

# HERITAGE IMPACT ASSESSMENT

(REQUIRED UNDER SECTION 38(8) OF THE NHRA (No. 25 OF 1999))

FOR THE PROPOSED ROSSLYN HUB FILLING STATION, GAUTENG PROVINCE

**Type of development:**

Filling Station

**Client:**

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Project Reference:

HCAC Project number 2148

Report date:

July 2021

## APPROVAL PAGE

<b>Project Name</b>	Rosslyn Filling Station
<b>Report Title</b>	Heritage Impact Assessment for the Proposed Rosslyn Filling Station, Gauteng Province
<b>Authority Reference Number</b>	TBC
<b>Report Status</b>	Draft Report
<b>Applicant Name</b>	Rosslyn Hub Development Company (Pty) Ltd

	<b>Name</b>	<b>Qualifications and Certifications</b>	<b>Date</b>
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Date	Report Reference Number	Description of Amendment

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## REPORT OUTLINE

Appendix 6 of the GNR 326 EIA Regulations published on 7 April 2017 provides the requirements for specialist reports undertaken as part of the environmental authorisation process. In line with this, Table 1 provides an overview of Appendix 6 together with information on how these requirements have been met.

**Table 1. Specialist Report Requirements.**

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA) an indication of the quality and age of base data used for the specialist report	Section 3.4 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(l) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity <b>including identified alternatives on the environment</b> or activities;	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 10.1
(l) Conditions for inclusion in the environmental authorisation	Section 10. 1.
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 10. 5.
(n) Reasoned opinion - (i) as to whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10.3
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 6
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to BAR report
(q) Any other information requested by the competent authority	Section 13

**Executive Summary**

Rosslyn Hub Development Company (Pty) Ltd appointed Tekplan Environmental as the Environmental Assessment Practitioner (EAP) to conduct a Basic Assessment (BA) for the proposed Rosslyn Hub Fuel Filling Station. The BA is conducted as an amendment to the Environmental Authorisation for the authorised Township development. The proposed development is located on Portion 1 of the Farm Klipfontein 268 JR (to be known as Rosslyn Extensions 40, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 and 67), located in the City of Tshwane Metropolitan Municipality, Gauteng Province. HCAC was appointed to conduct a Heritage Impact Assessment (HIA) for the project to assess possible impacts to heritage resources by the development and the study area was assessed on desktop level and by a non-intrusive field survey. Key findings of the assessment include:


- The proposed site is impacted on by surrounding development activities (road and infrastructure developments) that took place from the 1930's onwards and this would have impacted on surface indicators of heritage sites if any ever occurred in the area.
- A visual and physical inspection of the proposed site recorded no standing structures older than 60 years or archaeological finds of significance.
- Based on the South African Heritage Resources Information Services (SAHRIS) Palaeontological map, the area is of insignificant paleontological sensitivity and no further studies are required.

No significant heritage resources will be affected by the development and the impact of the project on heritage resources are considered to be low. The project can commence based on the implementation of the recommendations in this report and the approval of SAHRA.

**Recommendations:**

- Implementation of a chance find procedure for the project.

**Declaration of Independence**

<b>Specialist Name</b>	Jaco van der Walt
<b>Declaration of Independence</b>	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> <li>• I act as the independent specialist in this application;</li> <li>• I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;</li> <li>• I declare that there are no circumstances that may compromise my objectivity in performing such work;</li> <li>• I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;</li> <li>• I will comply with the Act, Regulations and all other applicable legislation;</li> <li>• I have no, and will not engage in, conflicting interests in the undertaking of the activity;</li> <li>• I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;</li> <li>• All the particulars furnished by me in this form are true and correct; and</li> <li>• I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.</li> </ul>
<b>Signature</b>	
<b>Date</b>	07/07/2021

**a) Expertise of the specialist**

Jaco van der Walt has been practising as a CRM archaeologist for 15 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focussing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focussing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as he Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia and Tanzania. Through this, he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

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**ABBREVIATIONS**

ASAPA: Association of South African Professional Archaeologists
BGG Burial Ground and Graves
BIA: Basic Impact Assessment
CFPs: Chance Find Procedures
CMP: Conservation Management Plan
CRR: Comments and Response Report
CRM: Cultural Resource Management
DEFF: Department of Environment, Forestry and Fisheries
EA: Environmental Authorisation
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMPr: Environmental Management Programme
ESA: Early Stone Age
ESIA: Environmental and Social Impact Assessment
GIS Geographical Information System
GPS: Global Positioning System
GRP Grave Relocation Plan
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA: Middle Stone Age
NEMA National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NID Notification of Intent to Develop
NoK Next-of-Kin
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## 1 Introduction and Terms of Reference:

HCAC was appointed to conduct a HIA for the proposed Fuel Filling Station development on Portion 1 of the Farm Klipfontein 268 JR forming part of an authorised township development (to be known as Rosslyn Extensions 40, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 and 67), located in the City of Tshwane Metropolitan Municipality, Gauteng Province (Figure 1.1 to 1.4). The report forms part of the Basic Assessment (BA) and Environmental Management Programme Report (EMPr) for the development.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). The report outlines the approach and methodology utilized before and during the survey, which includes Phase 1, review of relevant literature; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey, no heritage resources were recorded. General site conditions and features on sites were recorded by means of photographs, GPS locations and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regulations section 40 (1) and (2), to be submitted to SAHRA for commenting. Upon submission to SAHRA the project will be automatically given a case number as reference. As such the EIA report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

### 1.1 Terms of Reference

#### Field study

Conduct a field study to: (a) locate, identify, record, photograph and describe sites of archaeological, historical, or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

#### Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project, i.e., construction, operation, and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation, SAHRA minimum standards and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

## 1.2 Project Description

The project consists of a Fuel Filling Station development as described in Table 2 and 3.

**Table 2: Project Description**

<b>Farm and portions</b>	Portion 1 of the Farm Klipfontein 268 JR (to be known as Rosslyn Extensions 40, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58 and 67), located in the City of Tshwane Metropolitan Municipality, Gauteng Province
<b>Magisterial District</b>	City of Tshwane Metropolitan Municipality,
<b>Central co-ordinate of the development</b>	S 25° 37' 23,8"      E 28° 04' 06,2"

**Table 3: Infrastructure and project activities**

<b>Type of development</b>	Fuel Filling Station Development
<b>Size of development</b>	Less than 5 Hectares
<b>Project Components</b>	Two erven were zoned for special purposes, i.e. motor showrooms and motor retail and it was decided to apply for a filling station on these two erven with the motor showroom and motor retail.

## 1.3 Alternatives

No alternatives were provided to be assessed although the extent of the area assessed allows for siting of the development to minimise impacts to heritage resources.

