

Heritage Impact Assessment

Heritage Impact Assessment for the Proposed Mixed-Use Development on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, in Lydenburg, Thaba Chweu Local Municipality in the Mpumalanga Province.

Compiled for:

Interdesign Landscape Architects (Pty) Ltd

On behalf of:

Reach More Lydenburg 1 (Pty) Ltd

Survey conducted & Report compiled by:

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16 January 2015

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Executive Summary

Site name and location: Proposed mixed-use development on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province.

Local Authority: Thaba Chweu Local Municipality.

Developer: Reach More Lydenburg 1 (Pty) Ltd.

Date of field work: 26 November 2014.

Date of report: 16 January 2015.

Findings: Hutten Heritage Consultants was contracted by Interdesign Landscape Architects (Pty) Ltd to conduct a Heritage Impact Assessment (HIA) on the proposed mixed-use development on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. The desktop study revealed that some stone walled structures are present on the western extent of the proposed area for development.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area. Three sites with heritage significance or value were identified during the study. Two sites consisted of Late Iron Age stone walled enclosures, terraces and structures. The third site was the remains of an old furrow which traversed the study area.

Extensive work and research were done on similar stone walled sites in the Lydenburg region over the last 60 years. These documented and researched sites were similar and most probably dated from the same time as the two sites identified during this current study. The identified sites were also exposed to some measure of damage which deteriorated their heritage value and significance.

The identified stone walled sites were most probably a part of a settlement of one of these Late Iron Age Communities who settled in the region between 1600AD and 1800AD. A lot of research was done on similar sites in the region and the sites were classified into groups regarding the complexity of the stone walling.

The identified stone walled sites will be adversely affected and therefore most probably destroyed by the proposed development. Any impact on the sites will be a transgression

of the South African Heritage Resources Act (Act 25 of 1999): The structures were more than 60 years old and is protected in Section 34 of the National Heritage Resources Act 25 of 1999, which states that “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. Considering the fact that the sites are being classified as of medium significance, it is recommended that the site be subjected to a Phase II investigation prior to any development on the proposed development site.

A Phase II investigation implies that the sites be cleared from vegetation, documented and mapped. The documentation and mapping of these sites will contribute to our understanding and knowledge of the regional distribution and settlement of these Late Iron Age Communities. A surface collection of any material is also recommended. Archaeological material retrieved from the sites must be donated to a museum and a report on the findings of the Phase II investigations must be prepared for the South African Heritage Resources Authority (SAHRA).

Archaeological test excavations are however, not recommended. Similar sites have recently been excavated and documented on the neighbouring Farm Rooidraai. Additional archaeological excavations on the identified sites will most probably not contribute very much to the existing knowledge and understanding of these sites and their inhabitants.

However, before the identified sites may be subjected to a Phase II investigation and before the sites may be destroyed by the proposed development, a permit allowing these actions have to be obtained from SAHRA by a Heritage Practitioner accredited with ASAPA.

A watching brief performed by a qualified Heritage Practitioner, is also recommended during the construction phases of the proposed development. The Heritage Practitioner can advise and guide the developer regarding unforeseen archaeological discoveries (such as possible unmarked graves) during the development process.

The furrow was identified during the desk top study from the 1:50 000 topographical map. Most of the furrow is filled up and degraded and its exact location and course are not clear. The furrow has very little heritage value or significance as it was degraded during several developments on the property. The construction of the homestead and the development of the garden mostly contributed to the filling up of the furrow. No further heritage mitigation measures or actions are required.

Prof. B. D. Millsted completed a desktop Palaeontological Impact Assessment for the proposed development. This desktop Palaeontological Impact Assessment was consulted during the compilation of this Heritage Impact Assessment

Prof. Millsted concluded that the entire project area is underlain by rocks of the Palaeoproterozoic Silverton Formation, Pretoria Group, Transvaal Supergroup. During the Palaeoproterozoic there was no known metazoan life on Earth. The only macrofossil

materials present in the South African stratigraphic sequence of this age interval are stromatolites. Stromatolites are often found in dense accumulations within carbonate sequences (dolomites) in rocks of this age. The age and non-carbonate lithology of the Silverton Formation mitigate against any fossil potential for the formation. Indeed, no fossil materials are known to occur anywhere within the Silverton Formation where ever it occurs. He therefore assessed that the palaeontological potential of the formation is as being nil and recommended that no further palaeontological mitigation measures or actions are required.

No other site-specific actions or any further heritage mitigation measures are recommended for the rest of the study area, as no other heritage resource sites or finds of any value or significance were identified in the indicated study area. The proposed mixed-use development at the indicated area can only continue if the recommendations as stipulated in this report are adhered to from a heritage point of view.

Disclaimer: *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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1. Introduction

Hutten Heritage Consultants was contracted by Interdesign Landscape Architects (Pty) Ltd. to conduct a Heritage Impact Assessment (HIA) on the proposed mixed-use development on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province. Interdesign Landscape Architects (Pty) Ltd was appointed by Reach More Lydenburg 1 (Pty) Ltd. to apply for the environmental authorization for the proposed mixed-use development.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region.

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

2. Legislative Requirements

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998

National Heritage Resources Act (NHRA) Act 25 of 1999

Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998

Basic Environmental Assessment (BEA) – Section (23)(2)(d)
Environmental Scoping Report (ESR) – Section (29)(1)(d)
Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
Environmental Management Plan (EMP) – Section (34)(b)
National Heritage Resources Act (NHRA) Act 25 of 1999
Protection of Heritage resources – Sections 34 to 36; and
Heritage Resources Management – Section 38
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
Section 39(3)
Development Facilitation Act (DFA) Act 67 of 1995
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

3. Project Area Description

The proposed mixed-use development will be situated on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province (figure 5).

The proposed site forms part of the small holding development on the southern side of the town of Lydenburg. The site is situated on a flat piece of land which is situated in between the Doringberg Spruit approximately 500m to the west and the Sterk Spruit approximately 1,2km to the north-east (figures 6 & 7).

The site is situated in between and adjacent to Berg Street on the western side and a railway line on the eastern side. Other small holdings border the site to the north and south. The central portion of the property contains several built structures. These structures include a homestead with several associated buildings (figure 1) and a series of steel-framed green houses or ‘tunnels’ which are used to grow vegetables and flowers (figure 2). Another section of the property is used as an orchard (figure 3) and other sections were previously cultivated as it seemed to have been ploughed (figure 4).

The western part of the property is mostly devoid of any trees and is covered with dense grass (figure 4). Trees are situated around the homestead in the central part of the property as well as on the far eastern extent of the property next to the railway line. The furrow as indicated on the top map does not exist anymore and was destroyed by the development of the small holdings.

The proposed development will be situated on the Lydenburg 2530 AB 1:50 000 topographical map (See figures 5 & 6).



Figure 1: View of the homestead on the property.



Figure 2: View of the series of green-houses used to grow vegetables and flowers.



Figure 3: View of the small orchard on the property.



Figure 4: View of the open flat western section of the property from the south-east.

