Rautenbach 1982; Skinner & Smithers 1999). The following species fall in the 'Threatened' IUCN category (Baillie & Groombridge 1996):
Critically endangered – Black rhinoceros (*Diceros bicornis*); Endangered – African elephant (*Loxodonta africana*) and Wild dog (*Lycaon pictus*); Vulnerable – Cheetah (*Acinonyx jubatus*) and Lion (*Panthera leo*). In terms of reptiles, the Nile crocodile (*Crocodylis niloticus*) and the African Rock Python (*Python sebae natalensis*) are considered vulnerable. Other species of reptiles and amphibians in the 'Threatened' category may be present but were not observed during the survey. The status of the animals, as classified by the Mpumalanga Nature Conservation Act (No. 10 of 1998) is also presented in Appendixes C and D.

6) DISCUSSION

The sites are in close proximity to one another and similar in terms of grass species composition and tree diversity. There are four protected tree species in the immediate vicinity of any of the proposed sites (three National and one Mpumalanga) viz. *Sclerocarya birrea* (2 trees)*, Balanites maughamii* (one tree)*, Philenoptera violacea* (one tree) and *Berchemia zeyheri* (one tree). I consider that none of these trees need be impacted on during construction and that all of the sites could be considered for the construction of the three houses. There are sufficient 'open' areas at each site to effect construction with least impact but also sufficient 'surrounding' vegetation to ensure a degree of privacy. It would probably be logical to situate the houses close to one another to minimise building and utility infrastructure. This approach would further which would moderate the impact on the natural vegetation and wildlife at the site.

As with all such developments, if sensitively designed, there is no reason that the area will be deleteriously impacted on from an ecological/biodiversity and aesthetic point of view.

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Appendix A

Expanded list of grass species found within the study area.

SPECIES	
Aristida spp.	Heteropogon contortus
Andropogon spp.	Melinis repens
Bothriochloa radicans	Michrochloa caffra
Brachiaria deflexa	Oropetium sp.
Brachiaria nigropedata	Panicum coloratum
Brachiaria xantholeuca	Panicum maxim
Chloris virgata	Perotis patens
Enneapogon scoparius	Pogonarthria squarrosa
Cymbopogon plurinodis	Schmidtia pappophoroides
Cynodon dactylon	Setaria sagittifolia
Dactyloctenium aegyptium	Setaria sphacelata
Dactyloctenium geminatum	Setaria ustilata
Digitaria eriantha	Sporobolus fimbriatus
Diheteropogon amplectens	Sporobolus ioclades
Enneapogon spp.	Sporobolus nitens
Enteropogon monostachys	Sporobolus panicoides
Cenchrus ciliaris	Sporobolus pyramidalis
Eragrostis gummiflua	Themeda triandra
Eragrostis cylindriflora	Tragus berteronianus
Eragrostis lehmanniana	Tricholaene monachne
Eragrostis heteromera	Trichoneuris grandiglumis
Eragrostis rigidior	Urochloa mossambicensis
Eragrostis superba	Urochloa panicoides
Eragrostis trichophora	
Eustachys paspaloides	
Fingeruthia africanum	
Forbs	

Appendix B

Expanded list of woody species that may be found within the study area.

Species		
Acacia borleae	Cassine transvaalensis	Manilkara mochisia
Acacia burkei	Combretum apiculatum	Maytenus undata
Acacia erubescens	Combretum collinum	Mundulea sericea
Acacia exuviaiis	Combretum hereroense	Ormocarpum trichocarpum
Acacia gerrardii	Combretum imberbe	Ozoroa paniculosa
Acacia grandicornuta	Combretum molle	Pappea capensis
Acacia nigrescens	Combretum mossambicense	Peltophorum africanum
Acacia nilotica	Combretum zeyheri	Protoasparagus
Acacia robusta	Commiphora africana	Ptaeroxylon obliquum
Acacia senegal	Commiphora harveyi	Pterocarpus angolensis
Acacia tortilis	Commiphora mollis	Pterocarpus rotundifolius
Catunaregam spinosa	Commiphora schimperi	Rhoicissus tridentata
Cissus cornifolia	Cordia grandicalyx	Rhus chirindensis
Euclea crispa	Dalbergia melanoxylon	Rhus dentata
Euclea divinorum	Dichrostachys cinerea	Rhus gueinzii
Euclea natalensis	Diospyros mespiliformis	Rhus pentheri
Gardenia spatuifolia	Dombeya rotundifolia	Rhus pyroides
Gardenia volkensii	Ehretia amoena	Schotia brachypetala
Philenoptera violacea	Ehretia rigida	Sclerocarya birrea
Strychnos madagascariensis	Flueggea virosa	Senna petersiana
Strychnos spinosa	Grewia bicolor	Spirostachys africana*
Albizia harveyi	Grewia caffra	Sterculia rogersii
Balanites maughamii	Grewia flava	Terminalia prunioides
Berchemia zeyheri*	Grewia flavescens	Terminalia sericea
Bolusanthus speciosus	Grewia hexamita	Vangueria infausta
Boscia albitrunca	Grewia monticola	Vepris carringtoniana
Boscia foetida	Grewia villosa	Xanthocercis zambesiaca
Canthium inerme	Gymnosporia buxifolia	Ximenia americana
Carissa bispinosa	Gymnosporia senegalensis	Ximenia caffra
Cassia abbreviata	Lannea schweinfurthii	Ziziphus mucronata

Tree species protected under the National Forest Act (Act no. 84 of 1998) are highlighted in the above Table. *The status of *Spirostachys africana* and *Berchemia zeyheri* is given as 'Protected Plants', as classified by the Mpumalanga Nature Conservation Act (No. 10 of 1998).

