

PHASE ONE HERITAGE IMPACT ASSESSMENT AND PROTOCOL OF FINDS

FOR THE eTAFULENI RESIDENTIAL DEVELOPMENT ON PORTION 14 (OF
6) OF THE FARM INANDA NO. 818, IN INANDA, eTHEKWINI
MUNICIPALITY, KWAZULU-NATAL



Prepared for:
ECA Consulting
Tel: 083 711 5321
Email: admin@ecaconsulting.co.za

Prepared by:
Land Matters Environmental Consulting
Tel: 082 408 6545
Email: phillipa@lmenvironmental.co.za

Draft Version
14 April 2023



LAND MATTERS
ENVIRONMENTAL CONSULTING



Document Title:	Phase 1 Heritage Impact Assessment and Protocol of Finds for the eTafuleni Residential Development on Portion 14 (of 6) of the Farm Inanda No. 818, in Inanda, eThekweni Municipality, KwaZulu-Natal.
Author:	Dr Phillipa Harrison – Land Matters Environmental Consulting
Prepared For:	ECA Consulting Environmental and Carbon Assessments
Date:	14 April 2023

GENERAL DECLARATION:

I, **Dr Phillipa Harrison**, declare that –

- I act as the independent specialist in this application in terms of Section 12 and 13 of the regulations;
- 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;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist study relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- 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;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

REPORTING CONDITIONS:

- The findings, results, observations, conclusions, and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as information available at the time of compilation.
- The author accepts no liability for any actions, claims, demands, losses, liabilities, costs, damages, and expenses arising from or in connection with services rendered, and by the use of the information contained in this document.
- No form of this report may be amended without the prior written consent of the author.

Dr. Phillipa Harrison - BA Hons (Archaeology); PhD (Geog Sci); Reg - ASAPA
Archaeologist/Heritage Consultant
Tel: 082 408 6545
Email: phillipa@lmenvironmental.co.za

Refer to Appendix A for the CV of the Heritage Consultant

EXECUTIVE SUMMARY

Land Matters Environmental Consulting was appointed by ECA Consulting on behalf of the Applicant, eThekweni Municipality: Human Settlements and Infrastructure, to conduct a Phase 1 Heritage Impact Assessment (HIA) for the proposed establishment of a government-funded residential development (eTafuleni Residential Development) on Portion 14 (of 6) of the Farm Inanda No. 818, in Inanda, eThekweni Municipality, KwaZulu-Natal. The development site is approximately 23ha in extent and is located in Ward 56 of Inanda. The proposed development will comprise approximately 212 residential sites and will provide housing for families currently residing in informal settlements in the surrounding area. The development site is currently zoned for agricultural use and will require rezoning to low – medium density residential as part of the development process.

This Phase 1 HIA is being undertaken in accordance with the requirements of Section 41(1)(c)&(d) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act 5 of 2018). The project site is located within an area that is designated as having a “low” fossil sensitivity according to the SAHRIS palaeo-sensitivity map. As such no palaeontological studies are required, however a protocol of finds is required, which has been included as Appendix B of this report.

The Phase 1 HIA included an initial desktop assessment and review of relevant current and historical aerial imagery of the study site in order to identify historical land uses associated with the study site and surrounds. The SAHRIS website and Provincial Heritage Register were consulted for data on the presence and significance of any heritage sites within the project area. In addition, the available heritage literature covering the larger study area was also consulted.

A ground survey of the study site was conducted on the 04th of April 2023 following standard archaeological survey procedures. A public liaison officer, Mr. Louis Dlamini was appointed for the site visit and accompanied the consultant on site during the ground survey. The consultant and Mr Dlamini were also accompanied on site by Qadi Traditional Council members from the area. The Traditional Council members assisted with the identification of heritage resources, in particular graves, on the study site.

Two heritage resources were identified on the development footprint during the ground survey. These comprised an informal graveyard containing between 20 to 30 modern-style graves, partially located on the southwestern portion of the site (Heritage Site 1), and a single traditional-style grave in the more central portion of the site (Heritage Site 2). Based on the conditions of the graves, and discussions with the community members during the ground survey, the graves are all younger than 60 years old. Furthermore, all of the graves belong to local families currently living in the area and have a high cultural significance locally.

The graves identified on the site are protected in terms of Section 39(1) of the KwaZulu-Natal Amafa and Research Institute Act. It is therefore recommended that all of the identified graves be left in-situ on the site and that the development layout be designed to avoid the graves. More specifically, a 30 meter no-development buffer is recommended around the boundary of the informal graveyard (Heritage Site 1), and a 10 meter no-development buffer is recommended around the single, traditional-style grave in the central portion of the site (Heritage Site 2).

However, if it is not possible to avoid all of the identified graves on the site, and grave exhumation and relocation is an absolute necessity to allow for the development to commence, it is recommended that a Phase 2 HIA be undertaken to identify the exact location and number of graves that will require relocation. Once the Phase 2 HIA study has been completed, an application to the KwaZulu-Natal Amafa and Research Institute for the damage, alteration, exhumation, or removal of the relevant graves can be undertaken as provided for in Section 5 of the Draft KwaZulu-Natal Amafa and Research Institute Regulations, 2021.

