

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF A FILLING STATION AND ASSOCIATED INFRASTRUCTURE ON A PORTION OF FARM 312, PAMPIERSTAD, SITUATED NORTH OF THE MR933 ROAD BETWEEN THE SETTLEMENTS OF PAMPIERSTAD AND HARTSWATER, NORTHERN CAPE PROVINCE

May 2023



Location	Erf /Farm 312, Vaalharts Settlement B	
Local and District Municipality	Phokwane Local Municipality	
Magisterial District	Francis Baard District	
Province	Northern Cape	
Reference numbers:		
DESTEA		
SAHRIS Case ID		
Type of Development	Multi land-use development	
Developer	EAP	Heritage Consultant
GPO Boerdery (Pty) Ltd	Louis De Villiers Turn 180 Environmental Consultants	Loudine Philip (ASAPA No 187)

DECLARATION OF INDEPENDENCE AND CV

This Phase 1 Heritage Impact Assessment was undertaken and reported on by Loudine Philip for, and contracted by Turn 180 Environmental Consultants.

I, Loudine Philip, author of this report, hereby solemnly and sincerely declare that I am a professional archaeologist registered with ASAPA (Pr No. 187) and that I have no vested interest in either the proposed development or the developers referred to in this report.

I furthermore declare that I have the required experience and training in the field of archaeology (23 years) over a broad spectrum of periods with the following ASAPA-CRM accreditations:

Principal Investigator: Built Environment

Field Director: Stone Age, Iron Age, Industrial, and Colonial period Archaeology

Field supervisor: Grave relocation

Qualifications: BA Archaeology (UNISA), BHCS Hons. Archaeology (UP), M.Phil ConsBE (UCT)

Other related memberships: Society of Africanist Archaeologists

The views stipulated in this report are objective, independent of any views the client might have, and no other interests are displayed during the decision-making process.

I take full responsibility for the content, conclusions, and recommendations made within this report.

Report Version	Version 1 Final Report		
Title	Phase 1 Heritage Impact Assessment report for the proposed Multi land-use development (filling station, truck stop, and associated infrastructure) on a portion of Farm 312, Pampierstad, situated north of the MR933 road between the settlements of Pampierstad and Hartswater, Northern Cape Province		
Author	Loudine Philip		22 May 2023

EXECUTIVE SUMMARY

PURPOSE OF THE STUDY

This report was prepared in request of Turn 180 Environmental Consultants, who was contracted by GPO Boerdery Pty Ltd, in support of a Section 38(8) application in terms of the National Heritage Resources Act, no 25 of 1999 (NHRA). A Heritage Impact Assessment (HIA) is required in terms of the National Environment Act (NEMA) as part of a Basic Assessment Report (BAR) as the project triggers NEMA Listing Notice 1, Activities 14, 27 and 28. A Water Use License for a water use in terms of Section 21(a) of the National Water Act, 1998 (Act No. 36 of 1998) may also be required.

PROJECT DESCRIPTION

The project entails a multi land-use development that includes a Fuel Station, Truck Stop, and convenience store/shop with ablution facilities, in a predominantly agricultural area on the road between Pampierstad and Hartswater.

METHODOLOGY

The research started with a desktop study using, inter alia, popular as well as academic articles, books, archival resources, historic photographs, maps, title deeds and survey diagrams, municipal records and documents including the current Spatial Development Framework, newspapers (archived as well as current), and so forth. The focus is to obtain a history of the land use of the area from the earliest time to date, in order to make an informed decision on its potential historic and/or prehistoric value and to inform the physical reconnaissance of the development area. The field inspection was done on foot using a GPS and camera for recording the general environment and any potential finds.

FINDINGS

No evidence of any prehistoric archaeological material (Stone Age material or evidence of Iron Age material / structures), surface indications of archaeological middens, surface indicators of graves, rock art, evidence of military activities, or buildings older than 60 years, were found on the subject property. This includes a vintage D8 National Pump (oil) manufactured in South Africa dating to the 1970s which can safely be removed without compromising its future heritage value. The area contains building rubble overgrown with vegetation (concrete remains) which is likely associated with a large storage facility (for agricultural produce) adjacent the current house (not older than 60 years) of which only the foundation remains. There are also several soil mounts and two shallow recent household middens. The storage facility could predate the house which was originally a roadside shop but greatly modified and enlarged over the years to serve as a residential dwelling.

From an archaeological point of view, there are no significant grounds on which to base the prevention of this development project. Due to the disturbed nature of the proposed development area and the absence of any finds of significance, the site is assigned a rating of low significance.

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List of acronyms used in this report:

ASAPA	Association for Southern African Professional Archaeologists
AIA	Archaeological Impact Assessment
BCE	Before Common Era
BP	Before Present
BAR	Basic Assessment Report
CRM	Cultural Resource Management
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
HIA	Heritage Impact Assessment
IDP	Integrated Development Program
I&AP	Interested and Affected Party
LSA	Later Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act (no 107 of 1998_
NHRA	National Heritage Resource Act (no 25 of 1999)
SAFA	Society of African Archaeologists
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

REPORT

INTRODUCTION

This report is the result of a desktop analysis for an assessment of the potential impact the proposed development of a filling station and associated infrastructure might have on existing tangible/intangible cultural heritage on and in the immediate environs of the site of the new development, followed by a field survey to record all potential heritage effects and assess its value. The report was commissioned by Turn180 Environmental Consultants.

TERMS OF REFERENCE

The development area is located in the Vaalharts Irrigation area on a portion of Holding 312, Pampierstad, situated north of the MR933 road (Kolong Street) between the settlements of Pampierstad and Hartswater, Northern Cape Province. It is approximately 2.5 km from Pampierstad on its western side, and 7.5 km from Hartswater on the eastern edge of the Vaalharts Irrigation area. The new development will include a truck stop and refuelling facilities, truck driver ablution and attendance facilities, a retail filling station with support facilities, a convenience store and a fast food outlet.



Figure 1: Proposed new development location (holding 312) in the agricultural area in relation to the towns Pampierstad (west) and Hartswater (east).

The total size of the intended development area is 4.56 ha.

As a requirement of both the NEMA and NHRA, one of the various specialist studies required is the identification of existing cultural heritage on the subject property and an assessment of the impact of the proposed development on any identified heritage by a suitably qualified professional and the author of this report was contracted for this. The brief for the heritage report is to provide a full history of the subject property in order for the stakeholders and any other registered interested and affected parties, as well as statutory bodies, to make an informed decision regarding the impact the proposed development might have on any cultural heritage identified during the field assessment as well as provide a professional assessment of the importance thereof with recommendations for its preservation or mitigation to both SAHRA, as the commenting authority on heritage aspects, as well as for the developers to incorporate recommendations in the development plans, should it be required.

PROJECT DESCRIPTION

GENERAL PROJECT AREA

Portion of Holding 312, Pampierstad	Size: 4.56 ha / Zoning: currently agricultural
Magisterial District	Francis Baard Magisterial District
Local Authority	Phokwane Local Municipality
1:50 000 map sheet number	2724DC Pampierstad
Central co-ordinate of the development	27°47'22.23"S; 24°43'4.46"E

DEVELOPMENT DETAIL

Type of development	Multi-land use development
Proposed components	Fuel station, Truck Stop area, Truck driver accommodation and ablution facilities, convenience store
Proposed activities	<ol style="list-style-type: none"> 1. Demolition of existing buildings 2. Site clearance of vegetation and various dumps (building rubble and stone) 3. Excavations for building foundations as well as fuel containers
Applicable legislation	<p>National Environmental Management Act (107 of 1998)</p> <p>EIA Regulations (R327 dd 7 April 2017)</p> <p>National Heritage Resources Act (25 of 1999)</p> <p>Section 38(3) – Provisions for information to be included in a heritage report should Section 38(8) be triggered.</p> <p>Section 38(8) The heritage impact assessment is required in terms of the National Environmental Management Act (107 of 1998)</p>

LAYOUT PLAN OF DEVELOPMENT



Figure 2: Preliminary layout of the proposed development. Refer to the uploaded document for a full-scale site development plan

LEGISLATIVE REQUIREMENTS

NATIONAL HERITAGE RESOURCES ACT, NO 38 OF 1999 (NHRA)

Section 35(3):

No person may, without a permit issued by SAHRA or provincial heritage resources authority-

- a) Destroy, damage, alter, exhumate or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b) Destroy, damage, alter, exhumate, 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; or
- c) Bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Section 35(4)(a):

No person may, without a permit issued by the responsible resources authority destroy, damage, excavate, alter, deface or otherwise disturb an archaeological or palaeontological site or any meteorite.

