

SPECIALIST REPORT

**PHASE 1 ARCHAEOLOGICAL / HERITAGE IMPACT ASSESSMENT FOR PROPOSED
SABIE HYDRO POWER (PTY Ltd) PROJECT, ON PORTION 17 OF THE FARM TEVREDE
178 JT, HAZYVIEW, MPUMALANGA PROVINCE**

**REPORT COMPILED FOR
RHENGU ENVIRONMENTAL SERVICES**

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EXECUTIVE SUMMARY

A Phase 1 Heritage Impact Assessment (HIA) regarding archaeological and other cultural heritage resources was conducted on the footprint for the proposed Sabie Hydro Power project next to the Sabie River near Hazyview. The study area is located on portion 17 of *the farm TEVREDE 17&JT, Hazyview*.

The farm is situated on topographical maps, 1:50 000, 2530 BB (SABIE) & 2531 AA (KIEPERSOL), which is in the Mpumalanga Province. The study area is situated on 2530 BB SABIE. This area falls under the jurisdiction of the Ehlanzeni District Municipality, and Thaba Chweu Local Municipality.

The National Heritage Resources Act, no 25 (1999)(NHRA), protects all heritage resources, which are classified as national estate. The NHRA stipulates that any person who intends to undertake a development, is subjected to the provisions of the Act.

The applicants (private landowner with some shareholders) in co-operation with Rhengu Environmental Services are requesting the establishment of a hydro facility on the Sabie River near Hazyview. There was a hydro facility on the farm approximately 40 years ago and the new one will follow more or less the same route and alignment.

The application is for the following:

- Construction of a 40m long weir (2.5m High) with a fishladder, across the river;
- Development of an 80 – 100m canal and pipeline that will divert the water to a scouring plant and the hydro building; Pipeline (diameter 2.4m) will be placed on concrete plinths;
- Power will connect up to the existing powerlines approximately 1km from the hydro building. Sections of the 11Kv powerline will be below ground and other sections above ground;
- The existing access road to the hydro building will be stabilized (less than 5m in width);

The proposed development is situated next to the R536 approximately halfway (20km) between Sabie and Hazyview. The study area consists of previously disturbed areas as well as natural bush next to the Sabie River.

No archaeological material was revealed during the survey. Farm infrastructure: the remains of two hydro buildings with its weir and pipeline, as well as an earth canal were identified, but none of these structures or features were 60 years or older.

Based on the survey and the findings in this report, Adansonia Heritage Consultants state that there are no reasons which may prevent the proposed development to continue. It is recommended that the owner be made aware that distinct archaeological material or human remains may only be revealed during the construction of the powerline / pipeline and other activities towards the hydro building. Should any archaeological material be found, a qualified archaeologist must be notified and an assessment must be done.

Disclaimer: *Although all possible care is taken to identify all sites of cultural significance during the investigation, it is possible that hidden or sub-surface sites could be overlooked during the study. Christine Rowe trading as Adansonia Heritage Consultants will not be held liable for such oversights or for costs incurred by the client as a result.*

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- 1) The results of the project;*
- 2) The technology described in any report;*
- 3) Recommendations delivered to the Client.*

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Christine Rowe
September 2016

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PHASE 1 ARCHAEOLOGICAL / HERITAGE IMPACT ASSESSMENT FOR PROPOSED SABIE HYDRO POWER (PTY Ltd) PROJECT, ON PORTION 17 OF THE FARM TEVREDE 178JT, HAZYVIEW, MPUMALANGA PROVINCE

A. BACKGROUND INFORMATION TO THE PROJECT

Adansonia Heritage Consultants were appointed by *RHENGU ENVIRONMENTAL SERVICES*, to conduct a Phase 1 heritage impact assessment (HIA) on archaeological and other heritage resources for the construction of the proposed Sabie Hydro Power project next to the Sabie River near Hazyview. The study area is situated on portion 17 of *the farm TEVREDE 178JT, Hazyview*.

The owner and applicant, Manie Van Wyk (on behalf of the shareholders) in co-operation with Rhengu Environmental Services are requesting the establishment of a hydro facility on the Sabie River near Hazyview. There was a hydro facility on the farm approximately 40 years ago and the new one will follow more or less the same route and alignment.

The application is for the construction of the following (See Maps 2 & 3):

- Construction of a 40m long weir (2.5m high) with a fishladder, across the Sabie river;
- The development of an 80 – 100m canal and pipeline that will divert the water to a scouring plant and the hydro building; The pipeline (diameter 2.4m) will be placed on concrete plinths;
- Power will connect up to the existing powerlines approximately 1km from the hydro building. Sections of the 11Kv powerline will be below ground and other sections above ground;
- The existing access road to the hydro building will be used and stabilized (less that 5m in width);

The proposed development is situated next to the R536 approximately halfway between Sabie and Hazyview. The study area consists of previously disturbed areas, as well as natural riverine bush next to the Sabie River.

A literature study, relevant to the study area as well as a foot survey was done, to determine that no archaeological or heritage resources will be impacted upon.

The aims of this report are to source all relevant information on archaeological and heritage resources in the study area, and to advise the client on sensitive heritage areas as well as where it is viable for the development to take place in terms of the specifications as set out in the National Heritage Resources Act no., 25 of 1999 (NHRA). Recommendations for maximum conservation measures for any heritage resources will also be made. The study area is indicated in Maps 1 - 6, and Appendix 1 & 2.

- This study forms part of an EIA, Consultant: Ralf Kalwa, *RHENGU ENVIRONMENTAL*

SERVICES., P.O. Box 1046, Malelane, 1320, Cell: 0824147088 / Fax: 0866858003 / e-mail: rhengu@mweb.co.za ;

- Type of development: Establishment of a hydro power facility on the Sabie River. The farm is indicated on topographical maps, 1:50 000, 2530 BB (SABIE) & 2531 AA (KIEPERSOL), but the study area is on 2530 BB (SABIE) (See topographical map 5). The area consists of natural riverine forest as well as previously disturbed agricultural and industrial sections. All the sections are zoned as agricultural and no rezoning will take place.
- Location of Province, Magisterial district / Local Authority and Property (farms): This area falls under the jurisdiction of the Ehlanzeni District Municipality, and Thaba Chweu Local Municipality in the Mpumalanga Province.
- Land owner & applicant: Mr. Manie Van Wyk.

Terms of reference: As specified by section 38 (3) of the NHRA, the following information is provided in this report.

- a) The identification and mapping of heritage resources where applicable;
- b) Assessment of the significance of any heritage resources;
- c) Alternatives given to affected heritage resources by the development;
- d) Plans for measures of mitigation.

Legal requirements:

The legal context of the report is grounded in the National Heritage Resources Act no. 25, 1999, as well as the National Environmental Management Act (1998) (NEMA):

• **Section 38 of the NHRA**

This report constitutes a heritage impact assessment investigation linked to the environmental impact assessment required for the development. The proposed development is a listed activity in terms of Section 38 (1) of the NHRA. Section 38 (2) of the NHRA requires the submission of a HIA report for authorisation purposes to the responsible heritage resources agency, SAHRA.