Sterkspruit Proposed Mixed Use Development

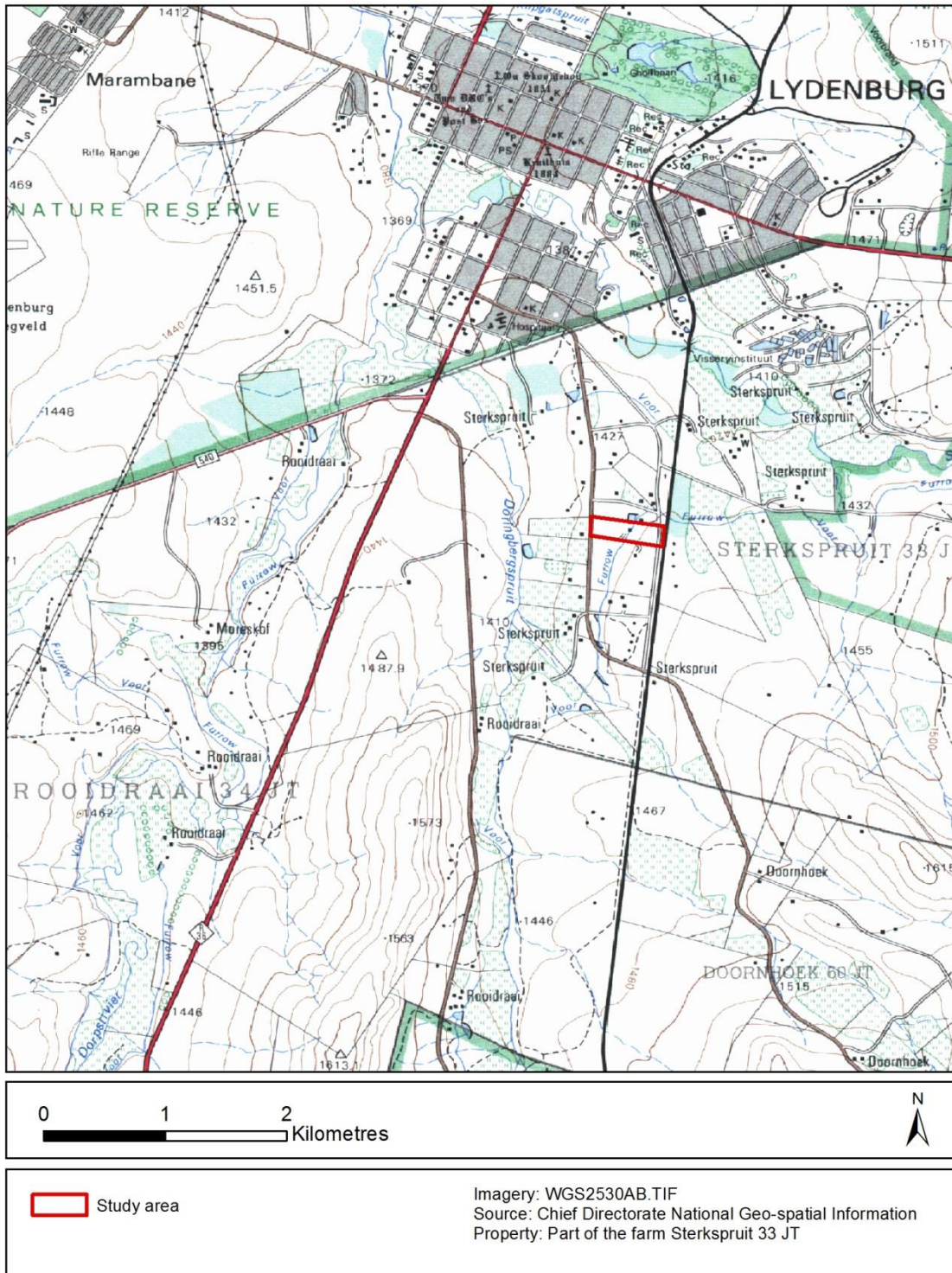
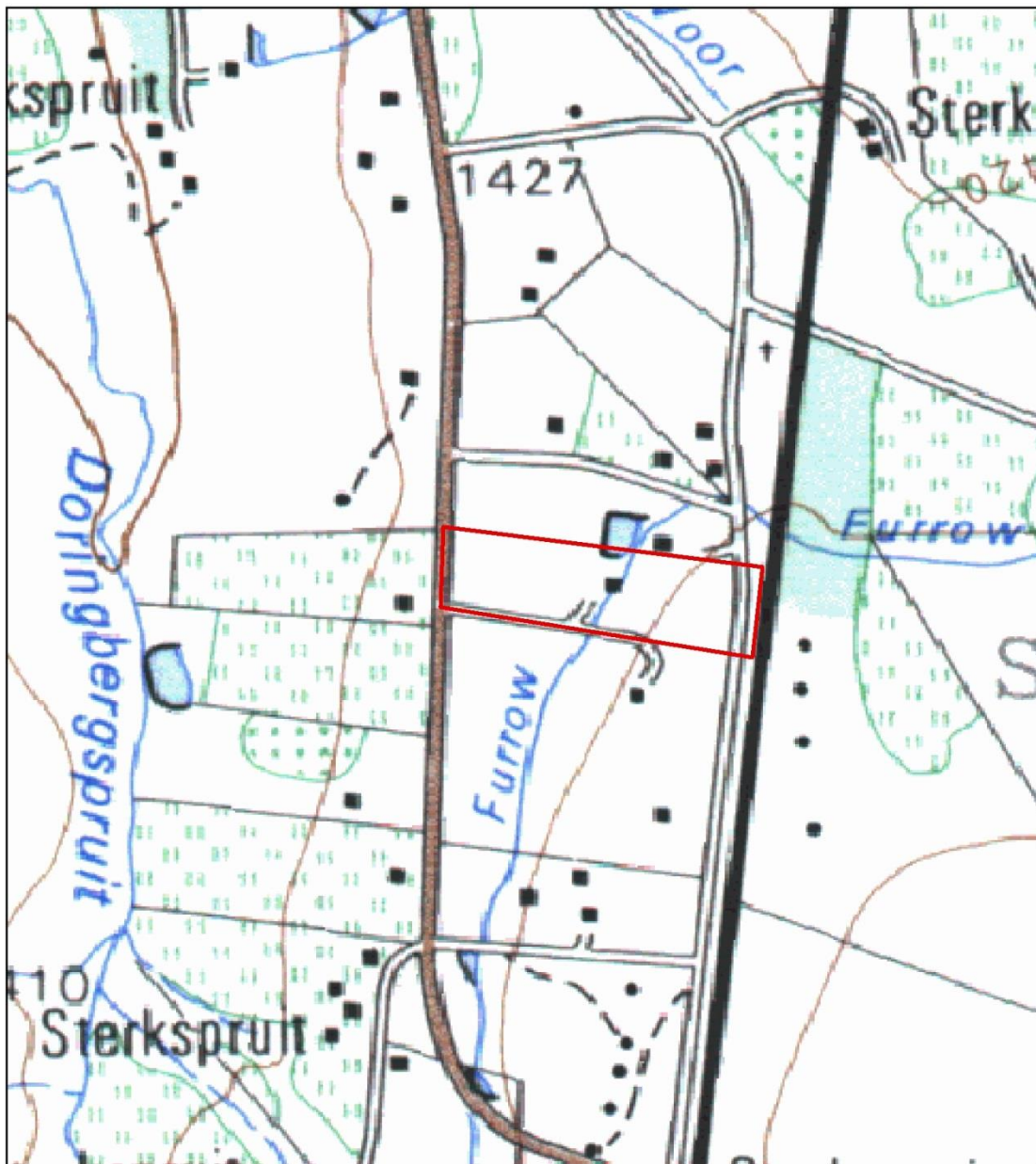


Figure 5: Topographical map of the proposed study area within the regional context.

Sterkspruit Proposed Mixed Use Development



0 0,2 0,4
Kilometres



 Study area

Imagery: WGS2530AB.TIF
Source: Chief Directorate National Geo-spatial Information
Property: Part of the farm Sterkspruit 33 JT

Figure 6: Topographical map of the proposed study area.

Sterkspruit Proposed Mixed Use Development



0 0,1 0,2
Kilometres



 Study area

Imagery: 2530A.jp2
Source: Chief Directorate National Geo-spatial Information
Property: Part of the farm Sterkspruit 33 JT

Figure 7: Close-up satellite image of the proposed study area.

4. Proposed Project

The developer, Reach More Lydenburg 1 (Pty) Ltd., has proposed a mixed-use development on the Remaining Portion of Portion 79 (a Portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province.

The proposed mixed-use development includes the following land uses:

- Residential – 210 units of $\pm 175\text{m}^2$ each;
- Offices – 4 blocks of $\pm 130\text{m}^2$ each;
- Guest House Complex – 15 units of $\pm 40\text{m}^2$ each;
- Storage facility;
- Nursery;
- Tea Garden;
- Café;
- Greenhouses;
- Admin block and gate house;
- Access roads and parking bays

All additional infra-structure such as water, electricity, sewerage and access roads will be within the perimeter of the study area. The proposed development will cover an area of approximately 8.3 hectares in size.

A proposed site development layout plan (figure 8) was provided to show the proposed land use options.

The project was tabled during November 2014 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.