Section 38(3):

The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2(a) [*also a requirement if Section 38(8) is triggered*]: Provided that the following must be included:

- a) The identification and mapping of all heritage resources in the area affected;
- b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7 [*Heritage assessment criteria and grading*];
- c) An assessment of the impact of the development on such heritage resources;
- d) An evaluation of the impact of the development on such heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- e) The results of consultation with communities

	<p>affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;</p> <p>f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and</p> <p>g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.</p> <p>Section 38(8):</p> <p>The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1991 (Act No 50 of 1991), or any other legislation: provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.</p>
<p>National Environmental Management Act (No 107 of 1998) (NEMA) (AS PART OF A BASIC ASSESSMENT REPORT (BAR) AS THE PROJECT TRIGGERS ACTIVITIES 14, 27 AND 28 OF NEMA LISTING NOTICE 1: LIST OF ACTIVITIES AND COMPETENT AUTHORITIES IDENTIFIED IN TERMS OF SECTIONS 24(2) AND 24D DD 4 DECEMBER 2014.</p>	<p>LISTING NOTICE 1</p> <p>Activity 14: The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</p> <p>Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –</p> <ul style="list-style-type: none"> (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan. <p>Activity 28: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or forestation on or after 01 April 1998 and where such development:</p> <ul style="list-style-type: none"> (i) Will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) Will occur outside an urban area, where

	<p>the total land to be developed is bigger than 1 hectare;</p> <p>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>
NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)	A water licence for water use in terms of Section 21(a) "taking water from a water resource" might also be needed.

PURPOSE OF THE PROPOSED DEVELOPMENT

The owners have determined that there is potential for a filling station and truck stop on the Pampierstad Road (Kolongstreet), based on the following three criteria:

- First, there is heavy traffic on the Pampierstad road every day because people commute from Pampierstad to Hartswater for work and school;
- Second, the area is densely populated and well-known for its intensive agriculture; and
- third, there are no facilities for trucks and buses to stop in Hartswater.

The proposed TuloYaBatho filling station will mainly serve the farming community in the area, as well as the residents of Pampierstad and Hartswater. Pampierstad is a small rural town with approximately 22 000 residents (Census 2011) who travel either by car (private transport), taxi or bus to town and back. The ratio between cars and taxis are 50/50. The owners plan to establish firm business relationships with the taxi association, farmers and businesses in both Pampierstad and Hartswater, who have indicated that they will support the business.

The owners desire to establish a business that is part of the community through socio-economic investments.

(Information as supplied by the owners of the property).

METHODOLOGY

RELEVANT LITERATURE REVIEW

The proposed development area falls within the agricultural area of the Vaal-Harts Irrigation Scheme which is one of the largest irrigation schemes in the world, covering 369.50 sq/km (369 500 ha) in the Northern Cape Province of South Africa. It is named after the Vaal and Harts Rivers with the Vaal River being its major tributary. The footprint of the proposed development area is only 4.56 ha within a defined historical agricultural area and the literature review is accordingly only focused on the history of the development of the Vaal-Harts Irrigation Scheme with reference to identified archaeological sites or finds in its immediate vicinity, up to a distance of ± 25 km from the development area if sufficiently important to take note of.

PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT

To be conducted by the EAP. Notifications for registration as interested and affected parties were posted on site as well as in relevant newspapers. All reports will be made available to the interested and affected parties to comment on.



Figure 3: Site notices at the entrance gate from Kolongstreet to the subject property

PHYSICAL SURVEY

The field survey took place on the 29th of October, during the first month of the rainy season in the subject area. The pedestrian survey was undertaken by the author, a professional archaeologist with 23 years of experience in archaeological fieldwork. All relevant sites or features were recorded using a Garmin GPSMAP64s handheld device as well as a Sony Cyber-shot DSC-H7 camera. Visibility was fair to good in the few open areas, but poor in the areas with dense grass covering which covers a considerable portion of the proposed development area.

SITE DESCRIPTION

The proposed development area covers an area of 4.56 ha in the southern half of Farm 312, Pampierstad. Farm 312 appears to be a subdivision of the adjacent erf on its eastern side. The area on the western boundary of the development area (which is also the western boundary of the farm) is Erf 1 and natural uncultivated land.

The area of the entire farm 312, including the southern development area is dotted with several building rubble dumps as well as stone dumps and soil dumps (presumably the area has at some earlier stage been prepared for cultivation – hence removal of stones and levelling of surface area) as well as two recent dumps for household waste. Both the geotechnical and ecological reports also indicate a large-scale earlier surface disturbance.

Existing buildings (three structures) and one foundation of a demolished shed are concentrated on the southern side of the property.

SITE SIGNIFICANCE AND FIELD RATING

Cultural significance or special value because of:	Applicable or not	Rating: Negligible / Low / Low-medium / Medium / Medium-High / High / Very High
a. Its importance in the community, or pattern of South Africa's history	Yes	Negligible
b. Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage	No	
c. Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	No	
d. Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	No	
e. Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group	No	
f. Its importance in demonstrating a high degree of creative or technical achievement at a particular period	No	
g. Its strong or social association with a particular community or cultural group for social, cultural or spiritual reasons	No	
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	No	
i. Sites of significance relating to the history of slavery in South Africa	No	
<p>Reasoned assessment of significance using appropriate indication outlined above:</p> <p>The area of Vaalharts Irrigation System as a whole has importance in the community or pattern of South Africa's history as the first large-scale irrigation system in South Africa and the second largest in southern Africa. However, the subject property is a small portion of one of the lots on the periphery of the greater Vaal-Harts irrigation system and would have no impact on the total value of the greater system. Instead, it would provide service and necessary infrastructure to the farming community as well as the nearby Pampierstad.</p> <p>There is no evidence, both in the literature and from the field assessment, that the development area was used for any activity other than being part of the Vaalharts irrigation scheme. No prehistoric (Stone and Iron Age) evidence, graves, any evidence of military activities, or any other archaeological material was observed. Existing buildings (farmstead and outbuilding, as well as a labourer's house some distance from the main house), are less than 60 years old. None of the existing structures are considered to be of sufficient significance to warrant a field rating.</p> <p>A record of the observed structure/features with its associated coordinates can be found in the 'Results of the Survey' section. Field rating: None</p>		

ASSUMPTIONS, GAPS, RESTRICTIONS AND LIMITATIONS

Visibility in the heavily overgrown areas which applies to the greater portion of the development area, was poor, but there are indications that this parcel of land was cleared of its natural vegetation at some earlier stage. According to the ecological report, the current vegetation on the site is clearly quite modified and degraded from its natural condition and it is also noted habitat and species diversity is fairly low with a significant infestation by exotic weeds and invasive trees compared to the natural undisturbed area immediately west of the development area.

Although a site clearance could have taken place sufficiently long ago for some of the natural habitats to have returned, it would have caused any potential surface cultural material which might have been present at the time to have been disturbed and placed out of context.

The geotechnical report also indicates that the site surface displays a reworked nature attributed to past and ongoing human activities – predominantly in the form of surficial fills, and historic agricultural practices and that the nature of the anthropogenic processes has affected the continuity of the site’s topographic nature as well as its inherent geotechnical characteristics.