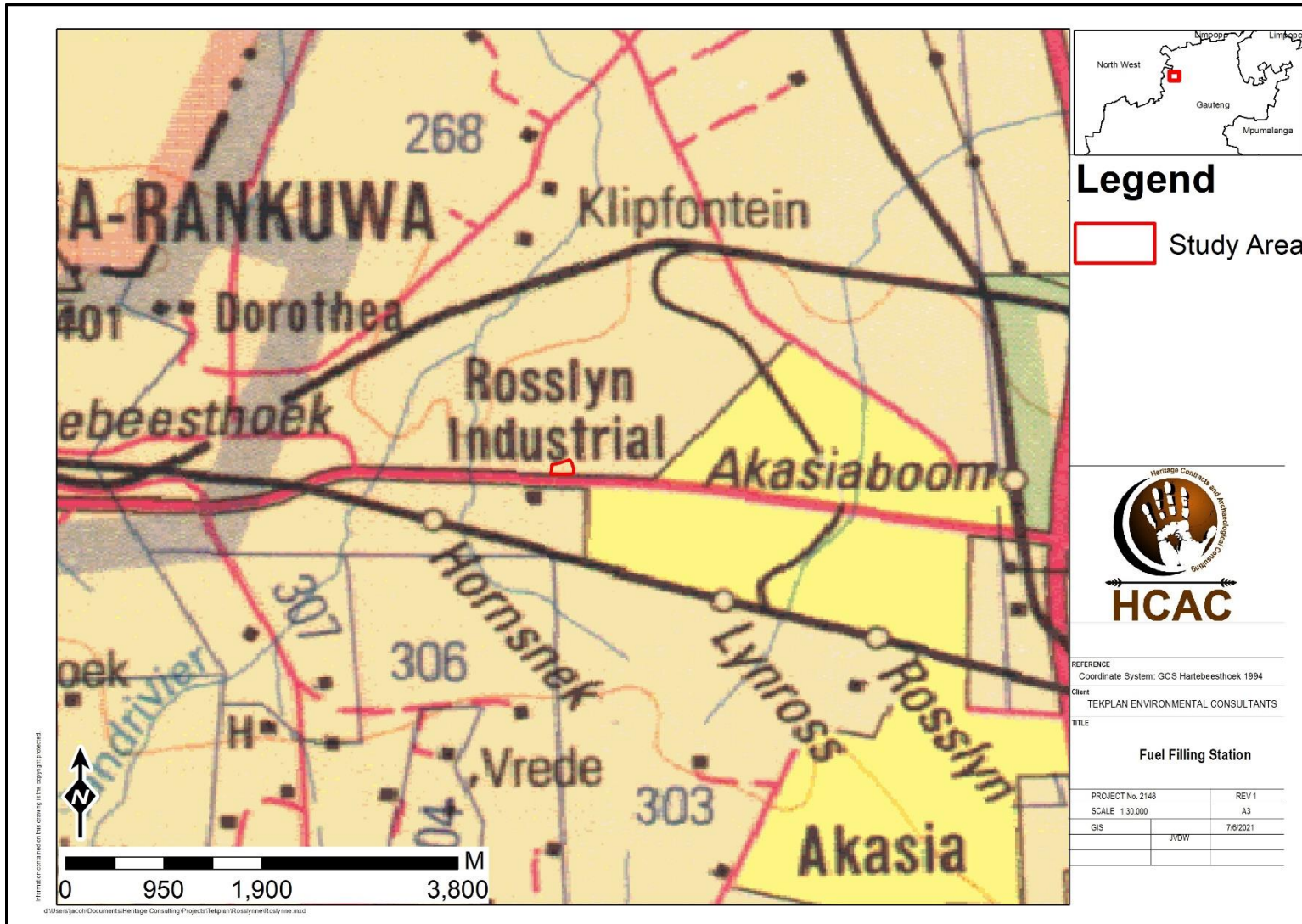


Figure 1.1. Regional setting (1:250 000 topographical map.)

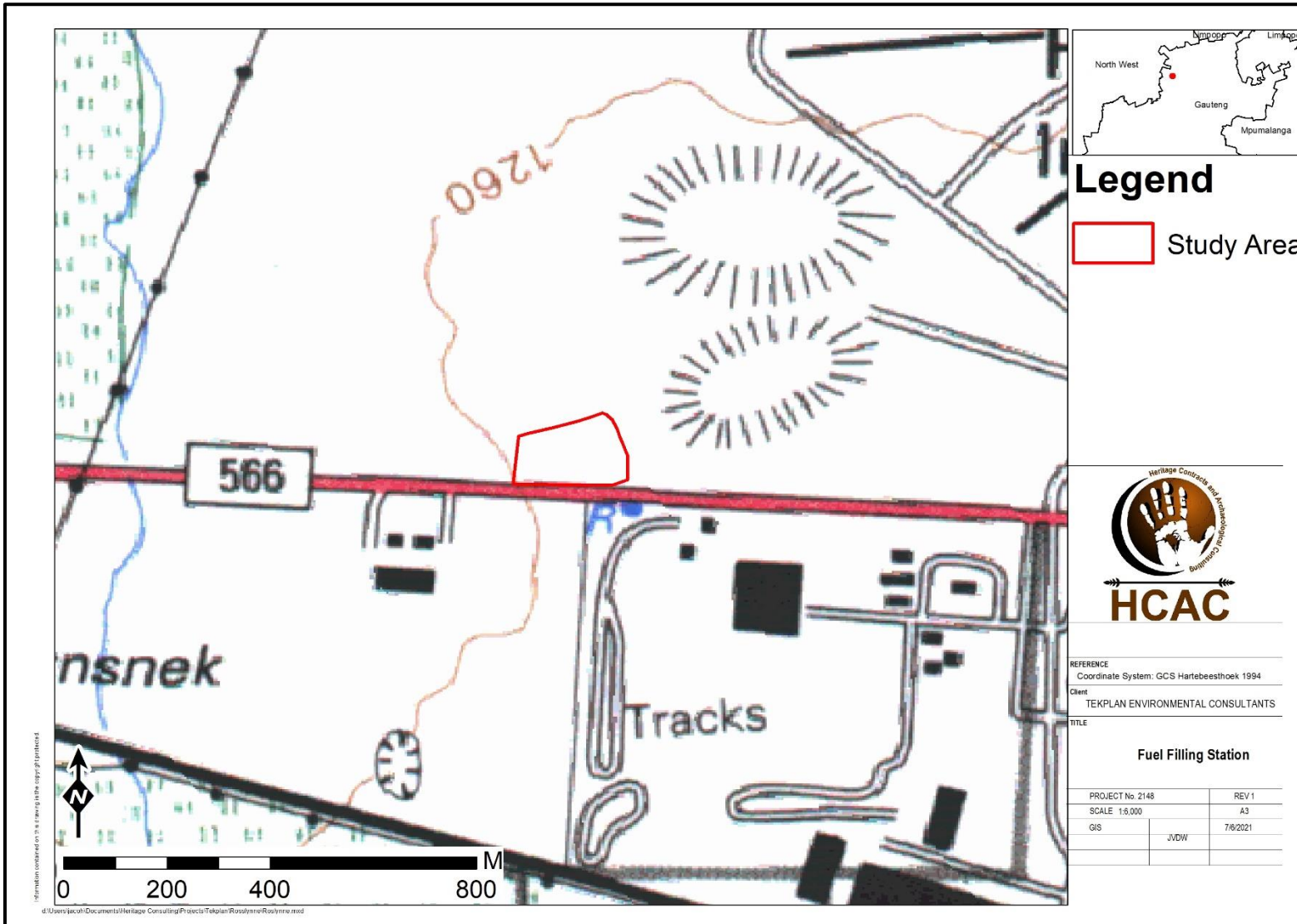


Figure 1.2: Local setting (1:50 000 topographical map).