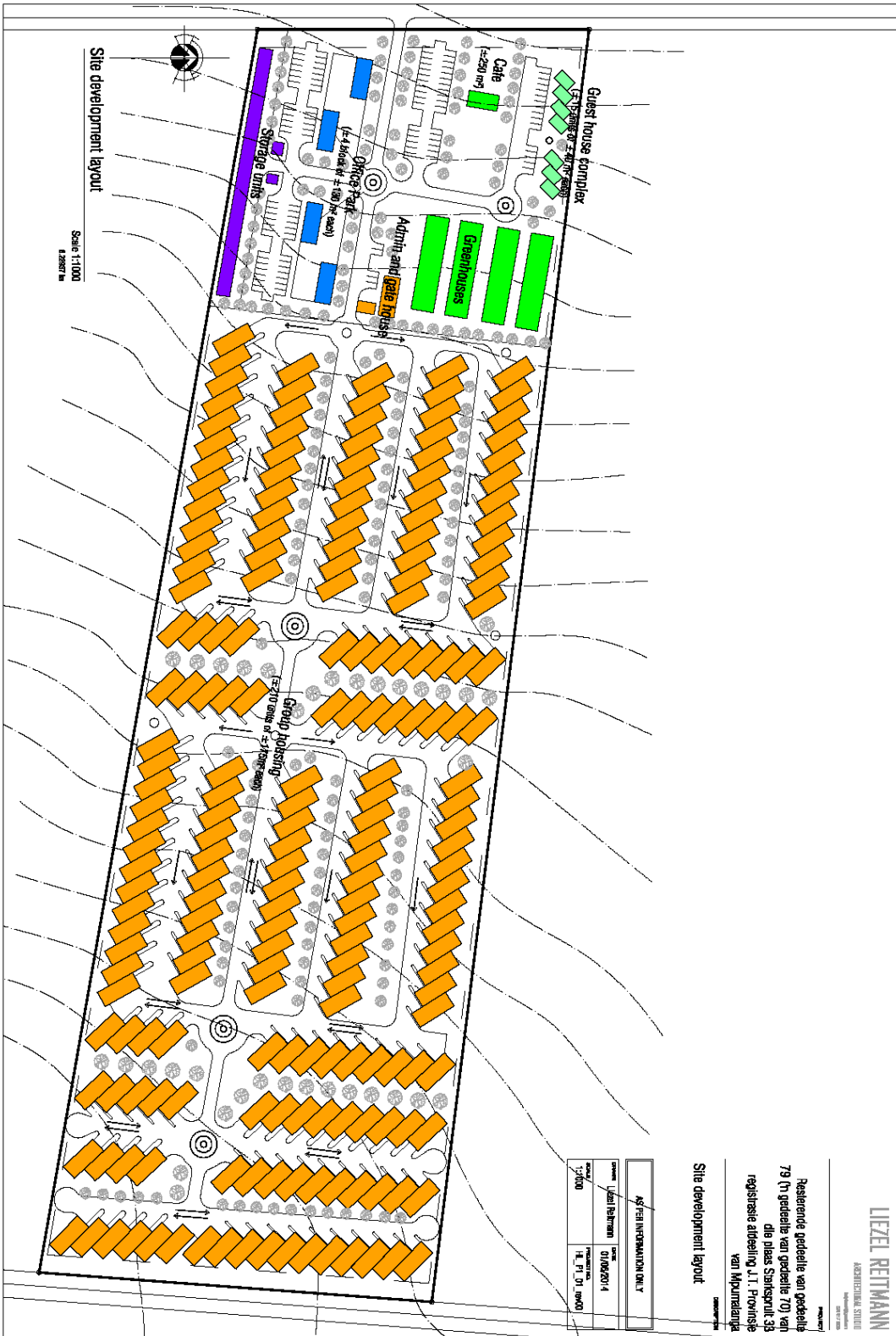


Figure 8: Proposed development layout plan (as supplied by Interdesign Landscape Architects).

5. Desktop Study Findings

The examination of heritage databases, historical data and cartographic resources represents a critical additional tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Therefore an internet literature search was conducted and relevant archaeological and historical texts were also consulted. Relevant topographic maps and satellite imagery were studied.

5.1. Previous Heritage Studies

Researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (<http://www.sahra.org.za/sahris>), it was determined that one previous archaeological study was mapped as having been carried out nearby the study area.

Celliers, J.P. 2005. **Report on Archaeological Survey on the Farm Sterkspruit in the Lydenburg District, 33 JT.** An unpublished report by Kudzala Antiquity on file as 2005-SAHRA-0322.

A number of previous archaeological or historical studies had been performed within the wider vicinity of the study area. Previous studies listed for the wider area in the APM Report Mapping Project included the following studies listed in chronological order below:

Van Schalkwyk, J.A. 2004. **Heritage Impact Assessment for the Proposed Coromandel Township Development, Lydenburg District, Mpumalanga.** An unpublished report by the National Cultural History Museum on file as 2004-SAHRA-0059.

Van Wyk, C. & Maguire, R. 2004. **Heritage Impact Assessment: Nooitgedacht Trout Lodge.** An unpublished report by Adansonia Heritage Consultants on file as 2004-SAHRA-0154.

Fourie, W. & van der Walt, J. 2005. **Heritage Impact Assessment on the Proposed Lydenburg Extension 38 Development on the Farm Lydenburg 31 JT, Mpumalanga Province.** An unpublished report by Matakoma Heritage Consultants (Pty) Ltd on file as 2005-SAHRA-0121.

Celliers, J.P. 2005. **Report on Archaeological Survey on the Farm Sterkspruit in the Lydenburg District, 33 JT.** An unpublished report by Kudzala Antiquity on file as 2005-SAHRA-0322.

Birkholtz, P.D. 2006a. **Phase 1 Heritage Impact Assessment for the Morning Tide Development Complex, Morning Tide Power Line and Abrina Residential Development-Sterkspruit 33 JT.** An unpublished report by Archaeology Africa CC on file as 2006-SAHRA-0151.

Birkholtz, P.D. 2006b. **Phase 1 Heritage Impact Assessment for the Morning Tide Development Complex, Morning Tide Power Line and Abrina Residential Development - Rooidraai 34 JT.** An unpublished report by Archaeology Africa CC on file as 2006-SAHRA-0152.

Küsel, U. 2006. **Cultural Heritage Resources Impact Assessment for the Proposed Development on the Farms Buffelskloof 382 JT, Waterval 385 JT. Roodewaalshoek 17 JT, Naauwpoort 11 JT and Belvedere 385 KT Mpumalanga Province.** An unpublished report by African Heritage Consultants CC on file as 2006-SAHRA-0341.

Roodt, F. 2006. **Phase 1 Heritage Resources Impact Assessment (Scoping & Evaluation) Sterkspruit 33 JT Plot 58 Lydenburg, Mpumalanga.** An unpublished report by R & R Cultural Resource Consultants on file as 2006-SAHRA-0356.

Küsel, U. 2006. **Cultural Heritage Resources Impact Assessment of the Development Site on the Corner of Ruiter and Morgan Streets Lydenburg Mpumalanga.** An unpublished report by African Heritage Consultants CC on file as 2006-SAHRA-0368.

Van Schalkwyk, J.A. 2006. **Heritage Impact Assessment: Spitskop 65 KT.** An unpublished report by the National Cultural History Museum on file as 2006-SAHRA-0411.

Fourie, W. 2006. **Archaeological Impact Assessment Erf 191, Lydenburg, Mpumalanga Province.** An unpublished report by Matakoma Heritage Consultants (Pty) Ltd on file as 2006-SAHRA-0431.

Roodt, F. 2007. **Heritage Resources Impact Assessment: EIA Application: A New Dam Wall at Whiskey Creek Trout Farm: Thaba Chweu Local Municipality. Letter of Recommendation for Exemption.** An unpublished report by R & R Cultural Resource Consultants on file as 2007-SAHRA-0175.

Celliers, J.P. 2007. **Phase 1 Heritage Impact Assessment for the Proposed Town Development, Lydenburg Extension 6.** An unpublished report by the Lydenburg Museum on file as 2007-SAHRA-0231.

Van der Walt, J. 2007. **Heritage Impact Assessment Proposed Industrial Development on Portions 136, 39 and 59 of the Farm Lydenburg 31 JT, (Registration O: 2002/008461/07) Thaba Chweu.** An unpublished report by Matakoma Heritage Consultants (Pty) Ltd on file as 2007-SAHRA-0348.

Van Schalkwyk, J.A. 2008. **Heritage Impact Survey for the Proposed Misty Creek Lodge and Housing Estate to Be Developed on the Farm Paardeplaats 154 JT, Lydenburg Magisterial District Mpumalanga.** An unpublished report by Heritage Consultants on file as 2008-SAHRA-0008.

Birkholtz, P.D. 2008. **Phase 1 Heritage Impact Assessment on Portion 18 (A Portion of Portion 7) of the Farm Rooidraai 34 JT, in the Vicinity of Lydenburg, Mpumalanga.** An unpublished report by Archaeology Africa CC on file as 2008-SAHRA-0289.

Researching the SAHRIS online database (<http://www.sahra.org.za/sahris> accessed 4th December 2014) further studies were identified in the wider vicinity of the study area and are listed by case number in numerical order below:

SAHRIS case number 581. 2012. **The establishment of a telecommunication mast – 9671 Mauchsberg North.**

SAHRIS case number 783. 2012. **Heritage assessment for the Klingbiel Hotel Project, Lydenburg, Mpumalanga.**

SAHRIS case number 1808. 2013. **Residential Development Plot 74 Lydenburg, Mpumalanga.**

SAHRIS case number 2935. 2013. **Basic Assessment and Environmental Management Programme: Construction of a 132KV distribution line from the existing Lydenburg substation and the existing Merensky Substation: Limpopo and Mpumalanga Province.**

SAHRIS case number 3818. Undated. **Proposed application for Environmental Authorisation: an activity listed in government notice R548 associated with the erection of a Cell C Telecommunication mast on Portion 13 of the Farm Schaapkraal 68 JT, Thaba Chweu Local Municipality, Mpumalanga Province.**

SAHRIS case number 5028. Un-dated. **Working for Wetlands Rehabilitation Programme, Mpumalanga: Draft Basic Assessment.**

In addition another 2014 study was located within a kilometre to the west of the current study area:

Pelser, A.J., 2014. **A report on the first phase of archaeological investigations of Late Iron Age stone-walled sites located on Portion 7 of the farm Rooidraai 34 JY to be impacted by commercial and residential developments: sites RDR7 And 1C Lydenburg, Mpumalanga.** An unpublished report by A.Pelser Archaeological Consulting.

The modern town of Lydenburg and its environs have a rich history dating from the Early Iron Age through to the historical period. While the study mapped as overlapping the current study area located only one site made up of graves (Celliers 2005), most studies noted a significant number of heritage sites, although some small scale studies located no heritage resources (Fourie 2006; Roodt 2007; Van Schalkwyk 2006; Van Schalkwyk 2008; SAHRIS case number 783) and only a few studies noted Stone Age artefacts and

rock art from the area (e.g. SAHRIS case number 2935). Some more recent studies had no heritage reports available (e.g. SAHRIS case number 581; SAHRIS case number 5028).

Approximately a kilometre to the west of the current study area Pelser (2014) undertook excavations of Late Iron Age stone walled settlement sites, all three types of so-called Badfontein walling were present (simple enclosures; complex enclosures; and agglomerations of small circles). These sites were originally identified by Birkholtz (2006) and included rock engravings and were mapped/documentated in 2013 by Christine Van Wyk-Rowe. Pelser conducted two excavations (one on RDR7 and one on RDR1C) and little cultural material were recovered which included pottery, bone and stone objects (Pelser 2014). Pelser (2014) also noted that the circular enclosures and features excavated were not as complex as other sites in the vicinity and accompanied by terracing indicating that these sites might have been utilized for agriculture and not settlement.