With the geotechnical and ecological reports confirming the surface and even soil layers to have been disturbed, it can safely be assumed that any archaeological surface material that would be found would also not be *in situ*.

DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

(Information sourced from: Phokwane Local Municipality Draft IDP 2022/23)

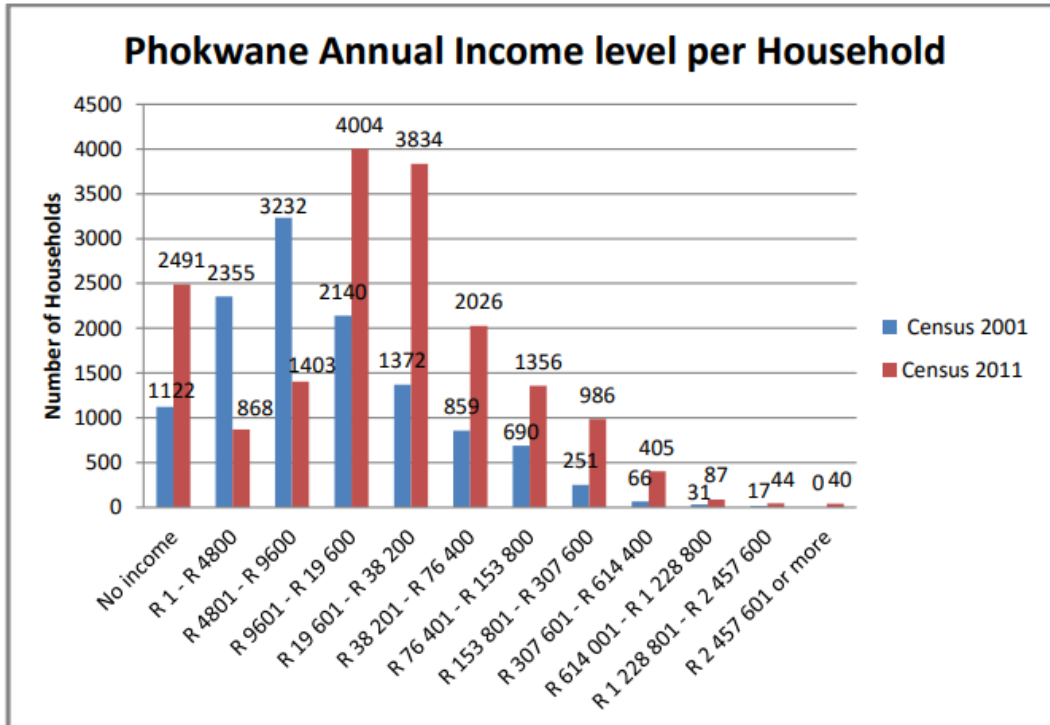
Phokwane Local Municipality incorporates the previous municipal areas of Hartswater, Jan Kempdorp, Ganspan, and Pampierstad.

The Phokwane Municipality is named after Queen “Phokwane”, the wife of Kgosi Galeshewe of the Barolong boo Ra-Tlhaping tribe. Phokwane is nestled in the lush green delta of the Hartswater region and boasts the second-largest irrigation scheme in the Southern Hemisphere, namely the Vaalharts Irrigation Scheme.

The municipality has a total population of 61 321 inhabitants of whom the majority is found in the peri-urban areas of the municipality. A significant characteristic of the Phokwane population is the youth who account for 33% (ages 15–34) of the total population. The economy of Phokwane is based on agriculture, community development, retail, private household, and informal sectors. These five sectors alone provide jobs to 11 160 persons within the municipal area. This accounts for 65% of employment within Phokwane.

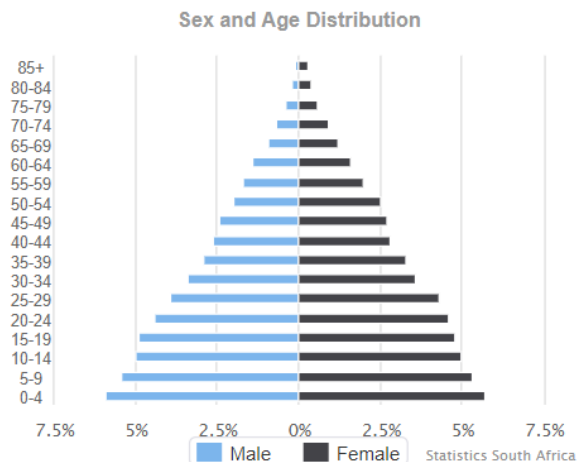
In terms of agriculture Phokwane exports grape, citrus, and olive products. The dominant languages in the area are Setswana, Afrikaans, and Isixhosa with each of the languages having 70%, 25%, and 5% users respectively.

In the Phokwane Local Municipality only Ward 1, Ward 2, and Ward 3 (all three in Pampierstad – 2.5 km west from the proposed development area) have unemployment rates higher than 40% at 57%, 58%, and 58% respectively. The distribution of the unemployed across the remainder of the Phokwane Local Municipality wards is relatively even, with the smallest percentage of unemployed to be found in Ward 6 (Hartswater at 1%), Ward 7 and 10 (Jan Kempdorp) with an unemployment rate of respectively 6% and 3%.



The socio-economic information and available statistics for the annual income level per household were sourced from the Phokwane Local Municipality Draft IDP 2022/23 and it is noticed that the information reflects the 2001 and 2011 Census reports. Of concern is the spike of 'no income' category of the 2011 Census which would, judged by the unemployment rates mentioned above, be almost solely focused on Pampierstad which is approximately 2.5 km from the development area.

Group	Percentage
Black African	81,9%
Coloured	11%
Indian/Asian	0,4%
White	6,3%
Other	0,5%



Note: Above table and graphs sourced from the 2011 Census data

DESCRIPTION OF PHYSICAL ENVIRONMENT

ZONING OF THE PROPOSED DEVELOPMENT AREA

The current zoning is agricultural.

The development area does not fall in a RedZone (REDZ) area, nor is it listed on the Protected Areas Register (PAR).

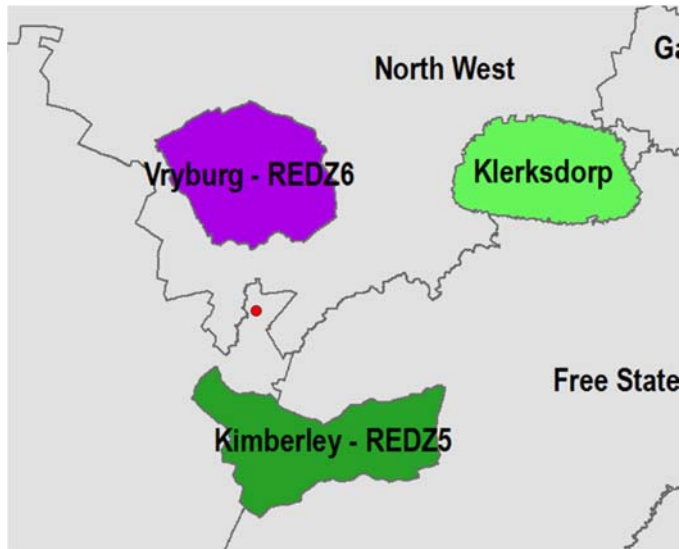


Figure 4: Map of closest RED-zones (Renewable Energy Development Zone)
- red dot indicates position of subject area