Heritage conservation and management in South Africa is governed by the NHRA and falls under the overall jurisdiction of the South African Heritage Resources Agency (SAHRA) and its provincial offices and counterparts.

Section 38 of the NHRA requires a Heritage Impact Assessment (HIA) to be conducted by an independent heritage management consultant, for the following development categories:

- Any development or other activity which will change the character of a site:
 - exceeding 5000m² in extent;
 - the rezoning of a site exceeding 10 000m² in extent;

In addition, the new EIA regulation promulgated in terms of NEMA, determines that any environmental report will include cultural (heritage) issues.

The end purpose of this report is to alert *RHENGU ENVIRONMENTAL SERVICES*, as well as the applicants, and interested and affected parties about existing heritage resources that may be affected by the proposed development, and to recommend mitigation measures aimed at reducing the risks of any adverse impacts on these heritage resources. Such measures could include the recording of any heritage buildings or structures older than 60 years prior to demolition, in terms of section 34 of the NHRA and also other sections of this act dealing with archaeological sites, buildings and graves.

The NHRA section 2 (xvi) states that a “heritage resource” means any place or object of cultural significance, and in section 2 (vi) that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Apart from a heritage report assisting a client to make informed development decisions, it also serves to provide the relevant heritage resources authority with the necessary data to perform their statutory duties under the NHRA. After evaluating the heritage scoping report, the heritage resources authority will decide on the status of the resource, whether the development may proceed as proposed or whether mitigation is acceptable, and whether the heritage resource require formal protection such as a Grade I, II or III, with relevant parties having to comply with all aspects pertaining to such a grading.

- **Section 35 of the NHRA**

Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered. In the case of such chance finds, the heritage practitioner will assist in investigating the extent and significance of the finds and consult with an archaeologist about further action. This may entail removal of material after documenting the find or mapping of larger sections before destruction. This section does not apply as no archaeological material was observed during the survey.

- **Section 36 of the NHRA**

Section 36 of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority. It is possible that chance burials might be discovered during development of the road infrastructure or agricultural activities. No burial sites or graves were observed during the survey.

- **Section 34 of the NHRA**

Section 34 of the NHRA stipulates that no person may alter, damage, destroy, relocate etc, any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority. The ruins of a farmhouse with outbuildings, two hydro power buildings with the associated infrastructure (canal, holding dam etc.) and an earth canal were identified in the study area. Section 34 does not apply as none of these features are older than 60 years.

- **Section 37 of the NHRA**

This section deals with public monuments and memorials but does not apply in this report.

- **NEMA**

The regulations in terms of Chapter 5 of the National Environmental Management Act, (107/1998), provides for an assessment of development impacts on the cultural (heritage) and social environment and for specialist studies in this regard.

B BACKGROUND TO ARCHAEOLOGY AND HISTORY OF THE STUDY AREA

- **Literature review, museum databases & previous relevant impact assessments**

In order to place the area surrounding Hazyview and Sabie in archaeological context, primary and secondary sources were consulted. Ethnographical and linguistic studies by early researchers such as Ziervogel and Van Warmelo shed light on the cultural groups living in the area since ca 1600. Historic and academic sources were also consulted.

Primary sources were consulted from the Pilgrim's Rest Museum Archives for a background on the pre-history and history of the study area. The author was involved in various projects as listed in the report, near the study area. Apart from the mentioned reports, the author is not aware of any previous impact assessments in the direct study area of the proposed hydro power station. Research has been done by the author and the Pilgrim's Rest Museum on San rock art as well as Bantu speaking rock art sites in the Escarpment area, but none have been recorded to date in the study area.¹

Very little contemporary research has been done on prehistoric African settlements in the area. The only professionally excavated Early Iron Age site in the vicinity, besides those in the Kruger National Park, is the Plaston site towards the south-west, dating ca 900 AD.² No other archaeological excavations have been conducted to date within the study area, which have been confirmed by academic institutions and specialists in the field.^{3 4} A stone walled settlement with terracing was recorded by C. van Wyk (Rowe)

¹PRMA: Information file 9/2.

²M.M. Van der Ryst., Die Ystertydperk, in J.S. Bergh (red.), *Geskiedenis Atlas van Suid Afrika: Die vier Noordelike Provinsies*. p. 97.

³Personal information: Dr. J. Pistorius, Pretoria, 2008-04-17.

close to Hazyview,⁵ as well as several others further west and north-west,⁶ outside the study area.

Several early ethnographical and linguistic studies by early researchers such as D. Ziervogel and N.J. Van Warmelo, revealed that the study area was inhabited by Eastern Sotho groups (Pulana, Kutswe and Pai), the Tsonga (Nhlanganu and Tšhangana), from before the 18th century.^{7 8} However, when concentrating on ethnographical history, it is important to include a wider geographical area in order for it to make sense.

The district is divided in two, with the Drakensberg Escarpment in the west, and the Low Veld towards the east. Today, we found that the boundaries of groups are intersected and overlapping.⁹ Languages such as Zulu, Xhosa, Swazi, Nhlanganu, Nkuna, sePedi, hiPau and seRôka, are commonly spoken throughout this area.¹⁰

When the Swazi began to expand northwards they forced the local inhabitants out of Swaziland, or absorbed them.¹¹ There is evidence of resistance, but the Eastern Sotho groups who lived in the northern parts of Swaziland, moved mainly northwards.¹² This appeared to have taken place towards the end of the 18th century,¹³ when these groups fled from Swaziland to areas such as Nelspruit, Hazyview, Bushbuckridge, Klaserie, Blyde River and Komatipoort.¹⁴

Circular stone-walled complexes and terraces as well as graves have been recorded in the vicinity of Hazyview¹⁵, Bushbuckridge, Graskop and Sabie, clay potsheds and upper as well as lower grinding stones, are scattered at most of the sites.¹⁶ Many of these occur in caves as a result of the Swazi attacks on the smaller groups.

Van Warmelo based his 1935 survey of *Bantu Tribes of South Africa* on the amount of taxpayers in an area. The survey does not include the extended households of each taxpayer, so it was impossible to actually indicate how many people were living in an area.¹⁷ (See Map 1).

⁴Personal information: Dr. MS. Schoeman, University of Pretoria, 2008-03-27.

⁵C. Van Wyk, *Inspection of Umbhaba Stone-walled settlement, Hazyview*, pp. 1-2.

⁶PRMA: Information file 9/2.

⁷N.J. Van Warmelo, *A Preliminary Survey of the Bantu Tribes of South Africa*. pp. 90-92 & 111.

⁸H. S. Webb, The Native Inhabitants of the Southern Lowveld, in *Lowveld Regional Development Association, The South-Eastern Transvaal Lowveld*. p. 16.

⁹ N.J. van Warmelo, *A Preliminary Survey of the Bantu Tribes of South Africa*, p. 51.

¹⁰M. De Jongh (ed.), *Swatini*, p. 21.

¹¹A.C. Myburgh, *The Tribes of Barberton District*, p. 10.

¹²N.J. Van Warmelo, *A Preliminary Survey of the Bantu Tribes of South Africa*. p. 111.