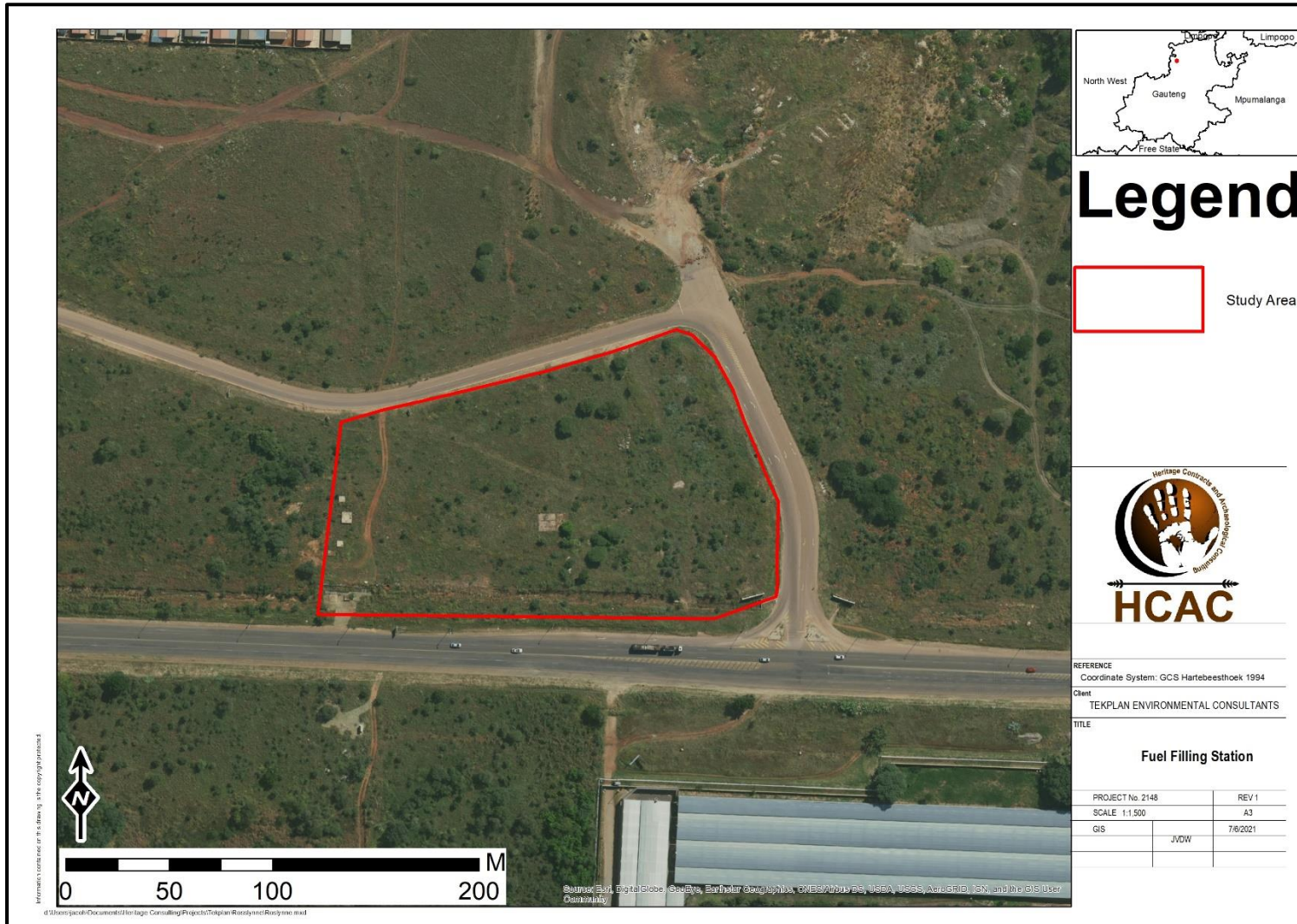


Figure 1.3. Aerial image of the development footprint.



## 2 Legislative Requirements

The HIA, as a specialist sub-section of the EIA, is required under the following legislation:

- National Heritage Resources Act (NHRA), Act No. 25 of 1999
- National Environmental Management Act (NEMA), Act No. 107 of 1998 - Section 23(2)(b)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)

A Phase 1 HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the PHRA if established in the province or to SAHRA. SAHRA will ultimately be responsible for the evaluation of Phase 1 HIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 HIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 HIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level). Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 HIA's are primarily concerned with the location and identification of heritage sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision-making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for with SAHRA by the applicant before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999 is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

### 3 METHODOLOGY

#### 3.1 Literature Review

A brief survey of available literature was conducted to extract data and information on the area in question to provide general heritage context into which the development would be set. This literature search included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

#### 3.2 Genealogical Society and Google Earth Monuments

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the fieldwork phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

#### 3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any EIA process, it involves stakeholders interested in, or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process was to capture and address any issues raised by community members and other stakeholders during key stakeholder and public meetings. The process involved:

- Placement of advertisements and site notices
- Stakeholder notification (through the dissemination of information and meeting invitations);
- Stakeholder meetings undertaken with I&APs;
- Authority Consultation
- The compilation of Basic Assessment Report (BAR).

### 3.4 Site Investigation

The aim of the site survey was to:

- a) survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;
- b) record GPS points of sites/areas identified as significant areas;
- c) determine the levels of significance of the various types of heritage resources recorded in the project area.

**Table 4: Site Investigation Details**

	Site Investigation
Date	6 July 2021
Season	Winter- Vicibility is high since most of the grass in the area was recently burned. The study area has been impacted on by tar roads, north, east and south of the study area and a large pipeline towards the western boundary. The site was however sufficiently covered to understand the heritage character of the study area (Figure 3.1).

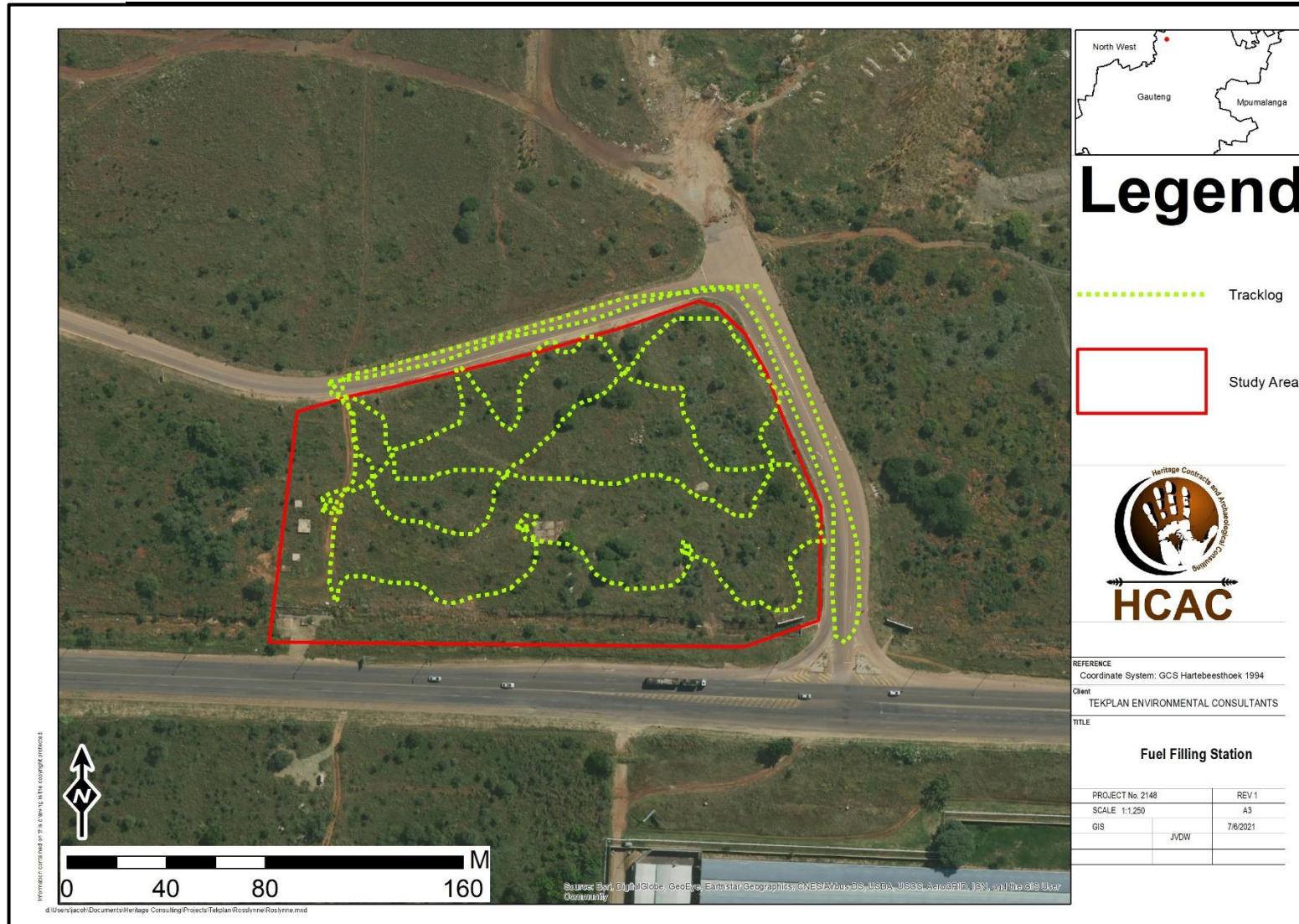


Figure 3.1: Tracklog of the survey in green.

### 3.5 Site Significance and Field Rating

Section 3 of the NHRA distinguishes nine criteria for places and objects to qualify as ‘part of the national estate’ if they have cultural significance or other special value. These criteria are:

- Its importance in/to the community, or pattern of South Africa’s history;
- Its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa.

The presence and distribution of heritage resources define a ‘heritage landscape’. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface. This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance with cognisance of Section 3 of the NHRA:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined/is known);
- The preservation condition of the sites; and
- Potential to answer present research questions.