A large number of studies noted the 1960s excavation of the 500 A.D. Lydenburg Heads, Early Iron Age terracotta masks from the same property as the current study (e.g. Roodt 2006) and the majority of studies in the vicinity of Lydenburg noted the presence of a large number of Iron Age stone-walling (e.g. Birkholtz 2006a; Birkholtz 2006b; Roodt 2006; Van der Walt 2007; SAHRIS case number 2935) and historical features including houses (e.g. Roodt 2006; SAHRIS case number 2935), old wagon routes (e.g. Birkholtz 2006b; Van der Walt 2007), graveyards (e.g. Küsel 2006) and infrastructure (e.g. Van Wyk and Maguire 2004; SAHRIS case number 2935). A number of studies referred to wagon routes, forts and military posts in the near vicinity of the current study area that are indicated on the map sheet Lydenburg (National Archives, Maps, 3/571) of the Major Jackson Map Series compiled in the Anglo Boer War (e.g. Birkholtz 2006b; Birkholtz 2008; Van der Walt 2007).

Birkholtz (2006a) undertook a survey approximately one kilometre to the west and across of the Doringberg Spruit of the current study area where he noted a Late Iron Age site of high significance, the possible location of an Anglo-Boer War military post and rock engravings dating to the Late Iron Age. He further noted that other Iron Age sites known from the vicinity were originally covered by a deep colluvium of 0.5 metre to 1 metre, being discovered only after construction had begun, with significance for mitigation measures (Birkholtz 2006a). In a study on Rooddraai 34 JY immediately to the west of the current study Birkholtz (2006b) located 23 Iron Age sites, most of which were thought to be Late Iron Age and noted the presence of two Early Iron Age sites in the Gustav Klingbiel Nature Reserve some three kilometres to the north east of the current study area. He also noted the presence historical features including the old Machadodorp and Dullstroom roads, a British fort (Fort Howard) and a British position (Montreal Post). Celliers (2007) noted the presence of another two military posts, Strathcoma post to the west of the current study area and Paardeplaats post a short distance to the north.

A survey some 15 kilometres to the south west noted that possible Late Iron Age stone walling had been dismantled historically for building material and this study also mentioned the presence of graves dating from both the Anglo-Boer War and those of

Italian prisoners from the Second World War (Van Scahlkwyk 2004). A survey approximately 10 kilometres to the north east for a lodge development located extensive Iron Age stone walling and terraces as well as structures and machinery dating to the historical gold mining period (Van Wyk and Maguire 2004). Of note is that the stone-walled sites of the eastern escarpment are known for their Iron Age rock engravings, some of which were recently relocated from a development to the west of the current study area to the care of the Lydenburg Museum (Celliers 2013).

5.2. Archaeological & Historical Sequence

The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

The Lydenburg area has substantial heritage resources and must be considered a cultural landscape (Pistorius 2005) of remains dating from the Stone Age through the extensive settlements of the Iron Age and into the historical period when Lydenburg was established as one of the first Voortrekker towns in northern South Africa.

The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

Stone Age sites

The Stone Age is divided into the Early; Middle and Late Stone Age. The *Early Stone Age* (ESA) includes the period from 2.5 million years B.P. to 250 000 years B.P. and is associated with Australopithecines and early *Homo* species who practiced stone tool industries such as the Oldowan and Acheullian. The *Middle Stone Age* (MSA) covers various tool industries, for example the Howiesons Poort industry, in the period from 250 000 years B.P. to 25 000 years B.P. and is associated with archaic and modern *Homo sapiens*. The *Late Stone Age* (LSA) incorporates the period from 25 000 years B.P. up to the Iron Age and Historical Periods and contact between hunter-gatherers and Iron Age farmers or European colonists. This period is associated with modern humans and characterised by lithic tool industries such as Smithfield and Robberg.

Excavations at several well-known sites in the region attest to ESA occupation, for example at Makapansgat to the north of the study area which provided evidence of long occupation, initially by *Australopithecus africanus* from approximately 3.3 million years B.P. (Bergh 1999). Bushman Rock Shelter to the north has yielded evidence of a long history of occupation characteristic of the MSA between 40,000 and 27,000 B.P. and subsequently the LSA and dating from circa 13,000 B.P. to 8,500 B.P. (Plug 1981; Pistorius undated). Rock paintings at this site are further evidence of LSA occupation of the area (Louw 1969). Studies by the University of South Africa in around Maleoskop have identified five Stone Age sites on the farms Rietkloof 166 JS and Loskop Suid 53 JS characterised by the presence of large quantities of ESA and MSA stone tools (Boshoff et

al. undated), one of only a few localities on the eastern escarpment where Olduwan and Acheulian stone tools have been found (Pistorius undated).

Iron Age

The Iron Age incorporates the arrival and settlement of Bantu speaking people and overlaps the Pre-Historic and Historical Periods. It can be divided into three phases. The *Early Iron Age* includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The *Middle Iron Age* spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The *Late Iron Age* is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

Significant numbers of stone-walled archaeological sites dated to the Late Iron Age (circa A.D. 1640 – A.D. 1830s) are known from the region of Lydenburg (e.g. Mason 1968; Evers 1975; Marker & Evers 1976). A 1968 survey of aerial photographs by Mason (1968) documented the presence of 1 792 Iron Age settlements in the drainage basins of the Steelpoort, Sabi, Crocodile and Komati Rivers although the modification of the techniques used indicated that this was likely an underestimate (Evers 1975). Stone-walling in the eastern Mpumalanga escarpment connects a contiguous area, Bokoni, estimated at over 10,000 square kilometres in a network of towns, agricultural terraces and roads (Delius & Schoeman 2010) associated with engravings (Mbewe 2007).

The well-known site at Sterkspruit (Sterkspruit 66/72), on the same property as the current study area, yielded the internationally famous Lydenburg Heads dated to the Early Iron Age circa 500 A.D. (Von Bezing & Inskeep 1966; Evers 1975). Evers (1975) presents archaeological and anthropological evidence for the contemporaneity of both Early Iron Age and second millennium Iron Age sites on the Escarpment and in the lowveld. Lowveld sites such as Harmony and Eiland contain Lydenburg ceramics and equally the site at Sterkspruit has typical lowveld Early Iron Age ceramics (Evers 1975).

The stone walled enclosures of the region (together with Iron Age terracing and cattle paths) have attracted considerable research documenting inner enclosures which would possibly have been cattle kraals and an area between the inner and outer walling used for huts (Marker & Evers 1976; Collett, 1982). More complex enclosures with large areas and opposed entrances have also been documented (Marker & Evers 1976).

Late Iron Age peoples and the Historical Period

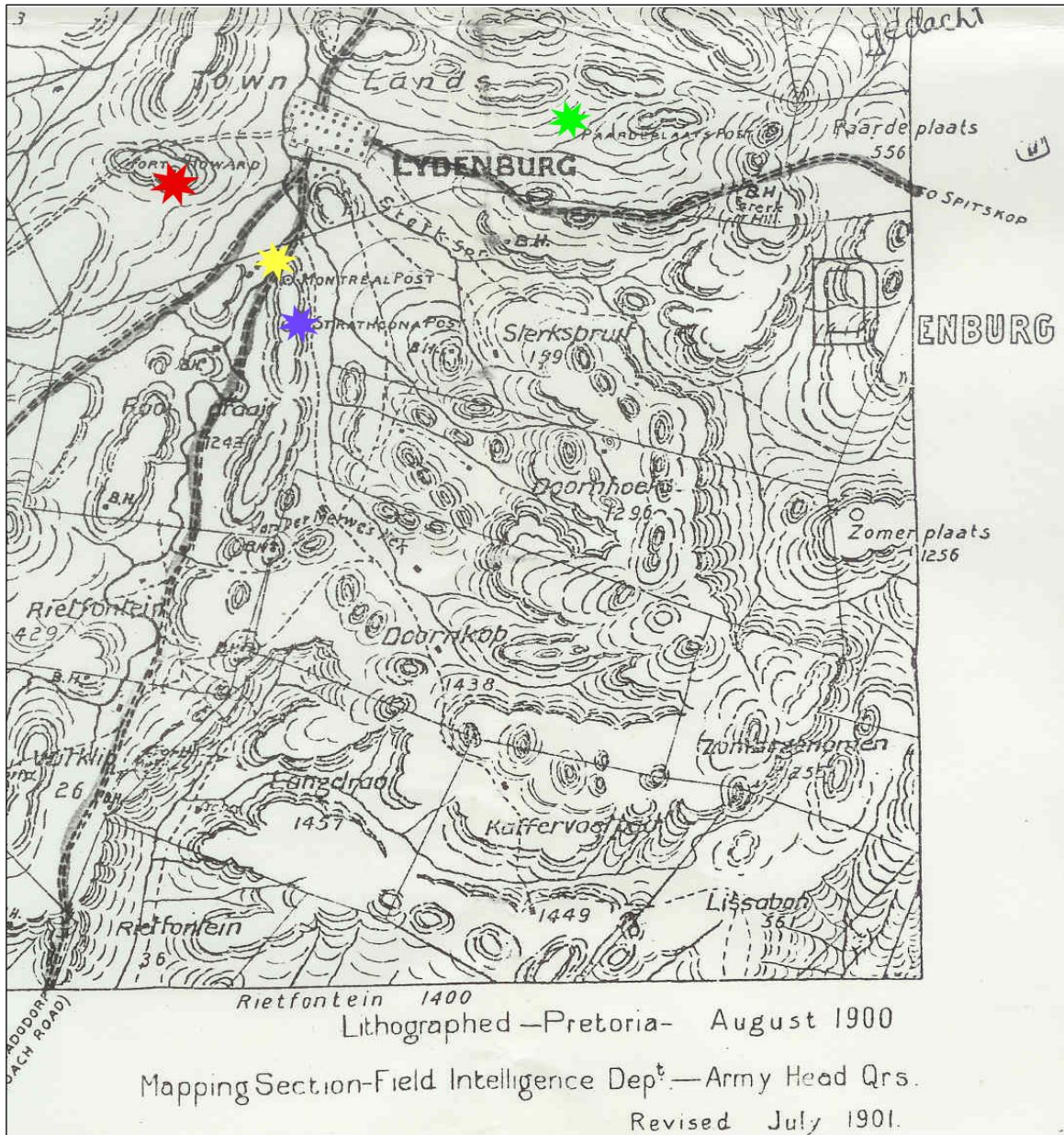
The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. A number of Late Iron Age peoples were settled in the wider region at the beginning of the nineteenth century including the Pedi, Roka, Koni and Tau (Bergh 1999). According to Schoeman (1997), when the BaPedi settled in the Sekhukhuneland region (their heartland being located in the area between the Olifants and Steelpoort Rivers) during the second half of the 17th century they encountered a number of groups such as the Kwena, Roka, Koni and Tau who had preceded them. The 1820s saw the arrival of the Khumalo