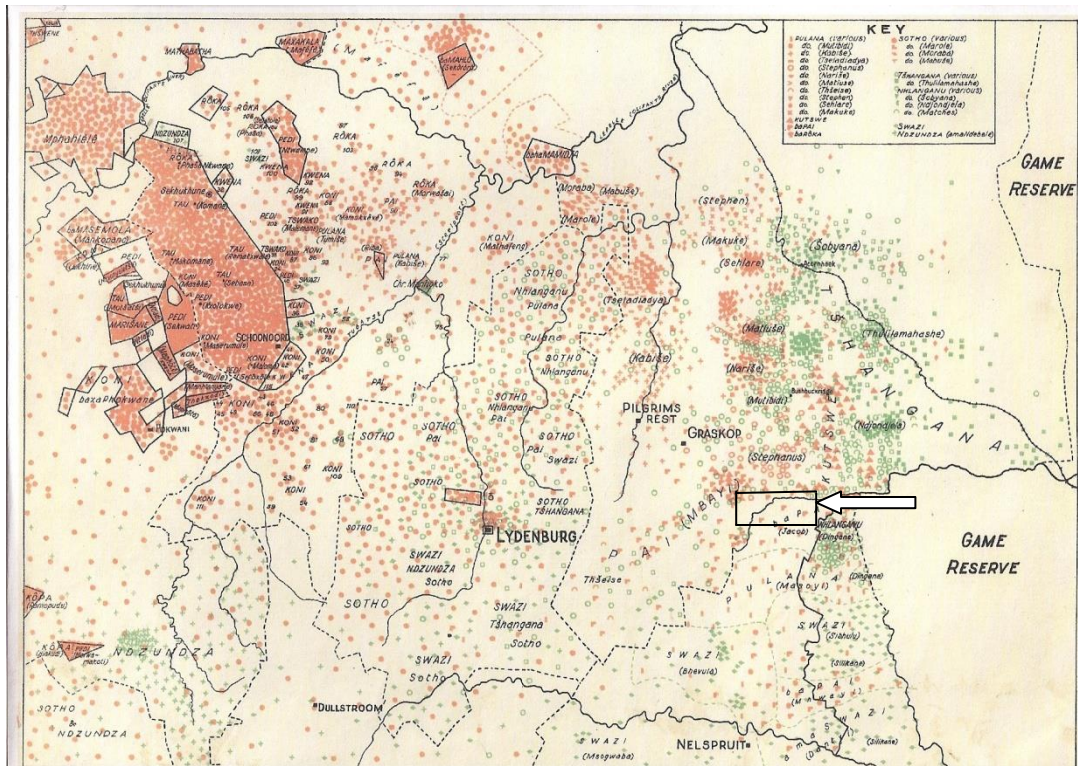
¹³H. S. Webb, The Native Inhabitants of the Southern Lowveld, in *Lowveld Regional Development Association, The South-Eastern Transvaal Lowveld*. p. 14

¹⁴*Ibid.*, p. 16.

¹⁵PRMA: Information file 9/2.

¹⁶D. Ziervogel, *The Eastern Sotho, A Tribal, Historical and Linguistic Survey*, p. 3.

¹⁷N.J. van Warmelo, *A Preliminary Survey of the Bantu Tribes of South Africa*, p.9.



MAP 1: 1935 Map of Van Warmelo: The areas surrounding Hazyview and Sabie, indicated by the arrow, were sparsely inhabited by various Sotho (baPai, Pulana & Kutswe) and Shangaan groups.

The only early trade route mentioned, which crossed this section, was a footpath used by the African groups from Delagoa Bay towards Bushbuckridge (Magashulaskraal), along the Sabie river, up the Escarpment, and further north to the Soutpansberg.¹⁸ There is however, no physical evidence left of this early route.

The historical background of the study area confirms that it was occupied since the 17th century by the Eastern Sotho (Pai, Kutswe and Pulana) as well as Tsonga groups (Nhlangu and Tshangana). These groups have intermarried extensively or were absorbed by other groups in time.¹⁹

- **Stone Age**

Evidence from rock shelters in the Mpumalanga / Limpopo region suggest that the earliest inhabitants in the area were small groups of Stone Age hunter-gatherers. These San people led a nomadic lifestyle and rock paintings found in some of the shelters are an indication of their presence.^{20 21} Unfortunately

¹⁸L. Changuion & J.S. Bergh, Swart gemeenskappe voor die koms van die blankes, in J.S. Bergh (red.), *Geskiedenis Atlas van Suid Afrika: Die vier Noordelike Provinsies*. p. 104.

¹⁹M. De Jongh (ed.), *Swatini*, p. 40.

²⁰Hampson et al., 2002, The rock art of Bongani Mountain Lodge, SA Archaeological Bulletin 57: p. 15.

²¹Rowe C., 2009, Heritage Management of Archaeological, Historical and Industrial resources on the Blyde River Canyon Nature Reserve, p. 22.

very little research in this regard has been conducted, although several rock painting sites have been recorded in the areas of White River and Nelspruit and further north towards the Mpumalanga Escarpment.²² Bergh,²³ did not record any Stone Age sites in the immediate areas of Hazyview and Sabie. The closest Middle- and Later Stone Age sites have been documented near Ohrigstad. The Bushman Rock Shelter and Heuningneskrans are the most well-known Middle Stone Age sites in the vicinity, dating back to approximately 35000 BP.²⁴

To date, 109 Bushman (or San) rock art sites were recorded in the Kruger National Park,²⁵ and over 100 rock art sites at Bongani Mountain Lodge and its immediate surrounds.²⁶ Thirty one rock art sites were recorded on the Mpumalanga Drakensberg Escarpment.²⁷ Rock art sites were also recorded in the Ohrigstad area,²⁸ and Late Iron Age rock engraving sites occur further west around Lydenburg.

- **IRON AGE**

Later Bantu-speaking tribes from further north moved into southern Africa, bringing with them a new way of life based on agriculture, pastoralism and metal working. This period is broadly referred to as the Iron Age, starting around AD 200. Cattle played a crucial role in the world-view and social organization of these societies, which is reflected in the layout of their homesteads – referred to as the Central Cattle Pattern. This type of settlement may be recognized archaeologically from centrally located cattle pens associated with high-status burials, grain storage pits, men’s assembly areas and evidence of iron-forging.^{29 30} The hilly areas between Hazyview and Sabie is not as ideal for agriculture as the areas towards to east of Hazyview (Lowveld), although small scale cultivation do occur in these areas.

- **Early Iron Age (EIA)**

Secondary source evidence of Early Iron Age sites is lacking, with only one well known site indicated, the Lydenburg Heads site.³¹ The Lydenburg Heads site at Sterkspruit, Lydenburg dated to approximately AD 600. Excavations at the Klingbeil Nature Reserve also revealed direct archaeological evidence that the Early Iron Age people in the area introduced cattle and sheep/goat as well as crop plants. Based on

²² Rowe C., 2009, Heritage Management of Archaeological, Historical and Industrial resources on the Blyde River Canyon Nature Reserve, p. 22.

²³ Bergh 2009 *Geskiedenis Atlas van Suid Afrika*, p.4.

²⁴ Voight, E., 1981, *Guide to the Archaeological sites in the Northern and Eastern Transvaal*, p. 115.