In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

**Table 5. Heritage significance and field ratings**

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
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 A (GP. A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

### 3.6 Impact Assessment Methodology

The criteria below are used to establish the impact rating on sites:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - \* the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
  - \* the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
  - \* medium-term (5-15 years), assigned a score of 3;
  - \* long term (> 15 years), assigned a score of 4; or
  - \* permanent, assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

- 
- The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
  - the **status**, which will be described as either positive, negative or neutral.
  - the degree to which the impact can be reversed.
  - the degree to which the impact may cause irreplaceable loss of resources.
  - the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M) P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

### 3.7 Limitations and Constraints of the study

The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the nature of heritage resources and pedestrian surveys, the possibility exists that some features or artefacts may not have been discovered/recorded and the possible occurrence of graves and other cultural material cannot be excluded. Similarly, the depth of cultural deposits and the extent of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

## 4 Description of Socio-Economic Environment

The Tshwane IDP (2006 – 2011) indicated that: *“From a socio-economic demographic perspective Tshwane has seen some improvements, despite the fact that it continues to face serious challenges. The City’s population has grown slower than the national average, and in 2004 was estimated to be around 2,2 million people, of which 40,6% of the population fell within the 15-34-year age bracket. Compared to the national average, the City’s residents are better skilled, reflect high levels of literacy, the City provides employment for a larger percentage of its residents, its human development ranking is high and it has a per capita income above the national average. These figures have resulted in employment, and wage per capita value-added improvements, although, poverty and unemployment remain problematic. In 2003 Tshwane’s Economically Active Population (EAP) amounted to 48% of the total population which was higher than the national but lower than the provincial average. While this is positive, employment opportunities were lagging behind, which led to a high level of unemployment. Many people were absorbed into the informal market, but the latter is believed to have levelled off since 2001. Statistics have further shown that 15,3% of households had no income in 2001 (a doubling from 1996), the number of people living in poverty has increased and the group hardest hit in respect of unemployment are the youth (20-24 years).”* Priorities of the IDP included economic development and job creation.



## 5 Results of Public Consultation and Stakeholder Engagement:

### 5.1.1 Stakeholder Identification

Adjacent landowners and the public at large were informed of the proposed activity as part of the BA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process.

## 6 Literature / Background Study:

### 6.1 Literature Review (SAHRIS)

CRM studies conducted in the general vicinity of the study area that were consulted for this report is listed below. Sites recorded during these assessments are located away from the current project.

Author	Year	Project	Findings
Van Vollenhoven, A.C.	1999	PWV 7 Basiese Beplanning. Argeologiese verslag.	Stone Walled Settlements.
Van Schalkwyk, J.	2002	An archaeological investigation of some Industrial sites in the Rosslyn industrial area, Akasia, Gauteng Province	No sites
Kitto, J.	2017	New natural gas transmission supply pipeline to SAB Pty Ltd, Rosslyn, Tshwane Metropolitan Municipality, Gauteng. Construction of new natural gas pipeline on Erf 79, Erf 9 and Erf 66 Rosslyn, Akasia, City of Tshwane Metropolitan Municipality, Gauteng Province. Site Assessment and Heritage Screening Report	No sites
Van der Walt, J.	2020	Van der Walt, J. 2020. Heritage Impact Assessment Rosslyn Bulk Water . Unpublished report.	Stone Age artefacts and Iron Age ceramics

#### 6.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

## 6.2 Historical Period

It was however only by the late 1820's that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the extent of that proportion of modern South Africa dominated by people of European descent. (Ross 2002: 39)

Pretoria was founded in 1855 and became the capital of South Africa, then known as the Zuid-Afrikaanse Republiek, in 1860. By 1900, Pretoria was a thriving Transvaal town, with shaded streets, well-kept gardens and a lively economy. In mid-1899, the Pretoria district had a white population of 21 000 men and 19 000 women, while the black, coloured and Indian population totalled 38 618. (Theron 1984: 1-3)

### 6.2.1 Battles in the study area

The Anglo-Boer War was the greatest conflict that had taken place in South Africa up to date, and also affected the Pretoria area, where the farm Klipfontein is situated. The white concentration camp located closest to this farm, was situated a small distance to the northeast of Pretoria. Another white and a black concentration camp are located to the southwest of Pretoria, in the Irene area. One battle took place at Silkaatsnek, to the northwest of Pretoria, some distance from the farm. Here, General De la Rey's Boer troops defeated the British army on 11 July 1900. (Bergh 1999: 54, 250) The Boer side however generally lost ground against the British as the war continued, and in June 1900 the Boer military leaders decided that Pretoria would have to be surrendered to the British forces. This decision was inevitable if the war was to be continued. The town was very susceptible to a siege, and its defence would have gravely endangered the lives of its inhabitants. More importantly, the defence of the town would involve such a great number of Boers that the capture of these men would have surely meant the end of the war. Pretoria was therefore occupied by British forces on Tuesday 5 June 1900 (Theron 1984: 273-279). Between 1939 and 1940, farm boundaries were drawn up in an area that includes the present-day Pretoria (Bergh 1999: 15) that includes the farm Klipfontein.

## 6.1 Background to the general area

### 6.1.1 Archaeology of the area

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

#### 6.1.1.1 *Stone Age*

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. The three main phases can be divided as follows;

- \* Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago
- \* Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- \* Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

The ESA is represented in the area by the Wonderboom site on the southern slopes of the Magaliesberg north of Pretoria. This site is characterised by numerous cleavers, hand axes, cores and flakes (Mason, 1958). The nearby Jubilee shelter has been excavated and provides a record from the Late Pleistocene to the 7th Century AD (Turner, 1986), an extended cultural sequence with assemblages' characteristic of the Middle Stone Age, Early Later Stone Age and Later Stone Age including assemblages from the Oakhurst and Wilton industries (Wadley, 1986). The Jubilee shelter provides evidence of hunter–gatherer occupation during three phases of agro pastoralist contact, beginning in 225 AD and characterised by cooperative contact, prior to the hunter-gatherers being either assimilated or dispersed to other areas (Wadley, 1996).

### 6.1.1.2 Iron Age (general)

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living.

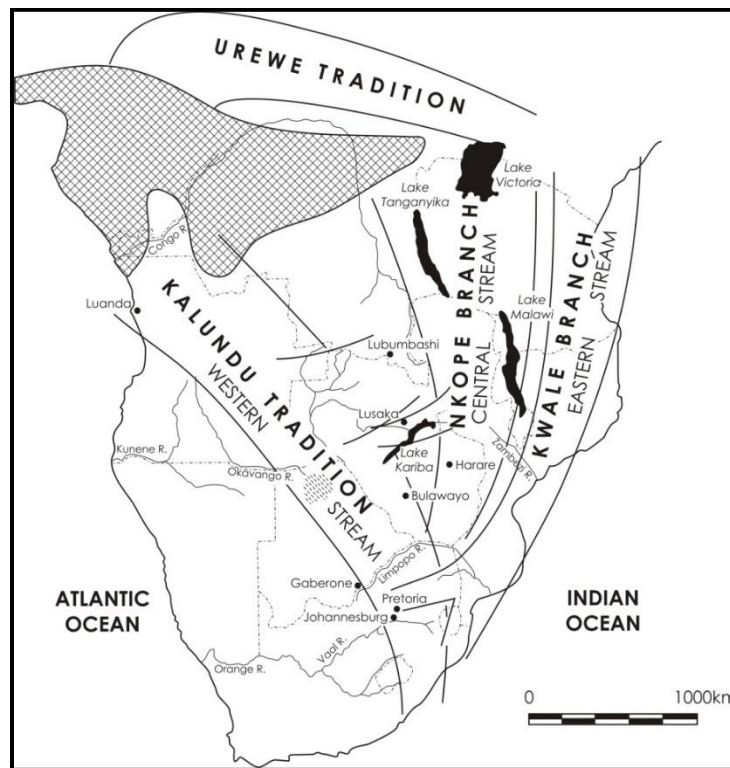


Figure 6.1: Movement of Bantu speaking farmers (Huffman 2007)

#### Early Iron Age

Early in the first millennium AD, there seem to be a significant change in the archaeological record of the greater part of eastern and southern Africa lying between the equator and Natal. This change is marked by the appearance of a characteristic ceramic style that belongs to a single stylistic tradition. These Early Iron Age people practised a mixed farming economy and had the technology to work metals like iron and copper. A meaningful interpretation of the Early Iron Age has been hampered by the uneven distribution of research conducted so far; this can be partly attributed to the poor preservation of these early sites.