Ndebele of Mzilikazi in the region and during their short residence in the area they attacked the Koni of Makopole in the vicinity of present-day Lydenburg, before attacking the BaPedi of Maroteng during 1822 during which the Pedi paramount leader Phetedi as well as most of his brothers were killed (Mönnig 1967; Bergh 1999). More recent research has suggested fluidity between groups and non-ethnic group identity in the Koni-Pedi history (Delius & Schoeman 2010).

The 1830's saw the arrival of Voortrekkers in the area under the leadership of Andries Hendrik Potgieter and it is estimated that by August 1845 there were already a thousand settlers resident, precipitating the development of the town of Ohrigstad. However, Ohrigstad rapidly declined as a result of discord between the habitants, malaria and poor trade opportunities with Delagoa Bay and in 1849 the Volksraad in Potchefstroom decided that a new town, 'Leidenburg' was to be established in a more healthy area to the south (Bulpin 1958). Following the demise of Ohrigstad, the town of Lydenburg was established in 1849, the Lydenburg District being proclaimed a Republic in 1856 (Duvenage 1966). According to Boshoff et al. (2001), by the time of the establishment of Lydenburg the area between this town and Pretoria was predominantly settled by the Ba-Kopa of Boloeu, the Ndzundza-Ndebeles of Mabhogo and the Pedi of Sekhukune. The latter's battles firstly with the ZAR and, after its annexation, with British forces are a principle component of the area's history (Smith 1969). Relationships between the Ba-Kopa, other tribes and European settlers in the area were particularly complex in the middle of the 19th Century and the political situation in the area was far from stable and in response to persistent cattle raiding by the Ba-Kopa the Lydenburg Republic dispatched a commando to the area in 1863 which unsuccessfully attacked the settlement at Maleoskop (Boshoff et al. 2001).

The town of Middelburg to the west of the study area is also one of the oldest settler towns established in the region, founded in 1859, and so named because of its position between Lydenburg and Pretoria. The history of this town and the region is inextricably linked with the development of the coal mining industry as by 1899 there were already four operational collieries in the vicinity (Pistorius undated) while the Lydenburg region is well known for the historical mining of its gold deposits that were first discovered during the early days of the 20th century (Cartwright 1973). Middelburg also played an important part in the Anglo-Boer War which ravaged the region, providing a Boer commando before the town was abandoned at the approach of British forces for which it became a supply base and a location for concentration camps.

According to the Major H.M. Jackson Series map of 1900 there are a number of locations indicated as military posts around Lydenburg. These include Fort Howard, Montreal Post, Strathcona Post and Paardeplaats Post. The Montreal Post and Strathcona Post were under command of the Royal Canadians or Strathcona's Horse who were allies with the British Forces. Fort Howard and Paardeplaats Post were established by the British Forces who occupied the town. The diaries of Speyer (1902) and Harmen (1900) describe day to day military activities around Fort Howard and the nature of activity at this fort. This is evidence of the significance of the fort's location as a military centre in the Lydenburg area (Celliers, 2007).



-  **Montreal Post**
-  **Ford Howard**
-  **Strathcona Post**
-  **Paardeplaats Post**

Figure 9: A copy of the map compiled by the Surveyor General's Office under direction of Major H.M. Jackson, August 1900. Third revised edition: Feb 1902. Obtained from the Lydenburg Museum Archives (Celliers, 2007).

The town was also the venue for the abortive 1901 peace talks between Lord Kitchener and General Louis Botha (Pakenham 1979). Lydenburg itself surrendered to British forces in 1900 with a battle fought two days later at Paardeplaats a short distance to the north of the study area, the town remaining in British hands throughout the war and the road link between Lydenburg and Machadodorp seen as highly strategic with a series of forts constructed to guard against Boer attacks (Doyle 1902).

5.3. Cartographic Evidence

A furrow is indicated on the 1:50 000 topographic map. This furrow crosses the central parts of the property from the south to the north. It is indicated to pass on the eastern side of the homestead. No other references regarding this furrow were found during the literature study. The origin and age of the furrow is unknown.

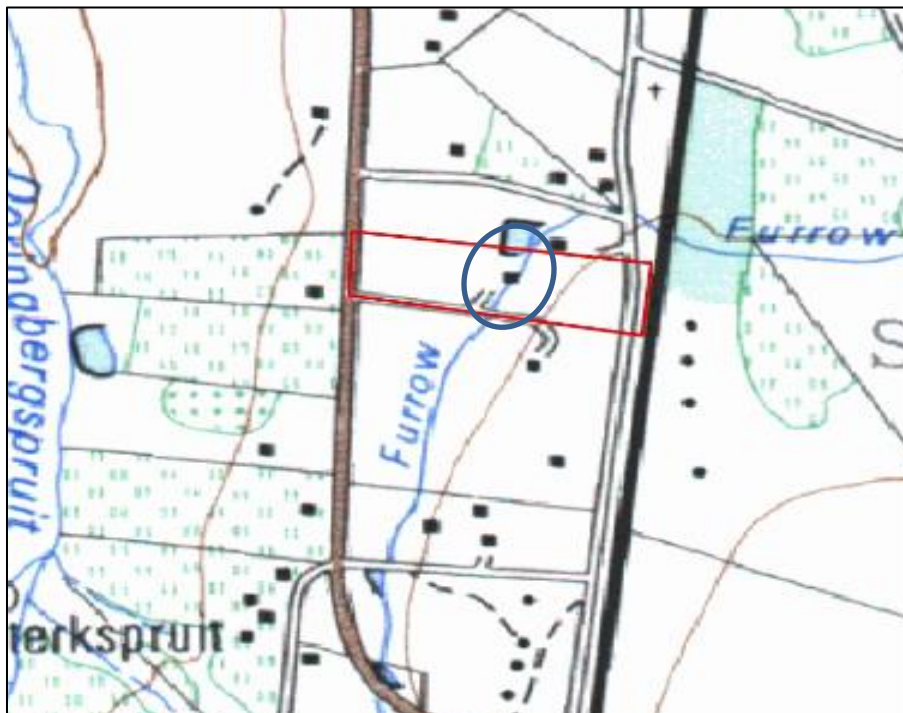


Figure 10: Location of the furrow across the property.

5.4. Palaeontology

The SAHRIS online database (<http://www.sahra.org.za/sahris>) was accessed and the Palaeontological Sensitivity Map was consulted. This map is colour coded to indicate the varied palaeontological sensitivities across the country. The following guidelines/recommendations are provided in the table below regarding the palaeontological sensitivity for each identified colour.

PalaeoSensitivity Map Action Guideline.