²⁵ English, M. Die Rotskuns van die Boesmans in die NKW, in *De Vos Pienaar, U., Neem uit die Verlede*, p. 18-24.

²⁶ Hampson, et al., The rock art of Bongani Mountain Lodge, *SA Archaeological Bulletin* 57: p. 15.

²⁷ Rowe, C. Heritage Management of Archaeological, Historical and Industrial resources on the Blyde River Canyon Nature Reserve, p. 22.

²⁸ Bergh, J., *Geskiedenis Atlas van Suid Afrika*, p. 4.

²⁹ Huffman T.N., 2007, *Handbook to the Iron Age*, p.331.

³⁰ Pelsaert A., 2014, *A Report on the first phase archaeological investigations on LIA stone walled sites located on portion 7 of the farm Rooidraai 34JT to be impacted by commercial and residential developments: sites RDR 7 & 1C*, p. 8.

³¹ Bergh J., 2009. *Geskiedenis Atlas van Suid Afrika*, p.8.

pottery identification, Klingbeil is dated to about AD 1000.³²

- **Late Iron Age (LIA)**

The Late Iron Age spans a period between AD 1300-1840, and is associated with groups like the Sotho and Shangaan in the study area (see Map 1). Sites in the wider area are characterized by widespread stone walling such as the Badfontein type that were used to define homestead areas, agricultural land (terracing) and cattle tracks. Maize was introduced into southern Africa by the Portuguese during the Late Iron Age contributing to an increase in population. Its cultivation is linked archaeologically to special grindstones.^{33 34}

The author was also involved in desktop studies and surveys in the area, such as:

- 2001: Rowe C., *Inspection of Umbhaba Stone-walled settlement, Hazyview*; - LIA Stone walled settlement identified, mitigation measures recommended;
- 2009: Rowe, C. *Heritage Management of Archaeological, Historical and Industrial resources on the Blyde River Canyon Nature Reserve*, MA dissertation. Pretoria: UP;
- 2010: Rowe C., Phase 1 AIA & HIA for the proposed for 132KV powerlines from **Hazyview – Dwarsloop**, - Mainly burial sites were identified, mitigation measures recommended;
- 2013: Rowe, C. Phase 1 AIA & HIA for the proposed construction of the Mpumalanga Cultural and Creativity Hub, on the remainder of the farm Agricultural Holding no 56JU, **White River**;
- 2014: Rowe C., Phase 1 AIA & HIA for the proposed township establishment, portion 127 & 131 of the farm De Rust 12JU, **Hazyview**; No archaeological material was identified;
- Rowe, C., Phase 1 AIA & HIA for the proposed development of a lifestyle retirement village on Portion 11 & 12 of the farm Nooitgedacht 62, **White River** – No archaeological material was identified;
- 2013: Rowe C., Phase 1 AIA & HIA for the proposed traffic training academy: Remainder of the farm Calcutta 294 KU, **Mkhuhlu, Bushbuckridge** – potsherds were identified but were of no significance;
- 2013: Rowe, C., Phase 1 AIA and management guidelines for a Rock art site, Spitskop, **Sabie**;
- 2014: Rowe, C., Phase 1 AIA and management guidelines for a Rock art site, on the farm Ophir, **Sabie**;
- 2014: Rowe, C., Phase 1 AIA & HIA for the Graskop gorge Tourism project on portion 4 of the farm Graskop 564KT, **Graskop**;
- 2016: Rowe, C., Phase 1 AIA and management guidelines for a Rock art site, Bakenkop, **Sabie**.

³² Pelsler A., 2014, *A Report on the first phase archaeological investigations on LIA stone walled sites located on portion 7 of the farm Rooidraai 34JT to be impacted by commercial and residential developments: sites RDR 7 & 1C*, p. 8.

³³ Huffman T.N., 2007, *Handbook to the Iron Age*.

³⁴ Pelsler A., 2014, *A Report on the first phase archaeological investigations on LIA stone walled sites located on portion 7 of the farm Rooidraai 34JT to be impacted by commercial and residential developments: sites RDR 7 & 1C*, p. 8.

Studies by other specialists:

- 2012: Celliers, JP (Kudzala Antiquity)., Report on *Phase 1 AIA on portion 2, 12 & 16 of the farm Perry's Farm 9JU and portion 12 and the remainder of portion 109 of the farm De Rust 12 JU, Hazyview* – historical and archaeological features with medium to low significance were identified.

History of Hydro Power in the Sabie - Hazyview area

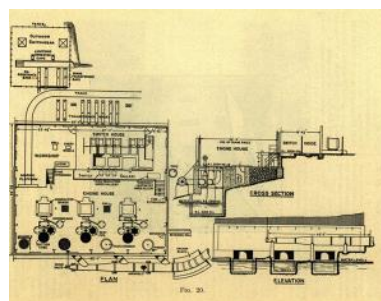
The closest towns to the proposed development are Hazyview and Sabie. Sabie is a small country town in a deep valley on the escarpment of the Drakensberg mountain range. In the early days it was used as a base camp when hunting and exploring the Lowveld, because of its high altitude and being malaria-free. The local Shangaan people called the river “uluSaba” – “the river of fear” - as the river was often in flood and teemed with crocodiles. The town’s name Sabie is also derived from this word. Sabie was situated on the farm Grootfontein and Henry Thomas Glynn, the founder of Sabie, bought it in 1880. Gold was discovered, and this triggered a gold-rush in the area.³⁵

Alluvial mining converted into reef mining and a number of small mining companies soon established. These were eventually taken over by the Transvaal Gold Mining Estates Ltd., (TGME), which is still in operation over a century later.

Shortage of electrical power in the dry season at Sabie restricted normal mining operations. One of the mining companies owned a small hydro-electric station at the foot of the Sabie Falls, which supplied power to several operations. However the total power available was inadequate to meet the requirements of all the mines and the smaller properties could not afford to provide power of their own. Power production had to be concentrated to be produced economically. The establishment of a power station at Sabie was one of the first projects undertaken by the Commission. Survey work was started at a place known as “the inaccessible gorge.”³⁶



The Sabie River Gorge Power Station



Layout Plan of the Power Station

³⁵ www.mpumalangahappenings.co.za/sabie_homepage.htm, Access 2016/09/15.

³⁶ The History of the Sabie Gorge and Malievelde Hydro-electric Powerstations, 2013, sabie.co.za/blog/?p=1849 Access 2016/09/15.



Transport of a Siemens transformer.



Malieveld Power Station Building

Because the mining industry could not give a guarantee of a possible future load, and their needs being less than they anticipated, the Commission had to abandon the larger scheme in favor of a smaller operation. A site closer to Sabie had to be found in order to cheapen the cost of transmission. Survey work started in June 1924 on the farm Bergvliet 692, 14 km downstream from Sabie on the Sabie River. Early in 1925, tenders were invited for the supply and construction of the plant. On 5 June 1925 a permit was obtained from the Electricity Control Board for the establishment of a hydro-electric undertaking in the Sabie District and an application was made to the Water Court for the necessary water rights on the Sabie River.