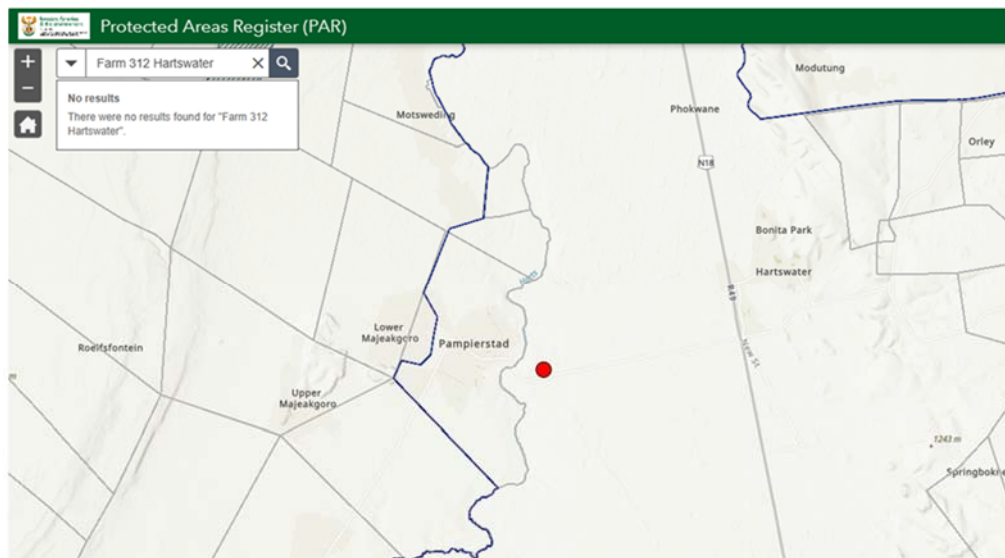


Figure 5: Insert of the area surrounding the subject area (red dot) shows no marked Protected Areas (PA = legally declared and gazetted) or Conservation Areas (CA = managed for biodiversity conservation but not legally declared)

EFFECTS OF PREDOMINANT ECONOMIC ACTIVITIES ON THE ENVIRONMENT

The predominant economic activity in this area is agricultural. According to the ecological report by DPR Ecologists & Environmental Services (see below) the natural vegetation has been modified to a significant degree. Since this disturbance seems to have been limited to the shrubs and grass (the trees appear to not have been disturbed), a feasible assumption would be that this section was initially cleared for agricultural purposes (hence the heaps of small boulders). The geotechnical report also confirms evidence of major anthropogenic disturbances and was confirmed by several infill areas (either building rubble or heaps of boulders) observed during the archaeological field investigation.



Figure 6: Older dumps (left) cover with dense vegetation. Relatively recent soil dump on the right.

DESCRIPTION OF VEGETATION AND OF LANDSCAPE FEATURES

(Sourced from the ecological report by DPR Ecologists & Environmental Services for this development. A summary of the final recommendations for this can be found in Attachment A.)

“The natural vegetation structure has been modified to a significant degree which will be clearly illustrated by the following description of the species composition. The grass layer is dominated by a mixture of pioneer and climax species which indicates a significant disturbance of this layer. The pioneer grass, *Cynodon dactylon* is especially dominant while climax species such as *Panicum coloratum*, *Schmidtia pappophoroides*, *Heteropogon contortus* and *Themeda triandra* remains as isolated specimens. A prominent herbaceous component is also imbedded within the grass layer though the majority of these consist of pioneer herbs which indicate disturbance. These include species

such as *Salvia stenophylla*, *Nolletia* sp., *Helichrysumargyrosphaerum*, *Arctotisarctotheca*, *Commelinaeckloniana* and *Gazania krebsiana*. Herbaceous species which are characteristic of this vegetation type and which are normally encountered within it, are still present but not well represented and also confirm a degraded natural vegetation layer. These species include *Senna italica*, *Hermanniaquartiniana*, *Aptosimumalbomarginatum*, *Pentziacalcarea* and *Crotalaria podocarpa*.

The sandy soils of this region also promote the establishment of geophytic species (plants with an underground storage organ) and a few remain on the site though they are generally adapted to disturbed areas. These include *Talinumcaffrum*, *Dipcadiviride*, *Ledebouriamarginata*, *Trachyandrasaltii* and *Harpagophytumprocumbens*. The last named *H. procumbens*, is a widespread and relatively common species though is listed as a protected species and a permit will therefore have to be obtained to remove it from the site (a single specimen was noted).



Figure 7: Panorama of the site which indicates a well-developed, but modified grass layer, a largely absent shrub layer and tree layer with several large specimens of protected Camel Thorn (*Vachelliaerioloba*) Photograph credit: Darius van Rensburg.

As previously indicated, the shrub layer on the site has been quite heavily modified and is now largely represented by a few pioneer shrubs that often proliferate in degraded areas. These pioneer shrubs include *Vachelliahebeclada* and *Lyciumhirsutum* while a few specimens of the more naturally occurring *Tarchonanthuscamphoratus* and *Grewiaflava* also remain on the site. The shrub layer also promotes the establishment of climbers, though because the shrub layer is so heavily modified, climbers on the site are poorly represented or remain as a few creepers. These include species such as *Cocciniasessilifolia* and *Clematis brachiata*.

The tree layer on the site is still fairly intact and is dominated by *Vachelliakarroo*, *Vachelliaerioloba*, *Ziziphismucronata* and *Searsialancea*. Of these *V. erioloba* (Camel Thorn) is well known protected tree species and though they are widespread and relatively common they still retain some conservation value.

It should be clear that the vegetation on the site is heavily modified from the natural condition. This is also further confirmed by the establishment of many exotic weeds such as *Verbesinaencelioides*, *Chenopodiumcarrinatum*, *Solanum eleagnifolium*, *Cestrum laevigatum*, *Conyzabonariensis*, *Datura ferox*, *Argemoneochroleuca* and *Tagetesminuta* while several invasive trees such as *Melia azedarach*, *Prosopisglandulosa*, *Eucalyptus camaldulensis* and *Populusdeltoidea* are also prominent on the site.

From the above description of the 18 vegetation on the site it is clearly quite heavily modified and degraded. Despite this high level of disturbance, many specimens of protected *V. erioloba* trees remain on the site and will require sufficient mitigation.

DESCRIPTION OF SOIL AND BASIC GEOLOGY

(Sourced from the geotechnical report by Geocalibre Geotechnical Consultancy for this development.)

According to the available geological information (geological series map: 2724 Christiana); the study area is primarily underlain by windblown sands- Qw (Quaternary aged aeolian dune sand) covering the older Karoo Supergroup sedimentary rocks (Permian Age).

Quaternary sediment deposits are extensive throughout the study area - the prevalence of which can be linked to the region's geomorphology. No bedrock, nor its weathered counterparts, were encountered across the site.

Based on the available exposures, the site was seen to display alternating sequences of transported sediments. These young deposits consist of multiple cycles of deposition resulting from varying transport mechanisms (a combination of both aeolian and colluvial). The final product is a layered sediment deposit with frequent in-situ variations in predominant composition and colour.

The site is primarily blanketed by a fine-grained and loose deposit of aeolian sand. The primary make-up of the aeolian sediment deposits includes resistant quartz particles along with less resistant micas and feldspars (clays). The less resistant minerals typically weather to clay which bridges the gaps between the more resistant minerals. These clay bridges give high strength to the aeolian soils under dry conditions, however very low strength under wet conditions. As such, these soils frequently undergo collapse settlement under an increase in moisture conditions.

The aeolian sediments were calcified to varying degrees at depth.

Note: Regrettably the fieldwork phase of the geotechnical analysis took place before the site was investigated by an archaeologist. However, it did provide the archaeologist the opportunity to investigate the exposed soils from the eight test pits during the archaeological field investigation and no archaeological material was visible.

Of archaeological/palaeontological interest is the following information taken from the report:

0.41 – 1.23 m below E.G.L. (Existing Ground Level) Aeolian (windblown) sand with an average thickness of 0.83 m

1.85 – 2.75 m below E.G.L Calcified Aeolian sand with an average thickness of 1.51 m

2.90 – 3.10 m below E.G.L Concretionary calcrete with an average thickness of 0.69 m

Calcretes or calcrete-like materials occur at a number of sites of archaeological and/or palaeontological interest in South Africa (Netterberg p.23). Hopley et al (2013) mentions that *“a rather restricted view emerges that South African early homonins derived from cave deposits, whereas those of east and central Africa derived from fluvio-lacustrine and paleosol deposits”*.