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

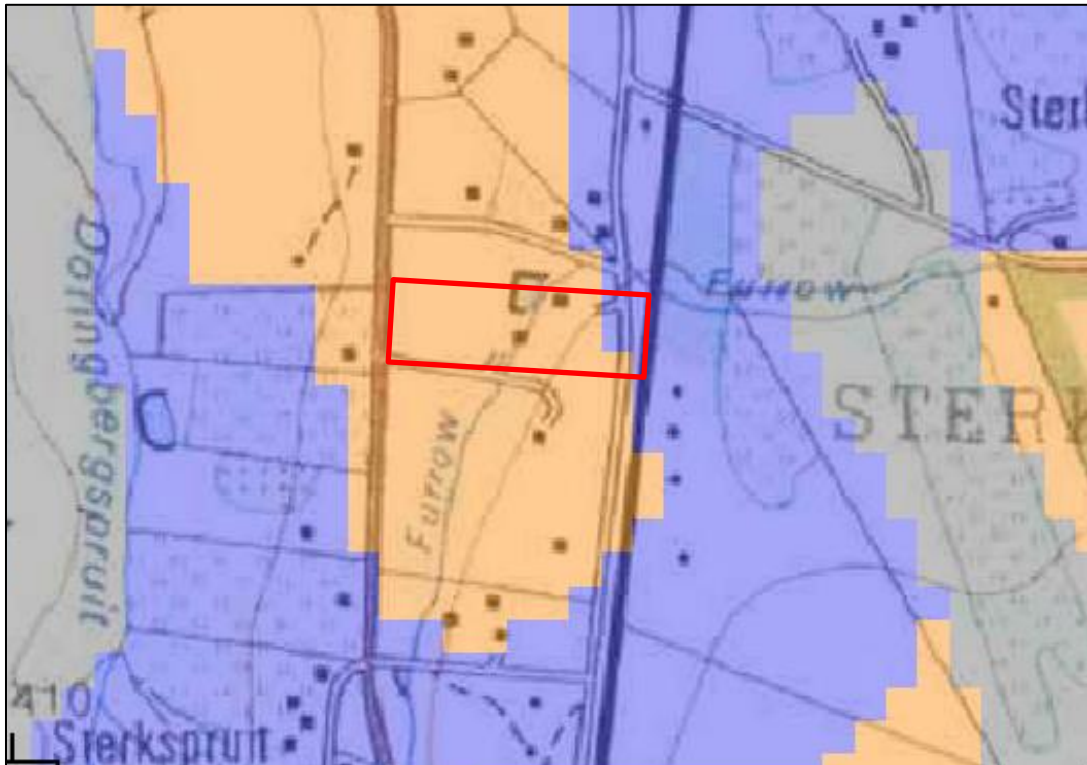


Figure 11: Palaeontological Sensitivity Map of the study area (Sahris Palaeosensitivity Map).

It was found that the palaeontological sensitivity for the study area is HIGH and that a palaeontological desktop study is required.

Prof. B. D. Millstead completed a desktop Palaeontological Impact Assessment (Millstead, 2014) for the proposed development. This desktop Palaeontological Impact Assessment was consulted during the compilation of this Heritage Impact Assessment.

The following is an excerpt from that study:

“ 6 GEOLOGY AND FOSSIL POTENTIAL

Figure 2 shows that the entire project area is underlain by rocks of the Palaeoproterozoic Silverton Formation, Pretoria Group, Transvaal Supergroup. A summary of the characteristics the Silverton Formation its fossiliferous potential follows.

6.1 Silverton Formation, Transvaal Supergroup

6.1.1 Geology

The Palaeoproterozoic shales of the Silverton Formation reflect a period of higher sea levels than those which existed during the deposition of the underlying sandstone rich Daspoort Formation. They were deposited during later stages of an advance of an epi-eric sea onto the Kaapvaal Craton with the associated deepening of sea levels (Eriksson *et al.*, 2006).

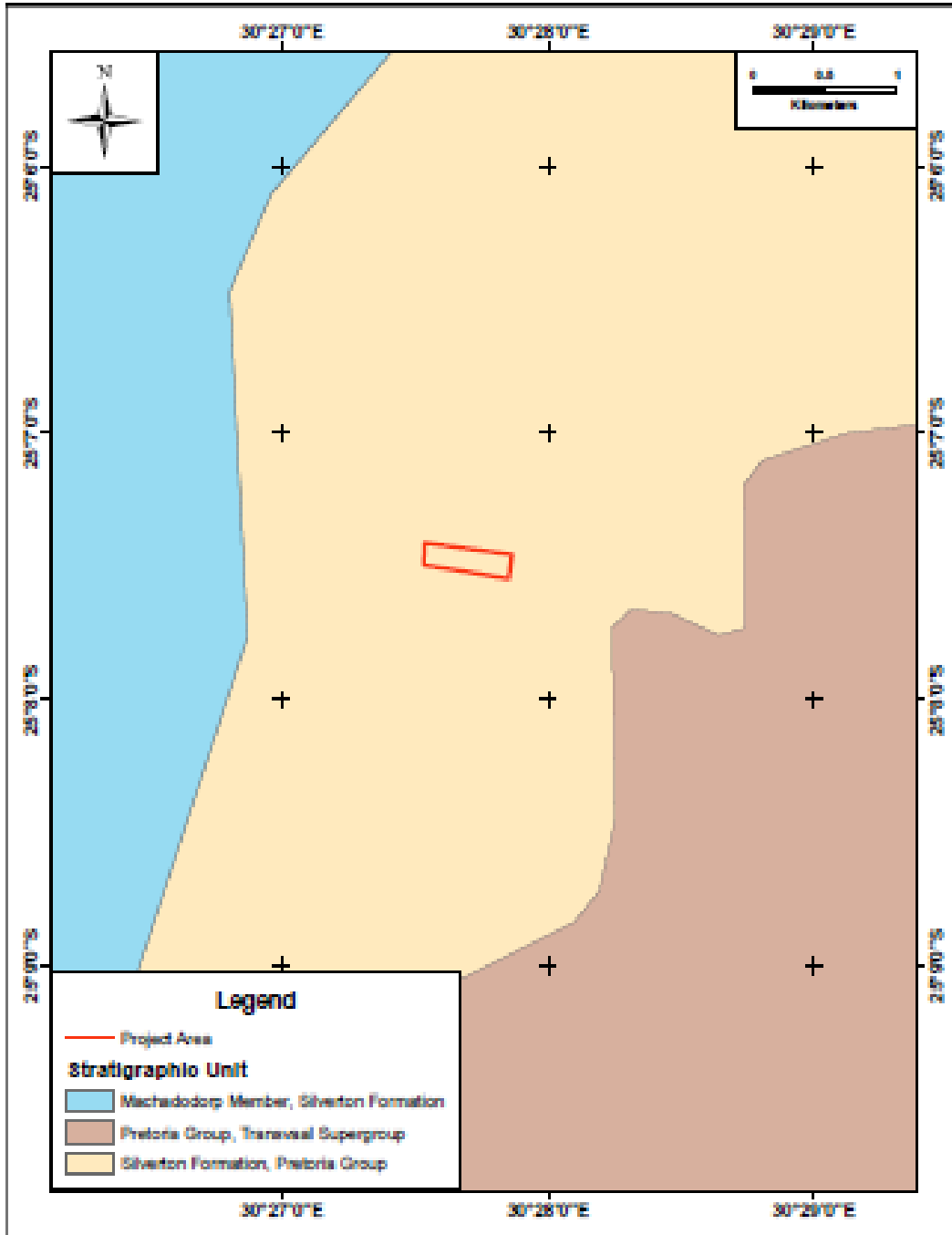


Figure 2: Simplified geological map of the area underlying proposed Sterkspruit mixed-use development the project area and its immediate environs.

6.1.2 Palaeontological potential

During the Palaeoproterozoic there was no known metazoan life on Earth. The only macrofossil materials present in the South African stratigraphic sequence of this age interval are stromatolites. Stromatolites are often found in dense accumulations within

carbonate sequences (dolomites) in rocks of this age. The age and non-carbonate lithology of the Silverton Formation mitigate against any fossil potential for the formation. Indeed, no fossil materials are known to occur anywhere within the Silverton Formation where ever it occurs. The palaeontological potential of the formation is accordingly assessed as being nil.”

6. Assessment Criteria

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

6.1. Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<i>FIELD RATING</i>	<i>GRADE</i>	<i>SIGNIFICANCE</i>	<i>RECOMMENDED MITIGATION</i>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally	Grade	Medium	Recording before

Protected (GP.B)	B	4B	Significance	destruction
Generally Protected (GP.C)	C	Grade 4C	Low Significance	Destruction

6.2. Impact Rating:

Low or No Significance:

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

Moderate Significance:

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.

High Significance:

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

6.3. Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

6.4. Duration

SHORT TERM: 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

6.5. Mitigation

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

7. Methodology

7.1. Physical Survey

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was conducted on foot over the entire area proposed for development. Priority was placed on the undisturbed areas. A systematic inspection of the area on foot along linear transects resulted in the maximum coverage of the proposed area. The author and two experienced field workers, transected the study area in parallel transects of approximately 30m between them. The field work was conducted on 26 November 2014 and most of the day was spent on the survey, which was performed by M. Hutten and field workers T. Mulaudzi and E. Khorommbi. The survey focused on the indicated study area as provided by the developer where the proposed development will be situated. Areas outside of the indicated study area were not surveyed.

7.2. Interviews

The owner of the property, Mr. Ryk Greeff, was questioned during the survey and he indicated that he was aware of some stone walled enclosures on the property, but indicated that he did not know their origin or function.

7.3. Restrictions

Dense grass cover, after some good rains, restricted surface visibility in certain areas.

7.4. Documentation

All sites/findspots if any located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/findspots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly. The track logs and identified sites are depicted on the following map and satellite image.