While the Sabie River scheme was being revised, it was found to be necessary to install a small hydro-electric plant on the Malieveld Spruit to prevent flooding of the mines during the winter. This power plant was erected in collaboration with Glynn's Lydenburg Ltd. and started production on 1 December 1925. When the Sabie River Gorge scheme was completed in 1927, the Malieveld Spruit plant was closed. Initially it was considered to use the plant as a stand-by, but it was dismantled after the closure.



Transformers at the Sabie Gorge Power Station



Francis Type Turbine

The Sabie River Gorge Power station was the first station to be designed by Eskom engineers. This undertaking was the first project where Eskom generated its own electricity after its establishment and it was, until the Hendrik Verwoerd Power Station began to generate power in 1971, the only hydro-electric power station erected by Eskom.

The scheme started up provisionally for testing in March 1927 and commercial operation started on 1 April 1928. The licensed supply/delivery area was within a 14 km radius from the Sabie Railway Station. This excluded the areas under jurisdiction of the municipality, unless the Commission obtained permission from the local authorities for the supply of electricity.

According to the Annual Report of 1930, the Sabie Undertaking was designed for an output of approximately 5,5 million units per year. Up to 1930 the electricity demand was far less than the maximum output. A yearly increase of +/- 40 % can however be noted from 1928 onwards, and in 1931 the output was exceeded and 6,585 553 million units were sold. As the units sold increased, the average price per unit decreased and the consumers had to pay only 66% of the estimated price. The reason for this was because production costs of hydro-electric schemes were affected only to a limited extent by the output. Any increase in consumer demand had little impact on the operating expenditure and resulted in a substantial reduction in the average cost per unit.³⁷



Setting basin at intake Works



Pipeline at the Sabie Gorge Power Station

The output peaked in 1947 when 7,604 777 units were produced. After 1947 a steady decline in output was observed, with the exception of 1963 and 1964. The reason for this can be attributed to the fact that the town of Graskop was at the time also connected to the Sabie River Gorge scheme.

³⁷ The History of the Sabie Gorge and Malievelde Hydro-electric Powerstations, 2013, sabie.co.za/blog/?p=1849 Access 2016/09/15.

Hydro Power on the farm TEVREDE

Hydro Power was used by the owner Manie Van Wyk's family since the 1960's. An earth canal from the Sabie river (in the west) to the cultivated lands (in the east), was built by Manie's grandfather, Pieter Johannes Van Wyk. Manie's father, Manie van Wyk (Sr., Hermanus Lambertus Van Wyk), built the hydro electric power station on the farm in 1964. It was designed by Emanuel Joubert, a mechanical engineer and farmer at Kiepersol close to the farm. The turbine at the hydro facility was connected to a generator. It was in operation until 1985, when the power source was replaced by ESKOM.³⁸

The second Hydro building was built by Willem Nel in 1980. He rented the property from the Van Wyk's and bought the turbine from the Nestor Mine (the Sabie operations of the Transvaal Gold Mining Estates).³⁹ (See figs.: 1-5 & Appendix 2).



Fig.1: Hydro Power station (left) was built in 1980 and the one on the right in 1964. Fig. 2: Remains of the machinery inside the 1964 Hydro facility.



Fig. 3: The turbine from Nestor Mine.

Fig. 4: The holding dam above the Hydro buildings.

³⁸ Personal Communication: Manie Van Wyk, 2016-09-13.

³⁹ Personal Communication: Manie Van Wyk, 2016-09-13.

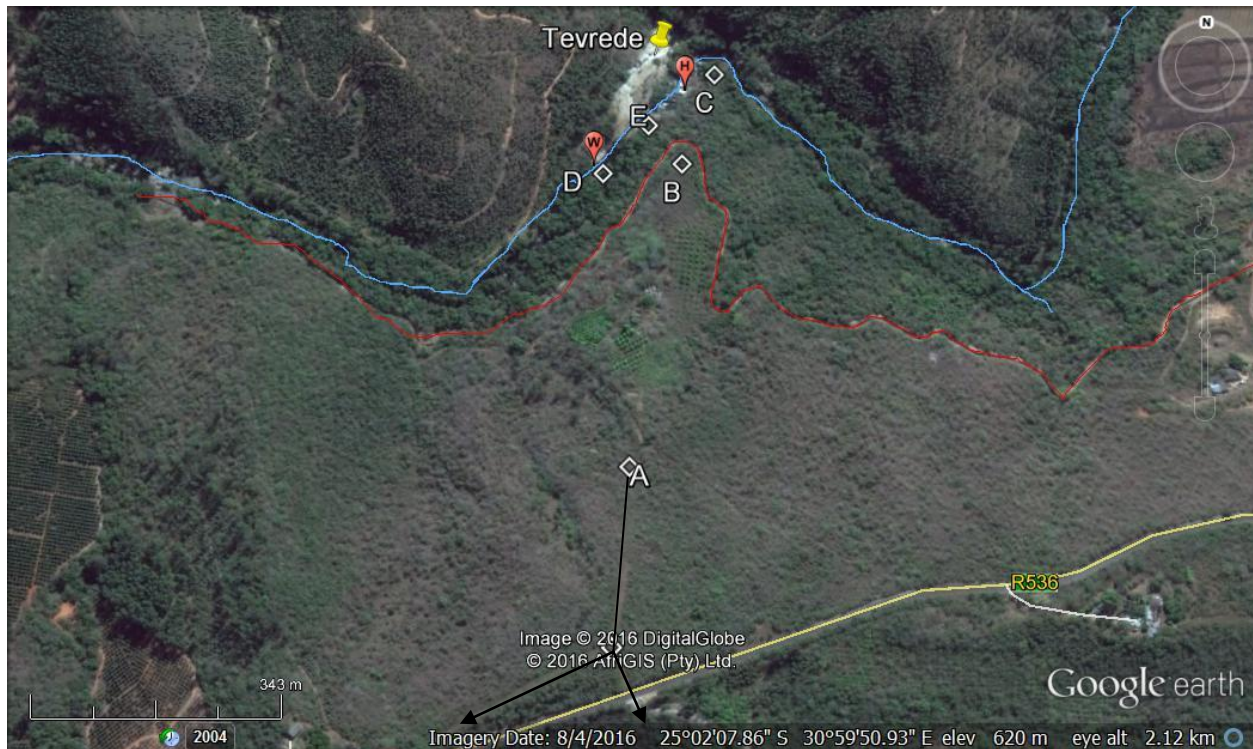


Fig. 5: The staircase and pipeline which channeled water to the Hydro.

C. DESCRIPTION OF THE AREA TO BE AFFECTED BY THE PROPOSED DEVELOPMENT

The proposed project will involve the following:

- Construction of a 40m long weir (2.5m high) with a fishladder, across the river (See Google image Map 2: point D);
- Development of an 80 – 100m canal and pipeline that will divert the water to a scouring plant and the hydro building; Pipeline (diameter 2.4m) will be placed on concrete plinths (See Google image Map 2: points D, E to C);
- Power will connect up to the existing powerlines approximately 1km from the hydro building (See Google image Map 2: point A). Sections of the 11Kv powerline will be below ground and other sections above ground (See Google image Map 2: point A, B to C);
- The existing access road to the hydro building will be stabilized (less than 5m in width) (See Google image Map 3, yellow line is existing access road, no new roads will be developed);



MAP 2: Google image: Area of development A - E:

- A = The end of existing powerline, from the south;
- B = Where the line will cross the existing water canal and road;
- C = The two existing Hydro buildings;
- D = The weir and beginning of the canal and pipeline;
- E = The top of waterfall;
- C = The bottom of waterfall (40m drop) where the two existing Hydro buildings are situated.