Sites belonging to the EIA consisting of *Happy Rest* and *Mzonjani facies* have been recorded close to the project area. Happy Rest and Mzonjani pottery form part of two traditions (Kalundu and Urewe) that represent the spread of mixed farmers into southern Africa during the Early Iron Age (See Figure 9). This find is important as it provides evidence for early interaction between these groups. Later, by the 8<sup>th</sup> and 9<sup>th</sup> centuries, the two merged to form a new *facies*, *Doornkop*.

### ***Middle Iron Age***

No sites dating to this period are on record close to the study area.

### ***Late Iron Age***

For the area in question the history and archaeology of the Sotho Tswana are of interest. The ceramic sequence for the Sotho Tswana is referred to as Moloko and consists of different facies with origins in either the Icon facies or a different branch associated with Nguni speakers. Several sites belonging to the Madikwe and Olifantspoort facies (from Icon) have been recorded close to the project area. These sites date to between AD 1500 and 1700 and predate stone walling ascribed to Sotho-Tswana speakers.

What is of interest here is the Swartkoppies mountain range that extends into the southern part of the study area this area is renowned for its LIA stone walled settlements. A detailed survey of the mountain range on the farm Hoekfontein (located to the west of the current study area) identified 470 individual archaeological sites (Kusel 2003) covering an area of about 1000 hectares (Pelser 2007). Unfortunately, almost 110 of these sites were already negatively impacted on in 2007. Another site worth mentioning is the LIA stone walled complex at Medunsa to the southwest of the study area. The sites are currently being researched as part of a Master's Thesis project. Following the classification system used for Makau these sites belong to Mike Taylor's (1979) group 2, particularly group 2a. These sites date to between AD 1650 and AD 1840. Sotho Tswana stonewalled sites with Uitkomst pottery have been found close to the study area and dates to the seventeenth to nineteenth centuries.

#### **6.1.2 History of the farm Klipfontein 268 JR**

By 1903, the farm Klipfontein, then known as Klipfontein No. 482, was owned by one G. C. B. Brit. (National Archives of South Africa 1903) It is not certain when this farm was first proclaimed, but this is the earliest known reference to the property that could be found. In 1905, there was a suspected outbreak of a contagious disease on the farm (National Archives of South Africa 1905), and in 1907 quarantine on cattle was passed in the area (National Archives of South Africa 1907). In the 1940s a number of farms in the Pretoria district, including Klipfontein No. 482, were subdivided. (National Archives of South Africa 1941-1949) In 1946, the farm became known as Klipfontein 268 JR. (National Archives of South Africa 1946-1959)

In the 1950s the establishment of black locations in the area of the farm Klipfontein came under discussion. (National Archives of South Africa 1950-1960) It is not certain what came of these discussions.

By 1960, the Anglo-American Prospecting Company (Africa) Limited had an interest in the farm Klipfontein 268 JR. (National Archives of South Africa 1960) Together with the advent of mining activities on the property, there were a number of applications for business rights on the farm between the late 1950s and the 1990s. (National Archives of South Africa 1958-1987; National Archives of South Africa 1961-1986; National Archives of South Africa 1961-1990)

In 1965, the Peri-urban Areas Health Board purchased portions of Klipfontein, seemingly as a boundary zone for the industrial area northwest of Pretoria. (National Archives of South Africa 1965).

### 6.1.3 Cultural Landscape

Historical maps were sourced and examined to determine how the landscape changed over time. Images and topographic maps of the area are available from the 1930's, showing the study area to be rural with a road marking the southern boundary of the study area from the 1930's with excavations occurring from the 1960's and later on dumping to the northeast of the study area (Figure 6.1 to 6.5).

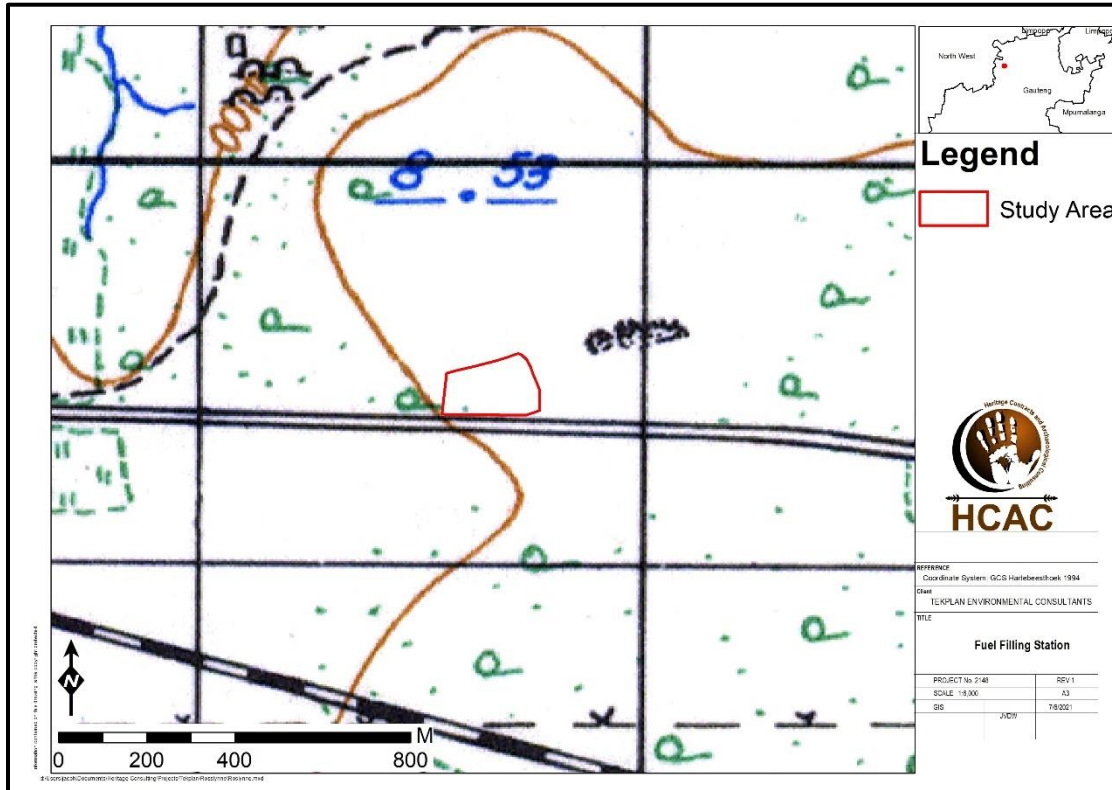


Figure 6.2. 1939 Topographic map of the study area already showing the R566.



Figure 6.3. 1965 Topographic map showing the R566 and excavation to the northeast.