PRIOR ACTIVITIES IN THE PROPOSED DEVELOPMENT AREA

As both the ecological and geotechnical reports indicate, and confirmed by the archaeological investigation, the development area must at some stage have been largely disturbed by anthropogenic activities, be it site clearance for agricultural purposes or dumping of building material. The site clearance might have taken place sufficiently long ago for the indigenous trees to have returned or, alternatively, site clearance might never have reached the point of removing the trees. (A more likely option.) As will be seen from the field assessment, there is a strong possibility that the dumping of the building rubble took place between 2017 and 2020.

HISTORICAL PERIOD

Since the proposed development area is situated within the bounded Vaalharts Irrigation Scheme, the historical background information to this area will primarily focus on the scheme itself and Pampierstad which was established after the irrigation scheme was already in place and is situated 2.5 km away from the study area.

VAALHARTS IRRIGATION SCHEME

The origin of the idea and subsequent attempts to get the project off the ground:

1875– During **Francis H.S. Orpen**'s tenure as surveyor-general of Griqualand West, he noticed the Vaal River bed was higher than the level of the Harts River valley and saw the potential of utilizing gravity to move water from the Vaal River to the Harts River valley, by means of gravity-fed canals. In his report dated 22 December 1875, he stated that *"it is possible, by taking out the water of the Vaal River near Fourteen Streams, to irrigate about half a million acres in the Harts River Valley."* However, a series of internal wars stopped Orpen's idea from being pursued further. (Van Vuuren, L.)

1882 – Statesman **John X Merriman** advocated forming a commission to deal with irrigation issues, including anticipated irrigation works on the Vaal and Harts Rivers based on a report by Cape hydraulic expert **John Gamble**. However, a lack of funds prohibited the idea from being implemented (Van Vuuren, L.)

1886 - Orpen and Merriman's proposal for an irrigation scheme in the Harts River Valley was taken a step further by **Cecil John Rhodes** when his proposal to the Assembly to obtain some land between the Harts and Vaal Rivers for an irrigation scheme was accepted. Although he was not able to raise sufficient funding to get the project off the ground, he was the first to have suggested that the land should be made available for the poor whites as he noticed that they preferred farming over mining (Van Vuuren, L).

It should be noted that by this time the land in this area was Crown Lands and the Tswana-speaking and Korana communities that were in this area were already displaced to make room for new settlers for the irrigation project. The government tried another tactic and decided that the Crown Lands between the Harts and Vaal rivers would be granted to any company or individual prepared to implement such a scheme at a cost not exceeding £130 000. Unfortunately, there were no takers (Van Vuuren, L).

1898 – A renewed effort is made to get the project off the ground and engineer **H.C. Litchfield** is appointed to further investigate the Harts River valley irrigation system, but the Anglo-Boer War put a stop to the investigations one year later (Van Vuuren, L).

POST ABW – **J. Gordon and W. Hurley**, Directors of Irrigation of the Cape and Transvaal, attempted to revive the Litchfield report, but again lack of funds prohibited any further development on this idea (Van Vuuren, L).

1910 – A further setback for the proposed project came through the first Director of the Irrigation Department, **J. Kanthack**, which was established after the Union of South Africa in 1910. His argument was that the area of the Harts River that will be irrigated is too widespread and the limited resources of the government should rather be used to encourage a large number of smaller irrigation schemes throughout the country (Van Vuuren, L).

The start and growth into a fully-fledged project:

1933 – Due to severe droughts in the period between 1900 and 1933 and the economic effects of the Great Depression (1929 – 1939), not to mention World War I (1914-1918) in the middle of that period, prompted the South African Government to go ahead with the irrigation scheme (together with other large-scale public works) to relieve poverty among the white population which had by that time reached critical levels (Van Vuuren, L.).

1934-1938– The weir across the Vaal River, the deep cut through the dividing ridge, and the canals as far as Jan Kempdorp were all scheduled to be completed in 1936. Following that, the Main North canal was constructed concurrently with secondary canals, two tunnels, and siphons, allowing water to flow to Taung in 1938 (Jordaan, J.).

Initially only white labour was employed as per government policy – unmarried, medically fit men between 18 and 45 – but later on married white men were also employed and so too were coloured and black workers (Van Vuuren, L.).

As the project progressed the operation became more efficiently constructed with several teams simultaneously working on four different areas over the 80 km distance the project covered and each section had an engineer in charge. Each area had its own workers' camp with a large number of bunkhouses, each containing four double-deck bunks. Only the more skilled workers and office staff were allowed to have their families with them and were provided with houses at a reasonable rental. (Van Vuuren, L.) The facilities provided included recreation facilities, sport facilities (rugby/soccer, tennis, golf, a swimming pool), a recreation hall (and films were shown twice a week), a church, school, and a number of field hospitals (Van Vuuren, L.). It would appear that with the provision of various amenities and comforts, the government followed the practices of the De Beers Mining Company at the diamond mining towns (author's personal observation).

1941 - The first small pieces of land were given to people (initially only men were allowed to work on the farms) to establish farms that would help grow food for the government until the farm was paid off.

The completed system:

The finished project allows water to be diverted from a weir on the Vaal River at Warrenton, where it travels through a 1,176-kilometer network of canals. Currently, the system provides irrigation water to 39,820 ha of scheduled land, as well as industrial water to six municipalities and other industrial water users. The farmland is divided into distinct blocks, each with its own letter or letter group for identification (for example, Block B contains the subject property). The blocks are separated into streets, each with a number that counts up from one to the last. The canals cut through all of the blocks and streets. There are six plots on each street, and each plot has a number ranging from one to six. Each plot flows from the canal into its own dams via its own canal hatch. The water is subsequently distributed throughout the farmland via pumps. (Vaalharts 2016)

Crops produced by this system include barley, wheat, oats, lucerne, cotton, ground nuts, maize, pecans, and a small percentage of other crops. Pecan farming, however, cover approximately 45% of the crop area, with lucerne approximately 20%, and barley 15%.

(Additional sources consulted: Annandale et al 2011, Gunthorp 1973, Pretorius 2018)



Figure 8: Example of a lot's feeding dam from a secondary canal

PAMPIERSTAD(2.5 km away from development area)

Pampierstad (now aptly named Thuso – a Sotho/Tswana word meaning help/assistance) was originally established in the former homeland of Bophuthatswana during the late 1960s. It was established during the apartheid era by funds from the SADT (South African Development Trust) for people who were evicted from locations in the Northern Cape, Orange Free State, and the then-western Transvaal. The town was named after Lekwalo Pampiri (also known as Pampier), who was the son of a local chief, Chief Motlaadile. Many people of colour from the Northern Cape and the neighbouring provinces (Orange Free State and Western Transvaal) were forcibly relocated to Pampierstad between 1966 and 1972, but arrivals continued up to the 1980s. (Pampierstad 2019)

The establishment of Pampierstad close to the border of the former homeland of Bophutatswana and outside the western edge of the already established Vaalharts Irrigation Scheme appears to not only be to provide housing for people who were forcibly removed, but more specific to provide a pool of labour for this government-owned (at the time) scheme in particular, considering the time the town was established.

Although some other displaced locations in South Africa followed a similar pattern, it was not the case with all such as the relocation of people to Dimbaza, Ilinge, and Sada in the Eastern Cape which actually served to remove Africans who were 'superfluous to the labour market' to areas with very little prospects (Walker C. &Platzkey, L.).