Points A, B to C vary from disturbed sections with existing infrastructure to natural riverine forest. Point A is at the end of the existing powerline which runs to the Hazyview – Sabie road. The investigation showed that the section between A and B is highly disturbed as it is situated within the boundaries of a farm with a neglected orchard and terraces. Dropper lines from the neglected orchard are still visible. The ruin of the farmhouse and outbuildings are also visible but overgrown, and belonged to Manie Van Wyk (Sr).⁴⁰ The house and infrastructure was built in the 1960's, and is not yet 60 years old (See Google image with features Map 6).

According to the proposed development, 11 Kv power will connect up to the existing powerlines, at point A, approximately 1km from the hydro building. Sections of the powerline will be below ground and other sections above ground.

⁴⁰ Personal communication, Manie Van Wyk, 2016-09-13.

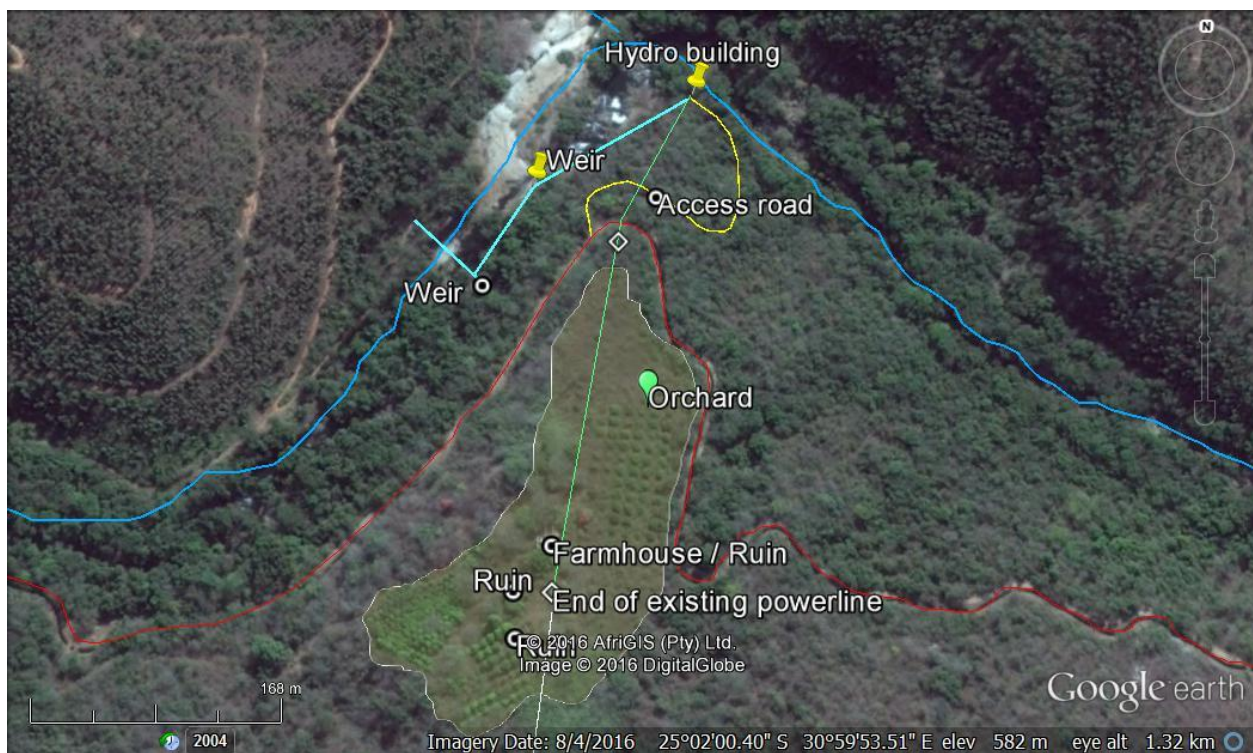
The powerline will cross the existing water canal and road and continue down to point C through natural riverine forest to the hydro building, next to the Sabie River. It will also cross the earth canal.

The access road to the hydro building will make use an existing dirt road, which will be stabilized (less than 5m in width).

Points D and E are located directly next to the Sabie river in natural riverine forest (fig. 16). Point D is where the construction of a 40m long weir (2.5m high) with a fishladder across the river is proposed (fig. 17). Some previous disturbances are visible in this section as the remains of an old earth canal, and metal supports for the pipeline to the hydro building were observed during the survey (See fig.7 & 15).

The development of an 80 – 100m canal and pipeline will divert the water to a scouring plant and the hydro building. The pipeline (diameter 2.4m) will be placed on concrete plinths and will follow the previous route used for the hydro power station (point C). Recent infrastructure in the form of a concrete holding dam (fig. 12 & 13), staircase (fig. 5 & 11), pipelines (fig. 11) and the two hydro buildings (fig. 1, 9 & 10) are still visible next to the Sabie river. None of the structures as mentioned, are 60 years old. This will also be the location of the proposed new infrastructure which will replace the older neglected infrastructure.

The study area was situated on the slopes above the Sabie River, but all sections were easily accessible with existing footpaths, infrastructure and access roads. Visibility throughout the study area was excellent as the winter vegetation was dry and sparse (fig. 6 & 8).



MAP 3: The proposed development area

The study area is situated on Topographical maps, 1:50 000, 2530 BB (SABIE) & 2531 AA (KIEPERSOL), which is in the Mpumalanga Province. The study area is situated on 2530 BB SABIE. This area falls under the jurisdiction of the Ehlanzeni District Municipality, and Thaba Chweu Local Municipality.

The proposed project site is located on portion 17 of *the farm TEVREDE 17&JT, Hazyview*. It is situated next to the R536 approximately halfway between Sabie and Hazyview, and next to the Sabie River. Section A to B is disturbed land, and section B to C is mainly natural riverine forest with disturbed sections which include the recent hydro buildings and its associated infrastructure (access road, two hydro buildings, pipeline, staircase and concrete holding dam).

Sections D to E are mainly natural riverine forest, with minor disturbed remains of the previous canal. An older earth canal (built by Manie Van Wyk's grandfather), is also visible higher up, but was not feeding the hydro stations, and was used for the irrigation of cultivated lands lower down on the farm.

The entire property is zoned as agricultural, and no rezoning will take place. The area had an adequate network of paths and access roads which made the survey easier.

- **Description of methodology:**

The topographical maps as well as Google images of the site (Map 2 - 6), indicate the study area of the proposed development. These were intensively studied to assess the current and historically disturbed areas and infrastructure.