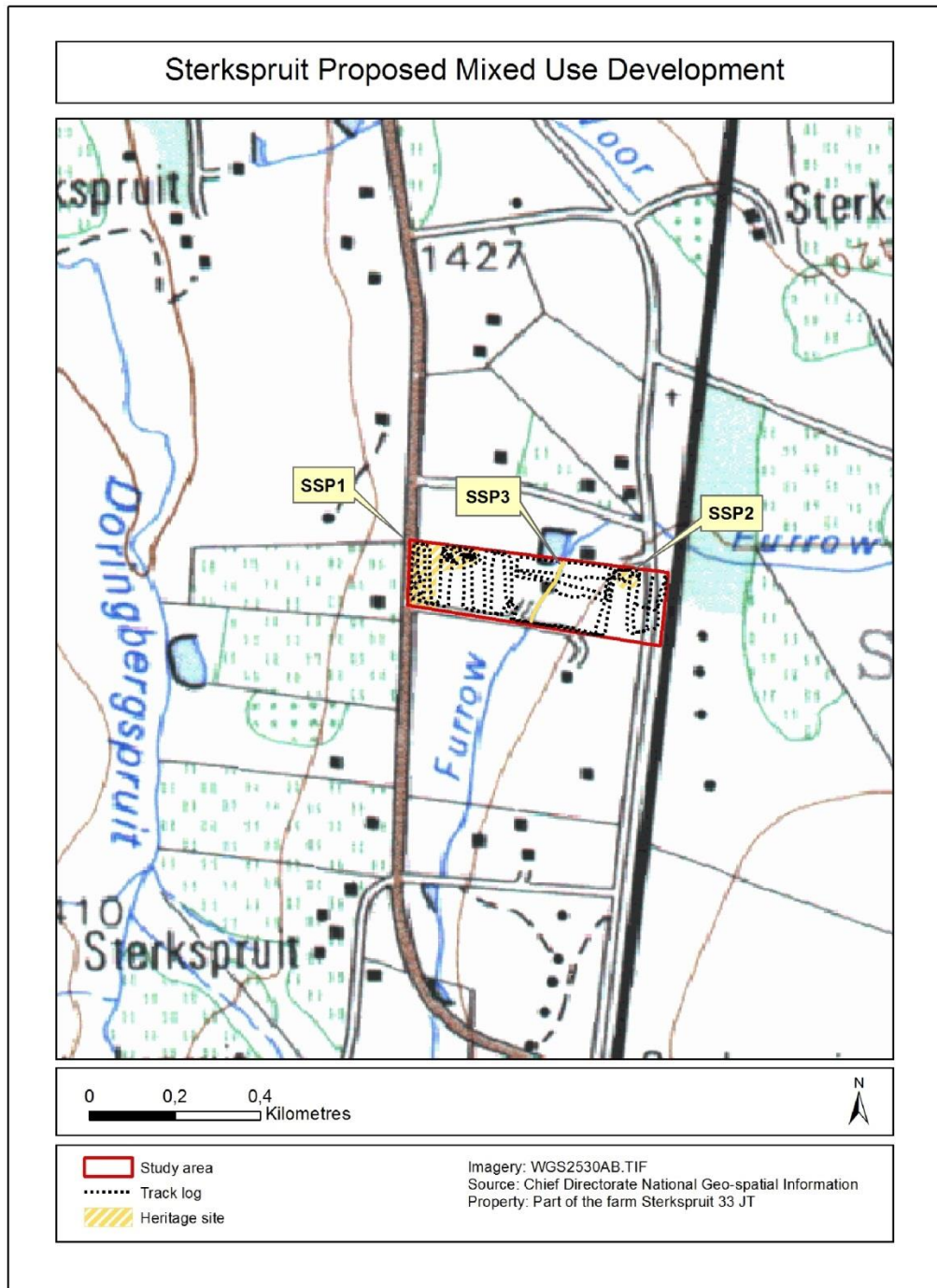


Figure 12: Topographic map of the study area with the track logs and the identified heritage sites.

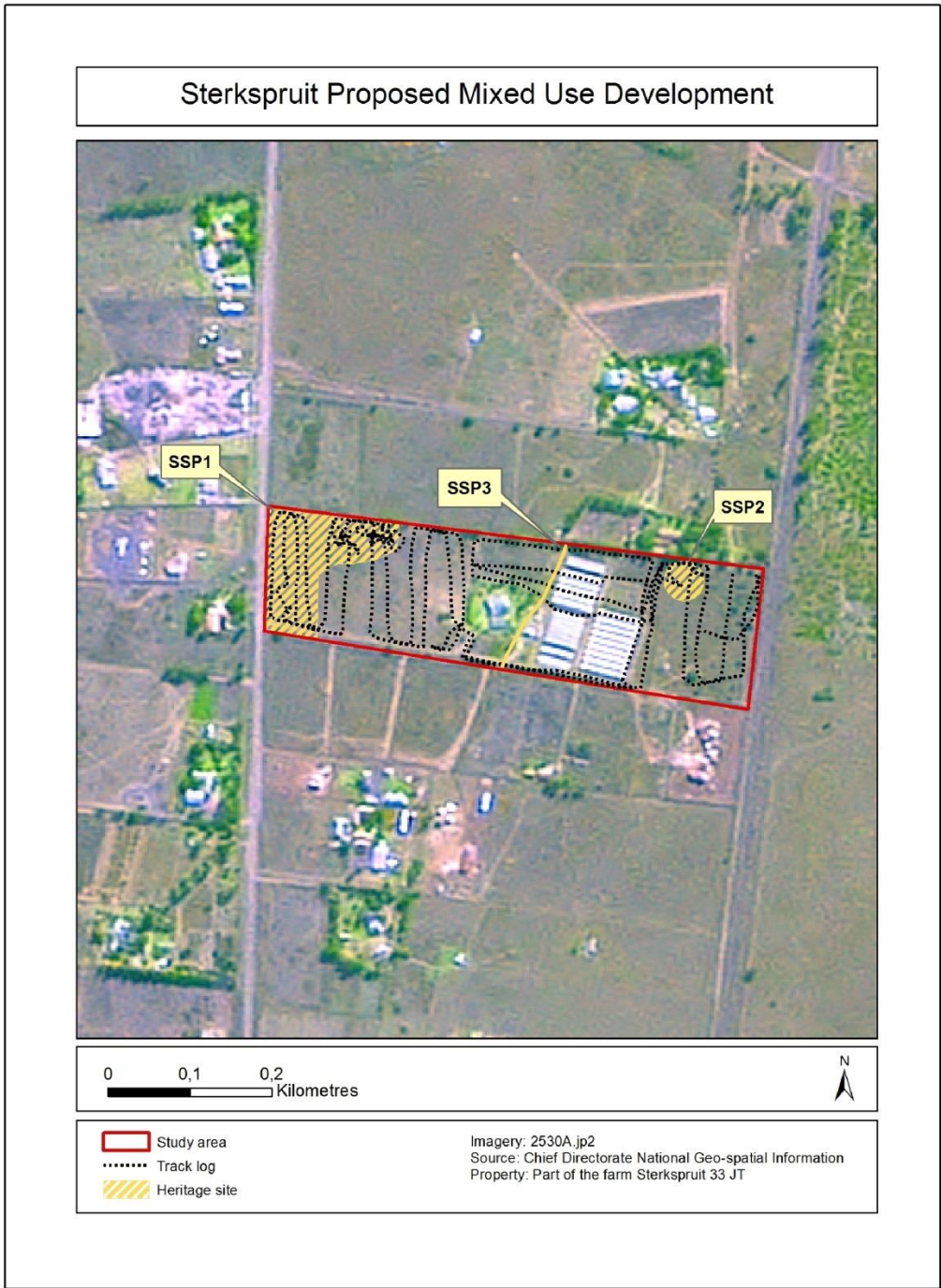


Figure 13: Satellite image of the study area with the track logs and the identified heritage sites.

8. Assessment of Sites and Finds

This section contains the results of the heritage site/find assessment.

Three sites of heritage significance were identified. The sites were given an abbreviated name of SSP (Sterk Spruit) and were numbered SSP 001, SSP 002 and SSP 003 respectively. The identified heritage sites will be discussed below:

Sterkspruit Mixed-use Development

8.1. Site SSP 001:

GPS: 25° 07' 29.1" S
30° 27' 33.1" E

An extended stone walled complex was identified at this location (figure 14). The stone walled complex is situated on the western extreme of the property and study area (figure 15). It covers approximately 1.5 hectares on that side of the property. The identified site consists of several stone walled enclosures (figure 16), terraces (figure 17) and possible cattle tracks. Some of the enclosures are connected and together they form an extended, continuous site. The walls are in a dilapidated state and are low and are covered with grass and other vegetation (figure 18), which makes them difficult to identify. The walls were also damaged to an extent as previous ploughing activities (fields) were also identified nearby the walls. The walls look like low mounds of discarded rocks (figure 19), but they are continuous and do form patterns and shapes (enclosures, terraces and perimeter walls). No artefacts or any other finds were found in association with the stone walls.

It seemed as the stone walls continued into the neighbouring properties, but this was not investigated as we did not have permission to enter these properties.



Figure 14: View of some of the identified low stone walls.



Figure 15: General view of the western extent of the study area with the stone walls.



Figure 16: View of one of the smaller stone walled enclosures.



Figure 17: View of some of the terrace stone walls.



Figure 18: View of the stone walls covered with grass and other vegetation.



Figure 19: Another view of some of the low stone walls.