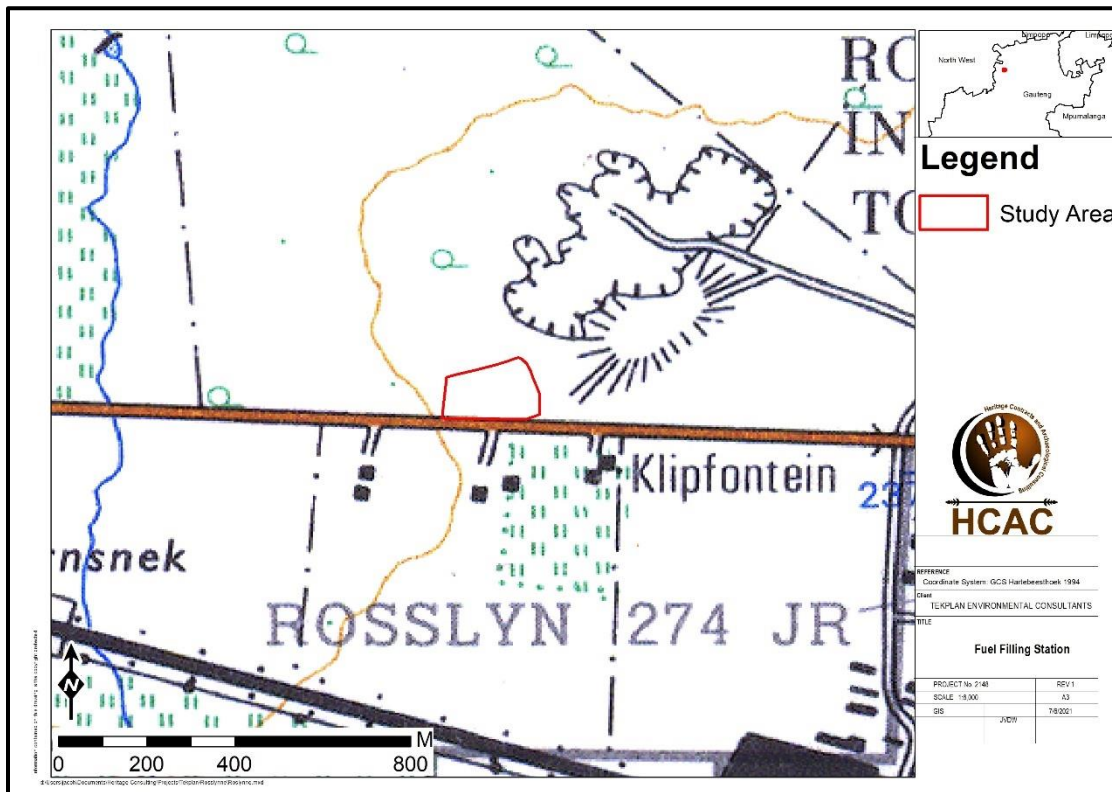


Figure 6.4. 1975 Topographic map indicating excavation and filling to the north.

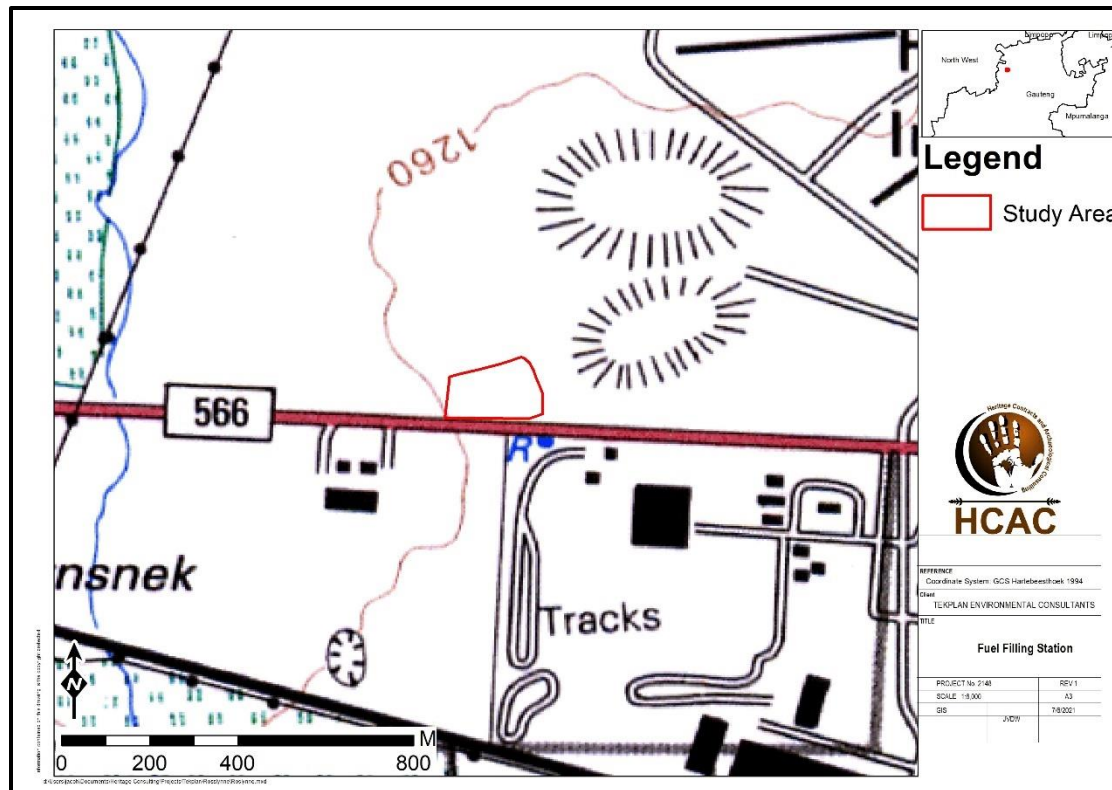


Figure 6.5. 1996 Topographic map indicating land fill to the north of the study area and surrounding developments.

## 7 Description of the Physical Environment

The study area is in an open field north of the R566 located to the west of Rosslyn bordered by two tar roads. An existing pipeline traverses the western edge of the study area and illegal regularly occurs on the site. The study area falls within the Central Bushveld Bioregion and the Norite Koppies Bushveld (Mucina and Rutherford 2006) and current vegetation on site is characterised by a few thorn trees with the general grass cover having been burnt ensuring good visibility. General site conditions are shown in Figure 7.1 to 7.6.





Figure 7.1. General site facing East from the existing pipeline.



Figure 7.2. R566 road, including large stormwater drainage and existing pipeline.



Figure 7.3. Existing pipeline - western border.



Figure 7.4. General site conditions facing North from the R566.



Figure 7.5. Existing roads on the Eastern border of the study area.



Figure 7.6. General site conditions.

### 8 Findings of the Survey

It is important to note that only the development footprint of the project was surveyed over 1 day. The study area has been impacted on by surrounding development activities (road and infrastructure developments) that would have destroyed surface indicators of heritage resources if any ever existed in the study area. Two modern features were noted and recorded as observation points (Figure 8.1.). Observation point 1 is a temporary dwelling foundation constructed from cement lintels with a gravel fill, measuring approximately 8x2m (Fig 8.2 and 8.3). Observation point 2 is a 5 x 7 m cement foundation towards the centre of the study area (Figure 8.4. and 8.5.) These features are not indicated on archival maps of the area and assumed not to be older than 60 years and of no heritage significance.

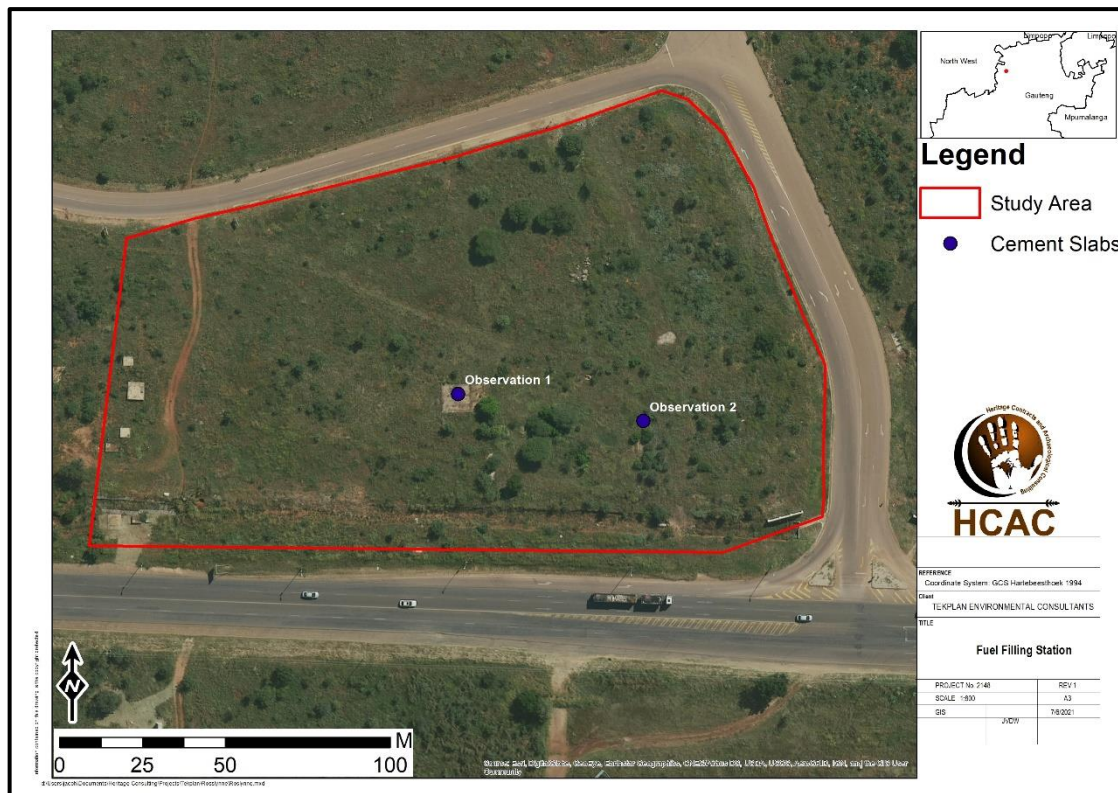


Figure 8.1. Observation points in relation to the site lay out.