Appendix C

A list of herbivore species known to have occurred in the Sabi Sand Wildtuin.

Species	
Black rhinoceros - *Diceros bicornis* – specially protected*	Kudu *Tragelaphus strepciseros* - Ordinary game*
Blue wildebeest - *Connochaetes taurinus* - Ordinary game*	Nyala - *Tragelaphus angasii* - Protected game*
Buffalo - *Syncerus caffer* – Protected wild animal*	Roan antelope - *Hippotragus equinus* - Protected game*
Bushbuck - *Tragelaphus scriptus* - Ordinary game*	Sable antelope - *Hippotragus niger* - Protected game*
Bushpig - *Potamochoerus porcus* – Problem animal*	Southern (common) reedbuck - *Redunca arindinum* - Protected game*
Eland - *Taurotragus oryx* - Protected game*	Steenbuck - *Raphicerus campestris* - Protected game*
Elephant – *Loxodonta africana* – specially protected*	Tsessebe – *Damaliscus lunatus* - Protected game*
Giraffe – *Giraffa camelopardalis* - Protected game*	Warthog - *Phacochoerus aethiopicus* – See Section 33 of the MNCA*
Grey duiker - *Sylvicapra grimmia* - Ordinary game*	Waterbuck - *Kobus ellipsiprymnus* - Protected game*
Hippopotamus - *Hippopotamus amphibius* - Protected game*	White rhinoceros – *Ceratotherum simum* – specially protected*
Impala - *Aepyceros melampus* - Ordinary game*	Zebra - *Equus burchelli* - Ordinary game*
Klipspringer - *Oreotragus oreotragus* - Protected game*	Nyala - *Tragelaphus angasii* - Protected game*

IUCN category (Baillie & Groombridge 1996) - Critically endangered; Endangered; *in terms of the Mpumalanga Nature Conservation Act (No. 10 of 1998) (MNCA).

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Appendix D

Carnivores and other small mammals recorded in the SSW.

Species	
Aardwolf – *Proteles cristatus* - Protected game*	Leopard – *Panthera pardus* – Protected wild animal*
African wild cat – *Felis lybica* – See Section 33 of the MNCA*	Lion – *Panthera leo* – Protected wild animal*
Antbear – *Orycteropis afer* - Protected game*	Lesser bushbaby – *Galago moholi* - Protected game*
Banded mongoose – *Mungos mungo* See Section 33 of the MNCA*	Pangolin – *Manis temminckii* - Protected game*
Bat-eared fox – *Otocyon megalotis*	Porcupine – *Hystrix africaeaustralis*
Black-backed jackal – *Canis mesomelas* – Problem animal*	Rock dassie – *Procavia capensis* – See Section 33 of the MNCA*
Brown hyaena – *Hyaena brunnea* - Protected game*	Serval – *Felis serval* – See Section 33 of the MNCA*
Cape clawless otter – *Aonyx capensis*	Sharpe's grysbok – *Raphicerus sharpei*
Cape fox – *Vulpes chama* ?	Scrub hare – *Lepus saxatilis*
Caracal – *Felis caracal* – Problem animal*	Side-striped jackal – *Canis adustus* – See Section 33 of the MNCA*
Chacma baboon – *Papio ursinus* – See Section 33 of the MNCA*	Slender mongoose – *Gallerella sanguinea*
Cheetah – *Acinonyx jubatus* – Protected wild animal*	Small-spotted genet – *Genetta genetta* – See Section 33 of the MNCA*
Civet – *Civettictis civetta* – See Section 33 of the MNCA*	Spotted hyaena – *Crocuta crocuta* – Protected wild animal*
Dwarf mongoose – *Helogale parvula*	Spring hare – *Pedetes capensis* – See Section 33 of the MNCA*
Greater cane rat – *Thryonomys swinderianus*	Striped polecat – *Ictonyx striatus*
Hedgehog – *Atelerix frontalis* ? – Protected game*	Striped weasel – *Poecilogale albinucha*

Honey badger – *Mellivora capensis*	Thick-tailed bushbaby – *Otolemur crassicaudatus* - Protected game*
Jameson's red rock rabbit – *Pronolagus randensis*	Tree squirrel – *Paraxerus cepapi* – See Section 33 of the MNCA*
Large grey mongoose – *Herpestes ichneumon* – See Section 33 of the MNCA*	Vervet monkey – *Cercopithecus aethiops* – See Section 33 of the MNCA*
Large-spotted genet – *Genetta tigrina* – See Section 33 of the MNCA*	Water mongoose – *Atilax paludinosus* – See Section 33 of the MNCA*
Large white-tailed mongoose – *Ichneumia albicauda* – See Section 33 of the MNCA*	Wild dog - *Lycaon pictus* - Protected game*
Meller's mongoose – *Rhynchogale melleri* – See Section 33 of the MNCA*	Yellow-spotted rock dassie – *Heterohyrax brucei*

IUCN category (Baillie & Groombridge 1996) - Endangered; Vulnerable; *in terms of the Mpumalanga Nature Conservation Act (No. 10 of 1998) (MNCA).

APPENDIX 5