In order to reach a comprehensive conclusion regarding the cultural heritage resources in the study area, the following methods were used:

- The desktop study consists mainly of archival sources studied on distribution patterns of early African groups who settled in the area since the 17th century, and which have been observed in past and present ethnographical research and studies.
- Literary sources, books and government publications, which were available on the subject, have been consulted, in order to establish relevant information.

-Literary sources: A list of books and government publications about prehistory and history of the area were cited, and revealed some information;

-The archaeological database of SAHRA as well as the National Cultural History Museum was consulted. Heritage Impact Assessment reports of specialists who worked in the area were studied and are quoted in section B.

- The study area consisted of natural as well as disturbed land. The disturbed sections consisted of a recent hydro power station and its associated infrastructure and access road, which will be replaced in the proposed application, and a previous farmhouse with associated infrastructure.

None of the structures on the property is 60 years old.

- A site visit with the owner, environmental practitioner and ecologist was held on 13 September 2016, and features of interest were pointed out during the visit. The site was revisited on 17 September 2016.
- The fieldwork and survey was conducted extensively with two people on foot. Existing paths as well as roads were mainly used to access areas (See Appendix 3).
- The terrain is situated on the slopes next to the Sabie River. Visibility was generally good as the natural vegetation was dry and sparse. Route A to B was overgrown with Lantana which the owner removed in order to access the area. This made the survey accessible and it was also established that this section was a highly disturbed neglected orchard surrounding the farm house.
- The relevant data was located with a GPS instrument (Garmin Etrex) datum WGS 84, and plotted. Co-ordinates were within 4-6 meters of identified sites.
- Evaluation of the resources which might be impacted upon by the footprint, was done within the framework provided by the National Heritage Resources Act, no. 25 (1999);
- Personal communication with relevant stakeholders on the study area was held, such as the owner and applicant, Mr. Manie Van Wyk⁴¹, ecologist Dr. A. Deacon⁴² and environmental practitioner Mr. R. Kalwa.⁴³

GPS co-ordinates were used to locate the perimeters and any heritage features within the study area (Co-ordinates provided by RHENGU Environmental Services): (see Map 6).

| GPS CO-ORDINATES | | | |
|-------------------------|------------------|-------------------|------------------|
| POINT | SOUTH | EAST | ELEVATION |
| A | S 25° 02' 05.01" | E 030° 59' 51.88" | 605m |
| B | S 25° 01' 56.81" | E 030° 59' 53.21" | 568m |
| C Hydro Building | S 25° 01' 53.6" | E 030° 59' 54.7" | 553m |
| D Weir | S 25° 01' 58.3" | E 030° 59' 49.68" | 572m |
| E | S 25° 01' 56.17" | E 030° 59' 51.23" | 567m |

E. DESCRIPTION OF IDENTIFIED SITES

The applicants (private landowner with some shareholders) in co-operation with Rhengu Environmental Services are requesting the establishment of a hydro facility on the Sabie River near Hazyview. There was a hydro facility on the farm approximately 40 years ago and the new one will follow more or less the same route and alignment (see Map 2 & 3 for areas to be developed).

⁴¹ Personal communication: Mr. M. Van Wyk, 2016-09-13.

⁴² Personal information: Dr. A. Deacon, 2016-09-13.

⁴³ Personal information: Mr. R. Kalwa, 2016-09-13.

The study area is between Sabie and Hazyview, next to the Sabie River (see Map 4). Hydro power in the Sabie River was used in the past to generate power for mainly mining operations and the towns of Sabie and Graskop. These were eventually replaced by ESKOM power. Hydro power was also used to generate power since the 1960's on the farm TEVREDE and was also replaced by ESKOM power in the 1980's. Maps which were studied, did not indicate any historic settlements directly in the study area. The 1935 map by Van Warmelo indicated the groups living in the area as mainly small groups of Sotho and Shangaan (see Map 1).

The study area is indicated in Maps 2 & 3. The terrain was easily accessible with paths and roads and the vegetation in the natural sections were dry and sparse. The sections were surveyed on foot.

Previous farming and hydro station infrastructure proved to be recent and were established during the 1960's. None of these features are yet 60 years or older, and are not rated as of any significance. No archaeological or historic material, structures or graves were identified during the survey, and no mitigation measures are necessary (See Map 6).



Map 6: Features on the study area.

All comments should be studied in conjunction with the maps, figures and appendices, which indicate the study area, and which corresponds with the summary below. Photographs in Appendix 2 show the general view of the study area.

Features (See Map 6):

| Section A Feature | Description / Comments | Site Location |
|---|--|---|
| Farm House | Built during 1965 | Elev. 583m S25° 02' 04.2" E30° 59' 52.2" Fig. 20 |
| Outbuildings 1 & 2 | Built during 1965 | 1) Elev. 606m S25° 02' 05.0" E30° 59' 50.9" 2) Elev. 609m S25° 02' 05.8" E30° 59' 51.1" |
| Hydro buildings (2) | Deteriorated buildings with neglected turbines, built in 1964 & 1980 | Elev. 535m S25° 01' 53.7" E30° 59' 55.0" Figs. 1, 9, 10. |
| Hydro power building infrastructure: Staircase / Pipelines / Holding dam | Concrete holding dam with eroded gear, staircase and pipelines | Elev. 546m S25° 01' 54.1" E30° 59' 54.0" Figs: 9, 10, 11, 12, 13, 15. |
| Access road to Hydro power buildings | Small dirt track / road to the hydro building | Start: Elev. 566m S25° 01' 56.1" E30° 59' 52.1" At turn: Elev. 592m S25° 01' 56.9" E30° 59' 55.6" Fig. 8 |
| Earth canal (1) | Next to the Sabie River supplying the hydro power buildings with water | Elev. 528m S25° 01' 58.2" E30° 59' 49.8" (at proposed weir); Elev. 537m S25° 01' 56.0" E30° 59' 51.6" (at drop of +- 40m) Fig. 16,14 & 15. |
| Earth canal (2) | Canal established by Manie Van Wyk's grandfather to channel water to cultivated fields | Elev. 559m S25° 01' 56.2" E30° 59' 53.5" Fig. 7. |

F. DISCUSSION ON THE FOOTPRINT OF THE PROPOSED DEVELOPMENT

| ACT | COMPO-NENT | IMPLICATION | RELEVANCE | COMPLIANCE |
|------------|-------------------|---|----------------------------------|--------------------|
| NHRA | S 34 | Impact on buildings and structures older than 60 years | None | None |
| NHRA | S35 | Impacts on archaeological and palaeontological heritage resources | None | None |
| NHRA | S36 | Impact on graves | None present | None |
| NHRA | S37 | Impact on public monuments | None present | None |
| NHRA | S38 | Developments requiring an HIA | Development is a listed activity | HIA done |
| NEMA | EIA regulations | Activities requiring an EIA | Development is subject to an EIA | HIA is part of EIA |