IRON AGE PERIOD: [EIA: 300- 900 AD / MIA: 900 – 1350 AD / LIA: 1400 – 1850 AD]

Apart from Dithakong approximately 110 km north-west of the study area, Humphreys (1976) makes a deduction based on hearsay information prior to 1800 gathered by Saunders (1966), eyewitness accounts as well as information gathered on local indigenous people from 1800 to 1820 and mentioned in early traveller journals, that the southern limits of the Iron Age peoples could have been extended deeper into the Northern Cape than just the

mere edges. Both his proposed 1700 and 1800 southern limits of the Iron Age dispersion (p56) would include the current study area on the edge of the limits as the two lines appear to meet up below the proposed development area. Humphreys' reference is in particular to the Bathlaping (a Twana group).

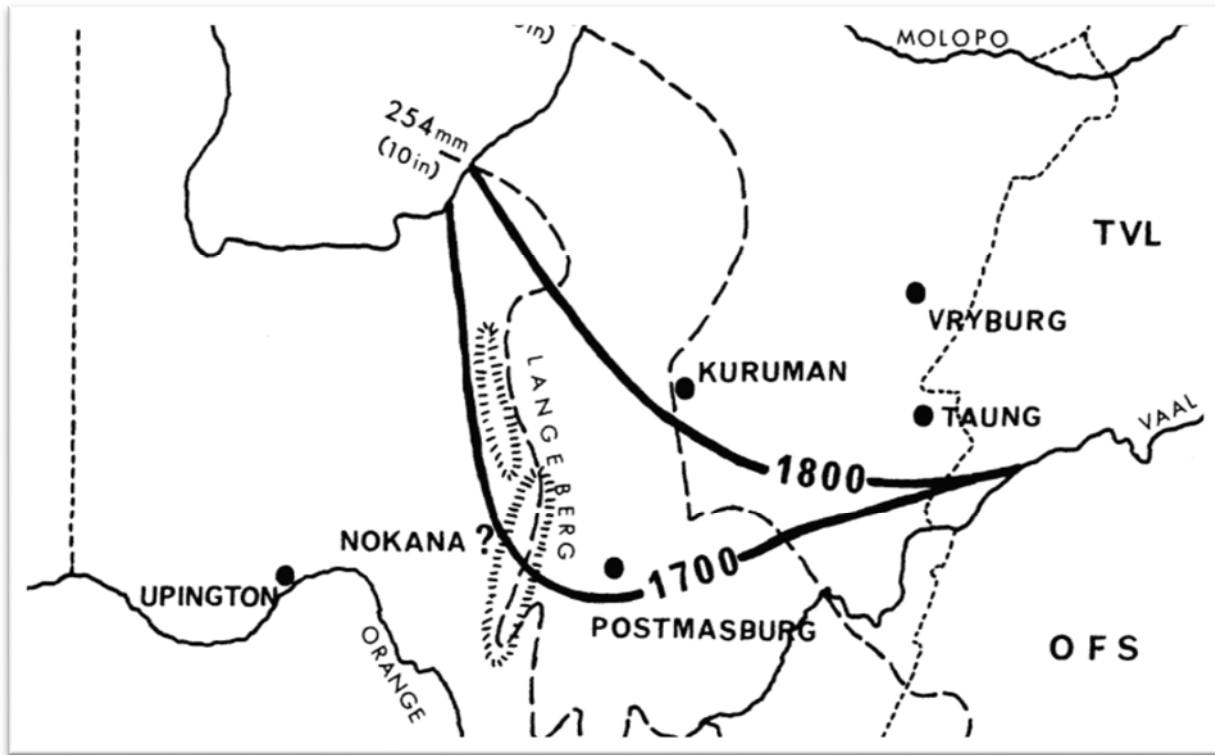


Figure 9: Extract from map on p 56 (Humphreys, A.J.B. 1976. Note on the Southern Limits of Iron Age Settlement in the Northern Cape)

STONE AGE PERIOD: [ESA: 2.5M – 250 000 YCE / MSA: 250 000 – 25 000 YCE / LSA: 25 000 – 300-900 AD]

The Northern Cape Province is well-known for its rich and diverse archaeological Stone Age sites representing from the earliest to the latest periods. For this purpose, only sites relevant in terms of their importance or proximity to the development area will be described.

Powerhouse Cave lies along the Ghaap Escarpment very close to the Taung Fossil Site, ± 24 km North-west of the subject area. It revealed a late Holocene deposit that accumulated within the last 4000 years and contained typical LSA materials. (Humphreys, A.J.B, 1978)

Little Witkrans, an MSA shelter, is situated ± 20 km North-west of the subject area and was first excavated in the 1940s by F.E. Peabody. Only a few test pits were excavated and yielded artefacts showing only elements of the Wilton Culture of the Late Stone Age (Peabody 1954). Further excavations by Beaumont (1978) and dating show that the deposits in this shelter accumulated throughout the early, middle, and late Holocene with dates ranging between 7470±70 BP and 1490±40 BP. Finds include, among others, micro-lithic scrapers and backed artefacts, grindstones, pottery dating to 1490±40 BP, engraved ostrich eggshell fragments, and a freshwater shell pendant (Thackeray, A.I. 1983).

Stone Age Finds within an approximate 10km radius of the development area:



Figure 10: Relevant important sites marked with red flags, other finds in close proximity of the subject area marked with red circles

No SAHRIS CaseID: On the section bordering the western boundary of the subject property (yellow outlined), Erf 1, McGregor Contract Units (2005) identified four LSA sites marked as VH001 to VH004 and one historic site at VH005 (Refer to positions marked on the Google Earth in Image 9 below). Of importance are the following:

- 1) The historical structure VH001 was identified as the remains of a housing compound foundation dating to the 1970s for labourers working on the current tarmac road.
- 2) The depth of the exposed LSA deposits in old quarry pits varies between 0.4 and 2.5 m with part of the deposits visible on the surface level between VH001 AND VH004.

- 3) The area investigated falls west of the line A-B (see image below) and all sites are approximately within 500 m from the Harts River.



Figure 11: Proposed development area outlined in yellow (nearest fine is 550 m from subject site)

SAHRA CaseID 10723: (10.5 km North-east of the subject area.) In the proposed development area for the Nkandla Extension 2 Township Establishment development on the eastern side of Hartswater, N Kruger 9201 located a few MSA stone implements during his field investigation of the area. This appears to have been found on an unbuilt raised section within the proposed development area.



Figure 12: The finding place of the MSA stool implements are on an elevated unbuilt section of the study area

PALAEONTOLOGICAL FINDS IN AREA

TAUNG CHILD

Situated 26,5 km northwest of the study area is the Taung fossil site. At the time of the discovery of the Taung skull, Buxton Stone was the only source of limestone for the Northern Lime Company. The development of limestone beds can take millennia to reach over 100 meters deep as was the case at Buxton. In 1920 a blast delivered an unusually rich haul of fossils when the blast uncovered the floor of an ancient cave. Among these fossils were a number of small baboon skulls of which several were sent to the South African Museum in Cape

Town. However, one of the skulls ended up on the mantelpiece of one of Northern Lime's directors, E.G. Izod. A student by the name of Josephine Salmons spotted it in 1924 and asked to show it to her new professor, Professor Raymond Dart, for his opinion. Dart's research was focused on brain matter and not so much on bones, but he was interested in the fact that monkey fossils were found so far from Egypt, and as Dr Young was going to travel to Taung the next week, he asked if he could send him more fossil-bearing rock. As it turned out there was already a box of fossil-bearing rock that was recovered from a blast the previous week and collected from a brecciated formation that was apparently the floor of an ancient cave. The box arrived with Dart in November 1924 and one of the skulls stood out in that the inner dimensions of the skull were much larger than a baboon's or even a chimpanzee's. He painstakingly chipped away the rock and once the skull was completely revealed he realised that it belonged to an unknown species, part ape and part man. Every part of the skull, rounded eye-sockets, lack of prominent eyebrow ridges, the small size of the teeth, a rising forehead, globular skull, and finally the indication that the head was in a more upright position in relation to the vertebral column and thus more erect than any ape species. The size of the brain cavity was also much larger than that of a fully grown chimpanzee, although the skull, he determined, belonged to a six-year-old infant of yet unidentified species. Dart named the new species *Australopithecus africanus*. (Hocking A.) Although this news was initially met by scepticism, but his findings was later vindicated by further finds at the Sterkfontein Caves with the discovery of an adult *A. africanus* (dubbed Mrs Ples) in 1947, and in 1994 a complete adult *A. africanus* skeleton, named "Little Foot" (Weldon, H.). These discovered samples date to between 2.4 and 3.3 mya (Polakovic, G.).