Figure 8.2 Cement and gravel feature at Observation point 1.



Figure 8.3. Cement lintels at observation point 1.

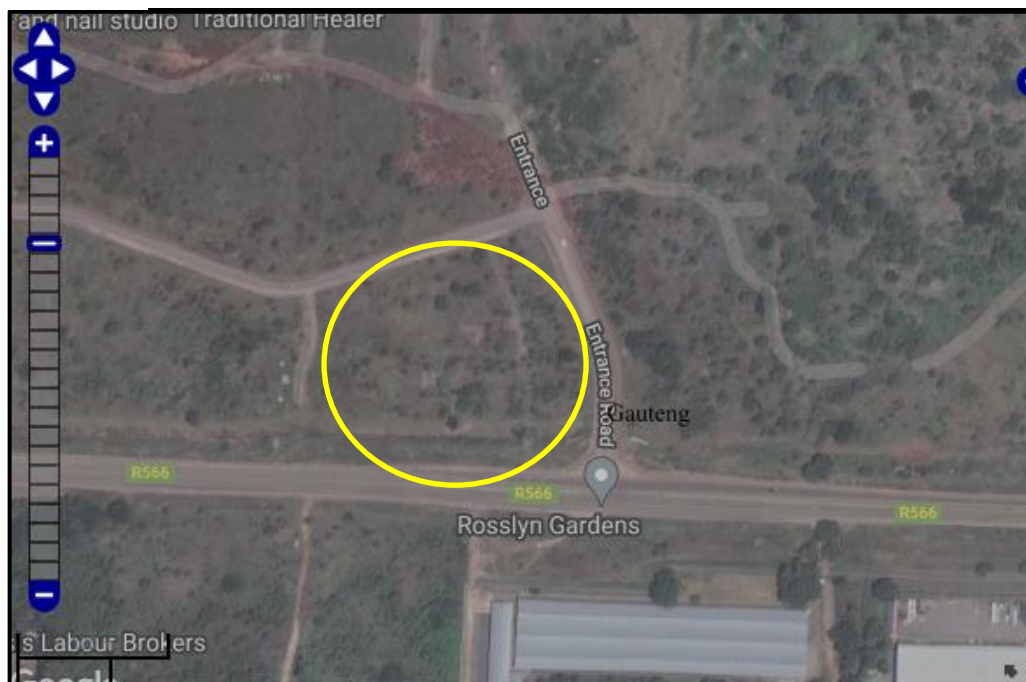


Figure 8.4. Cement foundation with pipeline remains at Observation point 2.



Figure 8.5. Cement foundation with pipeline remains at Observation point 2.

Based on the SAHRA Paleontological map (Figure 8.6) the area is of insignificant paleontological sensitivity and no further studies are required.



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 8.6. Paleontological sensitivity of the study area (yellow polygon).

## 9 Potential Impact

Based on the lack of heritage resources within the proposed development footprint the impact on the cultural heritage resources of the area is considered to be low (Table 6).

### 9.1.1 Pre-Construction phase

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on heritage features if any occur. Impacts include destruction or partial destruction of non-renewable heritage resources.

### 9.1.2 Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. Potential impacts include destruction or partial destruction of non-renewable heritage resources.

### 9.1.3 Operation Phase:

**Table 6. Impact assessment of the project**

<b>Nature:</b> During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.		
	<b>Without mitigation</b>	<b>With mitigation (Preservation/ excavation of site)</b>
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Permanent (5)	Permanent (5)
<b>Magnitude</b>	Minor (2)	Minor (2)
<b>Probability</b>	Improbable (2)	Improbable (2)
<b>Significance</b>	<b>18 (Low)</b>	<b>18 (Low)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Not reversible
<b>Irreplaceable loss of resources?</b>	Yes	Yes
<b>Can impacts be mitigated?</b>	NA	NA
<b>Mitigation:</b> Implementation of a chance find procedure for the project.		
<b>Cumulative impacts:</b> The proposed project will have a low cumulative impact as no known heritage resources will be adversely affected.		
<b>Residual Impacts:</b> Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

## 10 Conclusion and recommendations

The study area has been modified and altered by surrounding activities related to road and infrastructure developments that would have impacted on surface evidence of heritage sites if any ever occurred in the area. The study area is characterised by illegal dumping of refuse, further limited the possibility of identifying surface evidence of heritage resources. The expected lack of heritage resources in the study area was confirmed by a visual and physical inspection of the proposed site, and no standing structures older than 60 years or archaeological finds of significance were noted. Based on the SAHRA Paleontological map the area is insignificant paleontological sensitivity and no further studies are required for this aspect.

No significant heritage resources will be affected by the development and therefore the impact of the project on heritage resources are low and the project can commence based on the implementation of the recommendations in this report and the approval of SAHRA.

### 10.1. Recommendations for condition of authorisation

The following recommendations for Environmental Authorisation apply and the project may only proceed based on approval from SAHRA:

- Implementation of a chance find procedure for the project (as outlined below).

### 10.2. Chance Find Procedures

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefore chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

### 10.3. Reasoned Opinion

The overall impact of the project on heritage resources is low, based on the adherence to the recommendations in this report and approval from SAHRA prior to development. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the project.



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**10.4 Potential risk**

Potential risks to the proposed project are the occurrence of intangible features and unrecorded cultural resources (of which graves are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation, and possible layout changes.

## 10.5 Monitoring Requirements

Day to day monitoring can be conducted by the Environmental Officers (EO). The EO or other responsible persons should be trained along the following lines:

- *Induction training:* Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.
- *Site monitoring and watching brief:* As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are the initial soil removal and subsequent earthworks during construction. The EO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Table 7. Monitoring requirements for the project

Heritage Monitoring					
Aspect	Area	Responsible for monitoring and measuring	Frequency	Proactive or reactive measurement	Method
Clearing activities and Excavations	Entire project area	EO	Weekly – during construction phase	Proactively	<ul style="list-style-type: none"> <li>• If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented:               <ol style="list-style-type: none"> <li>1. Cease all works immediately;</li> <li>2. Report incident to the Sustainability Manager;</li> <li>3. Contact an archaeologist or palaeontologist to inspect the site;</li> <li>4. Report incident to the competent authority; and</li> <li>5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities.</li> </ol> </li> <li>• Only recommence operations once impacts have been mitigated.</li> </ul>

### 10.6 Management Measures for inclusion in the EMPr

The following management measures must be included in the EMPr to ensure the protection of non-renewable heritage resources.

**Table 8. Management measure for inclusion in the EMPr.**

ACTIVITIES	PHASE	SIZE AND SCALE	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Construction and Excavation Activities	Pre-Construction and Construction	Entire site	Chance Find Procedure	Heritage Act NHRA Act 25 of 1999 (Section 35, 36 and 38)	Construction phase

### **10.7 Knowledge Gaps**

Due to the subsurface nature of heritage resources and burial sites, the possibility of discovery of heritage resources during the construction phase cannot be excluded. This limitation can be successfully mitigated with the implementation of a chance find procedure.