Field Rating:	Generally Protected B. Grade 4B
Heritage Significance:	Medium
Impact:	Moderate
Certainty:	Definite
Duration:	Demolished
Mitigation:	B – Mapping of the site and controlled sampling required

8.2. Site SSP 002:

GPS: 25° 07' 27.7" S
30° 27' 49.8" E

Another stone walled complex was identified at this location (figure 20). This stone walled complex is situated on the northern edge of the property in between the green houses and the railway line. The site measures approximately 50m in diameter and consists of a few enclosures (figure 21) which are connected to each other. The walls are in a dilapidated state and are low and are covered with grass and other vegetation (figure 22), which makes them difficult to identify. The walls were also damaged to an extent as previous ploughing activities (fields) were also identified nearby the walls. The walls look like low mounds of discarded rocks (figure 23), but they do form inter-connecting enclosures. No artefacts or any other finds were found in association with the stone walls.



Figure 20: General view of the identified stone walled site.



Figure 21: View of one of the identified stone walled enclosures.



Figure 22: View of one of the stone walled enclosures covered with grass and vegetation.



Figure 23: Another view of some of the identified low stone walls.

Field Rating:	Generally Protected B. Grade 4B
Heritage Significance:	Medium
Impact:	Moderate
Certainty:	Definite
Duration:	Demolished
Mitigation:	B – Mapping of the site and controlled sampling required

8.3. Site SSP 003:

GPS: 25° 07' 28.9" S
30° 27' 42.0" E

A furrow is indicated on the 1:50 000 topographic map. This furrow crosses the central parts of the property from the south to the north. It is indicated to pass on the eastern side of the homestead. Possible indications of this furrow were identified next to the fence of the yard of the homestead (figure 24 & 25). Most of the furrow is filled up and its exact location and course are not clear. The furrow as such is not functioning anymore and has very little heritage value or significance. No other features or any other finds were found in association with the furrow. No other references regarding this furrow were found during the literature study. The origin and age of the furrow is unknown.



Figure 24: View of the possible location of the identified furrow.



Figure 25: Another view of the possible location of the identified furrow.

Field Rating:	Generally Protected C. Grade 4C
Heritage Significance:	Low
Impact:	Low
Certainty:	Definite
Duration:	Demolished
Mitigation:	A – No further action necessary

After intensive investigations across the rest of the study area, no other sites or finds of any heritage value or potential were identified.

9. Conclusion and Recommendations

Hutten Heritage Consultants was contracted by Interdesign Landscape Architects (Pty) Ltd to conduct a Heritage Impact Assessment (HIA) on the proposed mixed-use development on the Remaining Portion of Portion 79 (a portion of Portion 70) of the Farm Sterkspruit 33 JT, approximately 3km south of Lydenburg in the Mpumalanga Province.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. The desktop study revealed that some stone walled structures are present on the western extent of the proposed area for development.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area. Three sites with heritage significance or value were identified during the study. Two sites consisted of Late Iron Age stone walled enclosures, terraces and structures. The third site was the possible remains of an old furrow which traversed the study area.

Significant numbers of stone-walled archaeological sites dated to the Late Iron Age (circa A.D. 1640 – A.D. 1830s) are known from the region of Lydenburg (e.g. Mason 1968; Evers 1975; Marker & Evers 1976). Stone-walling in the eastern Mpumalanga escarpment connects a contiguous area, Bokoni, estimated at over 10,000 square kilometres in a network of towns, agricultural terraces and roads (Delius & Schoeman 2010) associated with rock engravings (Mbewe 2007).

Approximately a kilometre to the west of the current study area Pelsler (2014) recently undertook excavations of Late Iron Age stone walled settlement sites, of which all three types of the so-called Badfontein walling (simple enclosures; complex enclosures; and agglomerations of small circles) were present. These sites were originally identified by Birkholtz (2006) and included rock engravings and were mapped/documentated in 2013 by Christine Van Wyk-Rowe. Pelsler conducted two excavations (one on RDR7 and one on RDR1C) and little cultural material were recovered which included pottery, bone and stone objects (Pelsler 2014). Pelsler (2014) also noted that the circular enclosures and features excavated were not as complex as other sites in the vicinity and accompanied by terracing indicating that these sites might have been utilized for agriculture and not settlement.

More and extensive work and research were done on similar stone walled sites in the Lydenburg region over the last 60 years (see Chapter 5 – Desktop Study Findings).

The above mentioned sites were similar and most probably dated from the same time as the two sites identified during this current study. The identified sites were also exposed to some measure of damage which deteriorated their heritage value and significance.

The following steps and measures are recommended regarding the identified heritage sites:

Sterkspruit Mixed-Use Development

9.1. Site SSP 001:

The identified site was most probably a part of a settlement of one of these Late Iron Age Communities who settled in the region between 1600AD to 1800AD. A lot of research was done on similar sites in the region and the sites were classified into groups regarding the complexity of the stone walling. The following is recommended:

- The identified site will be adversely affected and therefore most probably destroyed by the proposed development. Any impact on the site will be a transgression of the South African Heritage Resources Act (Act 25 of 1999). The structure was more than 60 years old and is protected in Section 34 of the National Heritage Resources Act 25 of 1999, which states that “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. Considering the fact that the site is being classified as of medium significance, it is recommended that the site be subjected to a Phase II investigation prior to any development on the proposed development site.
- A Phase II investigation implies that the site be cleared from vegetation, documented and mapped. The documentation and mapping of the site will contribute to our understanding and knowledge of the regional distribution and settlement of these Late Iron Age Communities. A surface collection of any material is also recommended. Archaeological material retrieved from the site must be donated to a museum and a report on the findings of the Phase II investigations must be prepared for the South African Heritage Resources Authority (SAHRA).
- Archaeological test excavations are however, not recommended. Similar sites have recently been excavated and documented on the neighbouring Farm Rooidraai. Archaeological excavations will most probably not contribute very much to the existing knowledge and understanding of these sites and their inhabitants.
- However, before the identified site may be subjected to a Phase II investigation and before the site may be destroyed by the proposed development, a permit allowing these actions have to be obtained from SAHRA by an archaeologist accredited with ASAPA.
- A watching brief performed by a qualified Heritage Practitioner, is also recommended during the construction phases of the proposed development. The Heritage Practitioner

can advise and guide the developer regarding unforeseen archaeological discoveries (such as graves) during the development process.

9.2. Site SSP 002:

Again, the identified site was also most probably a part of a settlement of one of these Late Iron Age Communities who settled in the region between 1600–1800 AD. A lot of research was done on similar sites in the region and the sites were classified into groups regarding the complexity of the stone walling. The following is recommended:

- The identified site will be adversely affected and therefore most probably destroyed by the proposed development. Any impact on the site will be a transgression of the South African Heritage Resources Act (Act 25 of 1999). The structure was more than 60 years old and is protected in Section 34 of the National Heritage Resources Act 25 of 1999, which states that “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. Considering the fact that the site is being classified as of medium significance, it is recommended that the site be subjected to a Phase II investigation prior to any development on the proposed development site.
- A Phase II investigation implies that the site be cleared from vegetation, documented and mapped. The documentation and mapping of the site will contribute to our understanding and knowledge of the regional distribution and settlement of these Late Iron Age Communities. A surface collection of any material is also recommended. Archaeological material retrieved from the site must be donated to a museum and a report on the findings of the Phase II investigations must be prepared for the South African Heritage Resources Authority (SAHRA).
- Archaeological test excavations are however, not recommended. Similar sites have recently been excavated and documented on the neighbouring Farm Rooidraai. Archaeological excavations will most probably not contribute very much to the existing knowledge and understanding of these sites and their inhabitants.
- However, before the identified site may be subjected to a Phase II investigation and before the site may be destroyed by the proposed development, a permit allowing these actions have to be obtained from SAHRA by an archaeologist accredited with ASAPA.
- A watching brief performed by a qualified Heritage Practitioner, is also recommended during the construction phases of the proposed development. The Heritage Practitioner can advise and guide the developer regarding unforeseen archaeological discoveries (such as graves) during the development process.

9.3. Site SSP 003:

The furrow was identified during the desk top study from the 1:50 000 topographical map. Most of the furrow is filled up and its exact location and course are not clear. The furrow as such is not functioning anymore and has very little heritage value or significance. The following is recommended:

- The furrow has very little heritage value or significance as it was degraded during several developments on the property. The construction of the homestead and the development of the garden mostly contributed to the filling up of the furrow.
- No further heritage mitigation measures or is required.

9.4. Palaeontology

Prof. B. D. Millstead completed a desktop Palaeontological Impact Assessment (Millstead, 2014) for the proposed development. This desktop Palaeontological Impact Assessment was consulted during the compilation of this Heritage Impact Assessment.

Prof. Millstead concluded and recommended the following regarding the palaeontological resources of the site:

The entire project area is underlain by rocks of the Palaeoproterozoic Silverton Formation, Pretoria Group, Transvaal Supergroup. During the Palaeoproterozoic there was no known metazoan life on Earth. The only macrofossil materials present in the South African stratigraphic sequence of this age interval are stromatolites. Stromatolites are often found in dense accumulations within carbonate sequences (dolomites) in rocks of this age. The age and non-carbonate lithology of the Silverton Formation mitigate against any fossil potential for the formation. Indeed, no fossil materials are known to occur anywhere within the Silverton Formation where ever it occurs.

- The palaeontological potential of the formation is accordingly assessed as being nil.
- No further Palaeontological mitigation measures or actions are required.

No other site-specific actions or any further heritage mitigation measures are recommended for the rest of the study area, as no other heritage resource sites or finds of any value or significance were identified in the indicated study area. The proposed mixed-use development at the indicated area can only continue if the recommendations as stipulated in this report are adhered to from a heritage point of view.

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