FIELDWORK SEASON AND VISIBILITY

Fieldwork was conducted on the 28th of October 2022 during the beginning of the rainy season in this area which is situated in a summer rainfall area (the rainless period is from May to September). Visibility was reasonable in terms of structures and deposition sites which clearly showed boulders or building rubble between the grass, but poor at ground level except where there were animal burrows.



Figure 13: Density of grass at ground level close to the farmstead. This is similar over the majority of the development area with the exception of the enclosed area around the house which has been cleared of all vegetation.

RESULTS OF THE FIELD SURVEY

The results of the field survey is limited to the existing buildings (not older than 60 years), and several dumping sites of either building rubble or smallish stone boulders and sand heaps (both typical of a field clearance for agricultural purposes) marked with red balloons in Figure 10. The couple of animal burrows don't show any unearthed lithic tools, but they are not very deep.



Figure 14: red balloons = dumping sites (building rubble, heaps of stones cleared from the surface areas, and mounds of soil); 3 existing buildings and the foundation of one two-roomed large agricultural storage shed:

Coordinates for dumping sites (concrete building rubble or heaps of stones of various sizes) Indicated with red balloon on Google Earth image below:	
27° 47.288'S; 24° 42.975'E	27° 47.315'S; 24° 43.004'E
27° 47.302'S; 27° 47.302'S	27° 47.322'S; 24° 43.033'E
27° 47.339'S; 24° 43.024'E	27° 47.329'S; 24° 43.050'E
27° 47.342'S; 24° 43.039'E	27° 47.360'S; 24° 43.046'E
27° 47.352'S; 24° 43.092'E	27° 47.375'S; 24° 43.120'E
27° 47.388'S; 24° 43.125'E	27° 47.396'S; 24° 43.132'E
27° 47.411'S; 24° 43.068'E	27° 47.399'S; 24° 43.061'E
27° 47.378'S; 24° 43.102'E	27° 47.388'S; 24° 43.088'E
Coordinates for buildings & windmill pump:	
Main House	27° 47.400'S; 24° 43.096'E
Outbuilding	27° 47.397'S; 24° 43.085'E
Labour House	27° 47.361'S; 24° 43.051'E
Demolished shed	27° 47.398'S; 24° 43.116'E
'Vintage' pump	27° 47.380'S; 24° 43.119'E

ANIMAL BURROWS

None of the animal burrows exposed any cultural material in the excavated soil.



Figure 15: Animal burrows

BUILT ENVIRONMENT

The subject area contains three built structures (main house, outbuilding, and a labourer's house) as well as the floor of a demolished shed. The main house and outbuilding is within a fenced area that is flush with the southern boundary on Kolong Street. None of the built structures are older than 60 years. The main house is roughly square (16m X 16m) with a mono-pitched roof with its highest pitch facing east, which is also the front façade. Recent additions include a wrap-around veranda on the northern and eastern sides and an enclosed area at the north-western corner extending to both the northern and western sides of the building. According to the owner, the house dates to the 1970's and the house is indeed a typical style from that period in South Africa.



Figure 16: Areal view of the position of the built environment structures as well as the 'vintage' pump



Figure 17: Southern facade of the main building - view from Kolong Street. Recent additions are the verandah on the right-hand side which continues along the eastern and western side. Orientation of picture is south to north.



Figure 18: Small outbuilding on the western side of the main house – the windows on the right side of the main building were recently closed-up with bricks.



Figure 19: Eastern (and entrance side) façade of the farmhouse. Floor area of the demolished shed in the foreground. Note the dense vegetation at the bottom of the picture which is situated outside the cleared and fenced-in area. Building rubble of recent alterations to the house is visible in front of the house.



Figure 20: Eastern (left) and northern (right) facades of the main house showing recent additions of the verandah as well as the enclosed area at the northeastern corner.



Figure 21: Labourer's house is a simple one-room flat-roofed structure of 5.5 X 4.5 m with a door and one window at its entrance facing north-west, situated approximately 9.5 m north-west of the main building.

A shed foundation with an approximately 34x8 m footprint is situated 20 m immediately east of the main building within the enclosed farmyard area (Refer to Image 16 on Page 25). It could have served as either a temporary storage place for agricultural harvests or farm implements and tractors, or both. It appears to have been built as two adjacent sections as demolition of the southern section took place before the northern section.

The large number of small dumps of building material (mainly concrete slabs) could have come from this as a June 2017 Google image (see Figure 22 below) show the farmyard littered with what appears to be building material and the southern section of the shed demolished. In the 2016 Google image the shed is still intact and the farmyard clear although with considerably more trees on the entire development area (the natural landscape



reflects the natural area on the western side, including the presence of shrubs – in particularly on the southern third of the subject area and the area east of the farm road that cuts through the property on the eastern side - than in the 2022 Google images. This might indicate a post-1916 site clearance of the entire farm 312.

Figure 22: Google Earth image dating to June 2017.

DUMPS

16 Identified dumps varying between building remains, soil, and rock piles (sometimes mixed) can be found scattered over the entire subject area (Refer to Figure 14 on p23 for the placement of these dumps). As mentioned above, the building remains is most likely from the demolished shed. The individual rock and soil dumps could indicate to a site clearance (rocks) and levelling (soil), reason unknown.



Figure 23: Dump containing soil and calcrete boulders



Figure 24: Soil dump with an ashy top layer



Figure 25: Building rubble



Figure 26: Two building rubble and soil dumps close to main house

'VINTAGE' PUMP

A D8 National pump close to the main house. According to the South African Federation of Vintage Tractors and Engine Clubs it dates to the 1970's. No exact date could be determined, but according to them the revised version of the 1950's (which had a more rounded top) came out in the 1970s. This means that it coincides with the date provided with the farm building.

It's position close to the demolished shed, could indicate that at least some portion of the shed was used for farm such as tractors that would require fuel.



Figure 27: Fuel tank at pump



Figure 28: Close-up views back and front of the pump

GEOTECHNICAL TEST PITS



Figure 29: Positions of geotechnical test pits marked TP1 - TP8

The surface of the excavated soil from all eight geotechnical test pits were inspected and no cultural material was detected. As far as could be seen, also no visible artefacts in the walls of the excavated pits.