## 11 References

- Archaeological Database Wits University Referenced 2009
- Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies. Edited by J. S. Bergh. 1999. Pretoria: J. L. van Schaik Uitgewers.
- Huffman, T.N. 2007. Handbook to the Iron Age. The archaeology of pre-colonial farming societies in Southern Africa. Pietermaritzburg: University of KwaZulu-Natal Press
- Kusel, U. 2003. Survey of Cultural Heritage resources on Elandsfontein 440 JQ. Unpublished report. On record at SAHRA
- Mason, R.J., 1986. Origins of black people of Johannesburg and the Southern Western Central Transvaal AD 350-1880. University of the Witwatersrand: Johannesburg.
- Pelser, A. 2007. A report on the first phase of archaeological excavations at the Mmakau heritage site Located on the farm Hoekfontein 342 JQ, Madibeng area, Northwest Province. Unpublished report by Archaetnos
- Ross, R. 2002. *A concise history of South Africa*. Cambridge: Cambridge University Press.
- The City Council of Pretoria. 1955. *Pretoria (1855-1955). History of the city of Pretoria published in the centenary year 1955*. Pretoria: Wallachs' P. & P. Co. Ltd.
- Theron, B. M. 1984. *The social history of Pretoria during the first phase of the Anglo-Boer War: October 1899 - June 1900*. MA Thesis, Pretoria: University of South Africa.
- Van der Walt, J. 2012. Heritage Scoping Report for The Prospecting Right Application on The Farm Klipfontein 268 JR by Wildebeest Platinum (Pty) Ltd in The Gauteng Province. Unpublished report.
- Van Schalkwyk, J.A. 1998. *A Survey of Cultural Resources in the Proposed Mining Area on the Farm Hoekfontein 432 JQ, Odi 1 District*. An unpublished report by the National Cultural History Museum on file at SAHRA as: 1998-SAHRA-0052.
- Van der Walt, J. 2020. Heritage Impact Assessment Rosslyn Bulk Water . Unpublished report.
- Van Schalkwyk, J.A. & Moifatswane, S. 2003. *Heritage Impact Assessment for the Ramaland Residential Development, Ga-Rankuwa Area Gauteng*. An unpublished report by the National Cultural History Museum on file at SAHRA as: 2003-SAHRA-0167.
- Van Vollenhoven, A.C. 1992. *PWV7 Route: Basiese Beplanning: Argeologiese Verslag*. An unpublished report by Archaetnos CC on file at SAHRA as: 1992-SAHRA-0011.
- Wadley, L., 1996. Changes in the social relations of precolonial hunter-gatherers after agropastoralist contact: an example from the Magaliesberg, South Africa. *Journal of Anthropological Archaeology*, 15(2), pp.205-217

### ARCHIVAL SOURCES (National Archive, Pretoria)

- National Archives of South Africa. 1903. *TAB\_TAD\_1016\_W108. GCB Brit Klipfontein 482*.
- National Archives of South Africa. 1905. *6/77. General Plan of portions of the farm Klipfontein No. 157, District Pretoria, surveyed in May 1905 by the Governmental Land Surveyor*.
- National Archives of South Africa. 1905. *TAB\_TAD\_113\_A1310/05. Mr. Teichmann, Klipfontein 482, Pretoria. Suspected outbreak of contagious disease*.
- National Archives of South Africa. 1907. *TAB\_TAD\_183\_A3173. W Teichmann, Klipfontein 482, Pretoria. Quarantine on cattle passed over Hebron*.
- National Archives of South Africa. 1941-1949. *SAB\_CDB\_3/669\_TAD9/18. Plaaslike bestuur. Onderverdeling van plaasgrond. Pretoria. Klipfontein 482. Hartebeestfontein 592. Donkerhoek 274. Honingnestkrans 121. Kameeldrift 521. Kruisfontein 164. Garstfontein 428. Doornkraal 4. Derdepoot 469. Vaalboschbult 499. Wildebeesthoek 611. Hondsrivier 361. The Willows 23. Olifantsfontein 156. Bynespoort 520. Kameelfontein 106. De Onderstepoort 496. Rosslyn. Rooikoppen 477*.
- National Archives of South Africa. 1946-1959. *SAB\_CDB\_3/687\_TAD9/18/24. Plaaslike bestuur. Onderverdeling van plaasgrond. Pretoria. Klipfontein 482 nou 268*.
- National Archives of South Africa. 1950-1960. *SAB\_NTS\_6128\_462/313N. Stigting van lokasies. / Establishment of locations. Pretoria. North. (780/308 Farm: Klipfontein 482, Pretoria. 462/313[1])*.
- National Archives of South Africa. 1958-1987. *SAB\_CDB\_15241\_PB4/19/2/37/268/10. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 18 gedeelte van gedeelte 14 van Klipfontein 268JR*.
- National Archives of South Africa. 1960. *SAB\_NTS\_6911\_470/319. Prospecting. Klipfontein No. 482. (268 – JR), Pretoria, Anglo American Prospecting Co (Africa) Ltd*.
- National Archives of South Africa. 1960-1961. *SAB\_LDE\_2092\_43675. B van Veen. Sekere gedeelte van die plaas Klipfontein 268 distrik Pretoria*.
- National Archives of South Africa. 1961. *SAB\_BAO\_10139\_D52/1547/23. Mynbou. Mining. Pretoria. Klipfontein 268*.

- National Archives of South Africa. 1961-1990. *SAB\_CDB\_15242\_PB4/19/2/37/268/11. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 73 gedeelte van gedeelte 10 en gedeelte 35 (gedeelte van gedeelte 11) van Klipfontein 268jr.*
- National Archives of South Africa. 1963-1966. *SAB\_GMO\_2/396\_12/10. Beplanning. Individuele gevalle. Gebiedsbeheer. Wet 77 van 1957. Plaas Klipfontein 268.*
- National Archives of South Africa. 1965. *TAB\_TP\_3788\_TALG16-11-187. Peri-urban areas Health Board purchase of ptns of Klipfontein no 268 ptn of Hartbeeshoek 303 boundary industrial area northwest of Pretoria.*
- National Archives of South Africa. 1967. *SAB\_BAO\_2498\_C31/3/1017/6. Enkelkwartiere. Rand Water Board Klipfontein No. 268 Pretoria.*
- National Archives of South Africa. 1971-1972. *SAB\_CDB\_15239\_PB4/19/2/37/268/1. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria Openbare oord. Klipfontein 268.*
- National Archives of South Africa. 1976-1978. *SAB\_CDB\_15240\_PB4/19/2/37/268/5. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 36 en 45 van Klipfontein 268JR.*
- National Archives of South Africa. 1981-1988. *SAB\_CDB\_15243\_PB4/19/2/37/268/15. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Restante gedeelte van gedeelte 9 (gedeelte van gedeelte 2) van Klipfontein 268JR.*
- National Archives of South Africa. 1982-1983. *SAB\_CDB\_15240\_PB4/19/2/37/268/6. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte van Klipfontein 268JR.*
- National Archives of South Africa. 1983-1985. *SAB\_CDB\_15241\_PB4/19/2/37/268/8. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeeltes 145 en 146 van Klipfontein 268JR.*
- National Archives of South Africa. 1985-1988. *SAB\_CDB\_15242\_PB4/19/2/37/268/13. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Restante gedeelte van gedeelte 54 van Klipfontein 268.*
- National Archives of South Africa. 1986. *SAB\_CDB\_15242\_PB4/19/2/37/268/12. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Restant van gedeelte 2 van gedeelte 163 van Klipfontein 268.*
- National Archives of South Africa. 1987-1988. *SAB\_CDB\_15243\_PB4/19/2/37/268/14. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 44 gedeelte van gedeelte 7 van gedeelte B van Klipfontein 268JR.*
- National Archives of South Africa. 1961-1986. *SAB\_CDB\_15240\_PB4/19/2/37/268/7. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 66 gedeelte van gedeelte 65 van Klipfontein 268JR.*
- National Archives of South Africa. 1975-1988. *SAB\_CDB\_15240\_PB4/19/2/37/268/2. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Gedeelte 141, 142 en gedeelte 143 van Klipfontein 268JR.*
- National Archives of South Africa. 1978. *SAB\_CDB\_15240\_PB4/19/2/37/268/4. Plaaslike bestuur. Gemeenskapsvorming. Besigheidsregte. Pretoria. Klipfontein 268JR.*