- **Summarised identification and cultural significance assessment of affected heritage resources: General issues of site and context:**

| Context | | |
|--|----|--|
| Urban environmental context | No | NA |
| Rural environmental context | No | NA |
| Natural environmental context | No | Natural riverine forest and disturbed sections |
| Formal protection (NHRA) | | |
| (S. 28) Is the property part of a protected area? | No | NA |
| (S. 31) Is the property part of a heritage area? | No | NA |
| Other | | |
| Is the property near to or visible from any protected heritage sites | No | NA |

| Context | | |
|--|----|----|
| Is the property part of a conservation area of special area in terms of the Zoning scheme? | No | NA |
| Does the site form part of a historical settlement or townscape? | No | NA |
| Does the site form part of a rural cultural landscape? | No | NA |
| Does the site form part of a natural landscape of cultural significance? | No | NA |
| Is the site adjacent to a scenic route? | No | NA |
| Is the property within or adjacent to any other area which has special environmental or heritage protection? | No | NA |
| Does the general context or any adjoining properties have cultural significance? | No | NA |

| Property features and characteristics | | |
|---|-----|--|
| Have there been any previous development impacts on the property? | Yes | Hydro power infrastructure since 1964 and a farmhouse and outbuildings built during the 1960's |
| Are there any significant landscape features on the property? | No | NA |
| Are there any sites or features of geological significance on the property? | No | NA |
| Does the property have any rocky outcrops on it? | No | NA |
| Does the property have any fresh water sources (springs, streams, rivers) on or alongside it? | Yes | Next to the Sabie River |

| Heritage resources on the property | | |
|---|----|----|
| Formal protection (NHRA) | | |
| National heritage sites (S. 27) | No | NA |
| Provincial heritage sites (S. 27) | No | NA |
| Provincial protection (S. 29) | No | NA |
| Place listed in heritage register (S. 30) | No | NA |
| General protection (NHRA) | | |
| Structures older than 60 years (S. 34) | No | NA |
| Archaeological site or material (S. 35) | No | NA |
| Palaeontological site or material (S. 35) | No | NA |
| Graves or burial grounds (S. 36) | No | NA |
| Public monuments or memorials (S. 37) | No | NA |
| Other | | |
| Any heritage resource identified in a heritage survey (author / date / grading) | No | NA |
| Any other heritage resources (describe) | No | NA |

| NHRA S (3)2 Heritage resource category | ELE- MENT S | INDICATORS OF HERITAGE SIGNIFICANCE | | | | | | | | | | RISK |
|---|----------------------------|--|------|--------------------|-------------|------------------------|---------------|-----------------------------------|--------------|-------------------------------|------------------------|-------------|
| | | Histo rical | Rare | Sci enti fic | Typi cal | Tech- nolog ical | Aes thetic | Pers on / com munit y | Land mark | Mate rial con dition | Sust aina bility | |
| | | | | | | | | | | | | |

| NHRA | ELE- | INDICATORS OF HERITAGE SIGNIFICANCE | | | | | | | | | | RISK | |
|---|-------------|--|----|----|----|----|----|----|----|----|----|-------------|---|
| Buildings / structures of cultural significance | No | No | No | No | No | No | No | No | No | No | No | No | - |
| Areas attached to oral traditions / intangible heritage | No | No | No | No | No | No | No | No | No | No | No | No | - |
| Historical settlement/ townscapes | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Landscape of cultural significance | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Geological site of scientific/ cultural importance | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Archaeological / palaeontological sites | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Grave / burial grounds | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Areas of significance related to labour history | No | - | - | - | - | - | - | - | - | - | - | - | - |
| Movable objects | No | - | - | - | - | - | - | - | - | - | - | - | - |

- Summarised recommended impact management interventions

| NHRA S (3)2 Heritage resource category | SITE | IMPACT SIGNIFICANCE | | Impact management | Motivation |
|---|-------------|---|--------------------------------|------------------------------|-------------------|
| | | Cultural significance rating | | | |
| | | Cultural significance | Impact significance | | |
| Buildings / structures of cultural significance | No | No | No | - | NA |
| Areas attached to oral traditions / intangible heritage | No | None | None | - | NA |
| Historical settlement/ townscape | No | None | None | - | NA |
| Landscape of cultural significance | No | None | None | - | NA |
| Geological site of scientific/ cultural importance | No | None | None | - | NA |
| Archaeological / palaeontological sites | No | None | None | - | NA |
| Grave / burial grounds | No | None | None | - | NA |
| Areas of significance related to labour history | No | None | None | - | NA |

| NHRA S (3)2 Heritage | SITE | IMPACT SIGNIFICANCE Cultural significance rating | | Impact management | Motivation |
|-------------------------------------|-------------|---|------|------------------------------|-------------------|
| Movable objects | No | None | None | - | - |

| ACT | COMPO- NENT | IMPLICATION | RELEVANCE | COMPLIANCE |
|------------|------------------------|---|----------------------------------|--------------------|
| NHRA | S 34 | Impact on buildings and structures older than 60 years | None present | None |
| NHRA | S35 | Impacts on archaeological and palaeontological heritage resources | None present | None |
| NHRA | S36 | Impact on graves | None present | None |
| NHRA | S37 | Impact on public monuments | None present | None |
| NHRA | S38 | Developments requiring an HIA | Development is a listed activity | Full HIA |
| NEMA | EIA regulations | Activities requiring an EIA | Development is subject to an EIA | HIA is part of EIA |

G. STATEMENT OF SIGNIFICANCE & EVALUATION OF HERITAGE RESOURCES

Section 38 of the NHRA, rates all heritage resources into National, Provincial or Local significance, and proposals in terms of the above is made for all identified heritage features.

- **Evaluation methods**

Site significance is important to establish the measure of mitigation and / or management of the resources. Sites are evaluated as *HIGH (National importance)*, *MEDIUM (Provincial importance)* or *LOW, (local importance)*, as specified in the NHRA. It is explained as follows:

- **National Heritage Resources Act**

The National Heritage Resources Act no. 25, 1999 (NHRA) aims to promote good management of the national estate, and to enable and encourage communities to conserve their legacy so that it may be bequeathed to future generations. Heritage is unique and it cannot be renewed, and contributes to

redressing past inequities.⁴⁴ It promotes previously neglected research areas.

All archaeological and other cultural heritage resources are evaluated according to the NHRA, section 3(3). A place or object is considered to be part of the national estate if it has cultural significance or other special value in terms of:

- (a) its importance in the community, or pattern of South Africa's history;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.⁴⁵

- **The significance and evaluation of the archaeological and cultural heritage features in the study area:**

No archaeological material, heritage features or graves were identified in the study area. All structures may be demolished as they are younger than 60 years and the development as proposed may continue in these sections.

H. RECOMMENDATIONS & CONCLUSION

Archaeological material or graves are not always visible during a field survey and therefore some significant material may only be revealed during preparation and other activities for the proposed development.

It is recommended that the owner be made aware that distinct archaeological material or human remains may only be revealed during the operations. Based on the survey and the findings in this report, Adansonia Heritage Consultants state that there are no reasons which may prevent the proposed development to continue as discussed in this report. All earthmoving activities must be monitored by a qualified archaeologist and should any archaeological material be found, an assessment must be done.

Adansonia Heritage Consultants cannot be held responsible for any archaeological material or graves which were not located during the survey.

⁴⁴National Heritage Resources Act, no. 25 of 1999. p. 2.

⁴⁵National Heritage Resources Act, no. 25 of 1999. pp. 12-14

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