TP1	27°47'24.07"S	24°43'4.58"E
TP2	27°47'22.61"S	24°43'2.79"E
TP3	27°47'22.10"S	24°43'5.18"E
TP4	27°47'22.95"S	24°43'6.49"E
TP5	27°47'23.82"S	24°43'7.46"E
TP6	27°47'21.57"S	24°43'6.73"E
TP7	27°47'20.28"S	24°43'4.06"E
TP8	27°47'18.34"S	24°43'0.29"E

A comparison of TP4 on the southern side of the property and TP8 on the northern side demonstrate the change in soil composition over the proposed development area



Figure 30: Walls of TP4

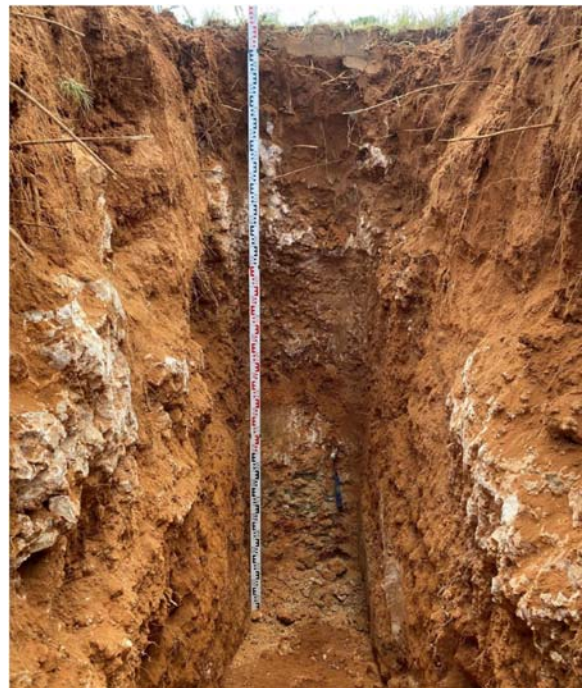


Figure 31: Walls of TP8



Figure 32: Calcified soil and clusters in foreground with Aeolian sand in background (from TP4)



Figure 33: Concretionary Calcrete (from TP8)

IMPACT ASSESSMENT

The field survey revealed no archaeological material and the observations reported in the field report above are all less than 60 years old. Observations include the farmstead and associated buildings, the remains (floor only) of a barn and a vintage pump and fuel tank and a labourer's house a short distance from the main house. One dump close to the main house and another dump close to the labourer's house contain some household refuse garbage intermingled with building rubble in the top layer which clearly indicates a deposition later than the building rubble.

The study area accordingly contains no heritage material worthy of conservation.

PALAEONTOLOGY

A separate palaeontological impact assessment report has been commissioned by the developer.

CONCLUSIONS AND RECOMMENDATIONS

No evidence of any prehistoric archaeological material; surface indications of archaeological middens; surface indicators of graves; rock art on rock face surfaces; evidence of military activities; or buildings older than 60 years, were found on the subject property. In light of the above, it is recommended that SAHRA approves the development with the following proviso:

- That the developer agrees to and signs the attached Chance Find Procedure (CFP) document and in turn ensure that once a project manager has been appointed, they too (including site managers) sign the CFP and commit to the implementation thereof. The developer's signed copy should be uploaded to SAHRIS.
- That the following conditions be adhered to and incorporated into the final environmental Management Programme (EMPr) for implementation:
 - In the event that any objects of archaeological or palaeontological remains be found during construction activities, work in the area of the find(s) must cease with immediate effect, and the Environmental Control Officer (ECO) be informed.
 - The ECO must inform SAHRA and, depending on the nature of the find, contact an archaeologist and/or palaeontologist to assess the importance and determine the actions required. Work can only be resumed once permission to do so has been obtained from SAHRA.
 - The Chance Finds Procedures (CFP) in the draft EMPr and Environmental Awareness Plan must be adhered to in order to ensure that standard protocols and steps are followed in the event of the accidental uncovering of any heritage and/or fossils during all phases of the project.
 - Should the project be granted Environmental Authorisation, SAHRA must be notified and all relevant documents submitted to the SAHRIS case file.

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ARCHAEOLOGICAL/PALAEONTOLOGICAL CHANCE FIND PROCEDURE (CFP)

Prepared for

EAP: Louis de Villiers

Developer:

Project coordinator for construction:

Development Project: Filling Station on Farm 312, Hartswater

Date: May 2023

Please note a copy of this document, signed by the developer, must be uploaded to SAHRIS at the same time SAHRA is notified of this project by means of registering the case for statutory commenting.

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1. SUMMARY

The purpose of this document is to address the possibility of archaeological and/or palaeontological deposits becoming exposed during ground-altering activities within the project area and to provide protocols to follow in the case of a chance find to ensure that such sites are documented and protected as required.

Archaeological sites are protected by the National Heritage Resources Act, No 25 of 1999 and these procedures are accordingly to ensure compliance with laws and regulations related to cultural heritage in South Africa. Archaeological/palaeontological sites are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value. Impacts on archaeological sites must be avoided or managed by development proponents. The objectives of this Chance Find Procedure (CFP) are to promote the preservation of archaeological data while minimizing disruption of the construction schedule. All on-site personnel and contractors are required to be informed of the Archaeological Chance Find Procedure and have access to a copy while on the construction site.

2. POTENTIAL IMPACT ACTIVITIES

Activities that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation of foundations or for any other purpose, are all examples of activities that may adversely affect archaeological deposits.

A permit is required for any subsurface investigation of an archaeological site or investigation with the intent to locate a site. Disturbance and/or removal of artefacts from an archaeological site may result in penalties.

3. RELEVANT LEGISLATION

The National Heritage Resources Act (NHRA) automatically protects all archaeological and palaeontological sites, whether on government or private land.

Archaeological means:-

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

- features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

Palaeontological means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

In terms of this particular development Sections 35 and 36 of the NHRA are applicable of which the relevant sections are quoted herewith:

Section 35(3): (Archaeology, palaeontology and meteorites)

Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

Section 36(6): (Burial grounds and graves)

Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

- a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

4. CHANCE FIND PROCEDURE EXECUTION

In the event of the accidental exposure of previously subsurface archaeological material as per description in section 3 above, the following applies:

- All construction activity in the vicinity of the remains is to cease immediately.
- The find location must be recorded, and all remains must be left in place
- The South African Heritage Resources Agency (SAHRA) should be informed
- An archaeologist and/or palaeontologist should be contacted to investigate.
- Potential significance of the remains will be assessed and mitigative options will be identified.
- If the significance of the remains is judged to be sufficient to warrant further action and they cannot be avoided, then the investigating archaeologist in consultation with the Archaeology, Palaeontology and Meteorite (APM) unit of

the South African Heritage Resources Agency (SAHRA) will determine the appropriate course of action.

- In the case of human remains, the SA Police pathologist must be contacted to determine if it is of an archaeological nature. If not, the remains will be dealt with by the SAP.
- If the remains are assessed to be archaeological, an archaeologist with experience in archaeological burial sites should be contacted who will in consultation with the Graves and Burial unit of SAHRA determine the course of action to be taken. Options could include avoidance or respectful removal and reburial.

For the CFP to be effective, the site manager must ensure that all personnel on the development site understand the CFP and the importance of following it if cultural heritage resources and/or palaeontological material are encountered. Additionally, training on cultural heritage resources that might potentially be found on site should be provided to key on-site personnel.

5. RESPONSIBILITIES

Developer	The developer must undertake to ensure the project coordinator assigned for this project (if different to the developer) signs this document and consequently takes responsibility for implementing this Chance Find Procedure
Project Coordinator	The top-level person who has ultimate responsibility for the implementation of this plan and who will be legally responsible to ensure the proper execution thereof. This is typically the firm that subcontracts all the various service providers.
Project Manager(s)	The person responsible for supervising all site teams and has the responsibility that all site members are aware of the archaeological chance find procedures.
Archaeology/palaeontology consultant	The consultant is referred in the event of a chance find for his/her advice and for reporting and recording found items according to applicable legislation.

The following people hereby acknowledge receipt of a copy of the CFP and upon signature agrees to implement the CFP if and when required:

DEVELOPER:

.....
Name

.....
ID Number

.....
Company / Employer

.....
Signature

PROJECT COORDINATOR:

(To be completed and signed once such person has been appointed.)

.....
Name

.....
ID Number

.....
Company / Employer

.....
Signature

PROJECT MANAGER:

(To be completed and signed once such person has been appointed.)

.....

Name

.....

ID Number

.....

Company / Employer

.....

Signature

ARCHAEOLOGIST / PALAEOLOGIST:

(To be completed and signed once such person has been appointed.)

.....

Name

.....

ID Number

.....

Company / Employer

.....

Signature