The heritage consultant is of the opinion that the proposed eTafuleni Residential Development may proceed on the proposed development site, subject to the implementation of the recommendations and mitigation measures as outlined in Sections 11 and 12 of this report. The proposed residential development project must also adhere to the requirements of the National Heritage Resources Act (NHRA), 1999 (Act 25 of 1999) and the KwaZulu-Natal Amafa and Research Institute Act which states that all operations that expose graves, fossils or other heritage features must cease immediately, pending an investigation by the provincial heritage resource agency.

CROSS REFERENCE TABLE TO APPENDIX 6 OF THE EIA REGULATIONS

Minimum Report Content Requirements as per Appendix 6 of the EIA Regulations	Cross Reference in this Report
1. (1) A specialist report prepared in terms of these Regulations must contain - (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;	Declaration of Independence by Specialist (pg. ii). Specialist CV in Appendix A.
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Declaration of Independence by Specialist (pg. ii).
(c) an indication of the scope of, and the purpose for which, the report was prepared; (cA) an indication of the quality and age of base data used for the specialist report; (cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 2: Scope of the Assessment. Section 5: Study Methodology. Section 10: Impact Assessment.
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 5: Study Methodology.
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 5: Study Methodology.
(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 a site plan identifying site alternatives;	Section 9: Assessment Results.
(g) an identification of any areas to be avoided, including buffers;	Section 11: Discussion. Section 12: Recommendations and Mitigation.
(h) a 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 11: Discussion.
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 3: Assumptions and Limitations.
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 9: Assessment Results. Section 10: Impact Assessment.
(k) any mitigation measures for inclusion in the EMPr;	Section 11: Discussion. Section 12: Recommendations and Mitigation. Section 13: Conclusion.
(l) any conditions for inclusion in the environmental authorisation;	Section 11: Discussion. Section 12: Recommendations and Mitigation. Section 13: Conclusion.
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 11: Discussion. Section 12: Recommendations and Mitigation. Section 13: Conclusion.
(n) a reasoned opinion - (i) 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 11: Discussion. Section 12: Recommendations and Mitigation. Section 13: Conclusion.
(o) a description of any consultation process that was undertaken during the course of preparing the specialist	Section 5: Study Methodology.

Minimum Report Content Requirements as per Appendix 6 of the EIA Regulations	Cross Reference in this Report
report;	
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	N/A
(q) any other information requested by the competent authority.	N/A
(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A

CONTENTS

1	INTRODUCTION AND DEVELOPMENT BACKGROUND	1
2	SCOPE OF THE ASSESSMENT.....	1
3	ASSUMPTIONS AND LIMITATIONS.....	2
4	LEGISLATIVE REQUIREMENTS	2
4.1	National Environmental Management Act (NEMA) 1998 (Act 107 of 1998)	2
4.2	National Heritage Resources Act (NHRA) 1999 (Act 25 of 1999)	2
4.3	KwaZulu-Natal Amafa and Research Institute Act 2018 (Act 5 of 2018).....	3
4.4	Minimum Standards for Heritage Specialist Studies	3
4.5	KwaZulu-Natal Amafa and Research Institute Regulations, 2021 (Draft Regulations)	4
5	STUDY METHODOLOGY	4
5.1	Desktop Assessment.....	4
5.2	Ground Survey	5
5.3	Community Consultation.....	5
6	PROJECT DESCRIPTION AND LOCALITY	5
7	CULTURAL OVERVIEW OF THE STUDY AREA	8
8	GEOLOGY AND PALAEOLOGY	9
9	ASSESSMENT RESULTS	11
9.1	Desktop Study.....	11
9.2	Ground Survey	13
9.3	Site Significance and Field Rating	15
10	IMPACT ASSESSMENT	16
11	DISCUSSION	18
12	RECOMMENDATIONS AND MITIGATION	19
13	CONCLUSION.....	20
14	REFERENCES.....	21

APPENDICES

Appendix A: Short CV of Heritage Consultant

Appendix B: Protocol of Finds for Heritage/Palaeontological Resources

Appendix C: Site Photographs

LIST OF ABBREVIATIONS

CBD	Central Business District
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
HIA	Heritage Impact Assessment
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SAPS	South African Police Services

PHASE 1 HERITAGE IMPACT ASSESSMENT AND PROTOCOL OF FINDS FOR THE eTAFULENI RESIDENTIAL DEVELOPMENT ON PORTION 14 (OF 6) OF THE FARM INANDA NO. 818, IN INANDA, eTHEKWINI MUNICIPALITY, KWAZULU-NATAL

1 INTRODUCTION AND DEVELOPMENT BACKGROUND

Land Matters Environmental Consulting was appointed by ECA Consulting on behalf of the Applicant, eThekwini Municipality: Human Settlements and Infrastructure, to conduct a Phase 1 Heritage Impact Assessment (HIA) for the proposed establishment of a government-funded residential development (eTafuleni Residential Development) on Portion 14 (of 6) of the Farm Inanda No. 818, in Inanda, eThekwini Municipality, KwaZulu-Natal. The development site is approximately 23ha in extent and is located in Ward 56 of Inanda, within the Etafuleni and Amatikwe suburbs. The proposed development will comprise approximately 212 residential sites and will provide housing for families currently residing in informal settlements in the surrounding area. The proposed development will include gravel roads, sanitation, electricity, and water supply. The development site is currently zoned for agricultural use and will require rezoning to low – medium density residential as part of the development process.

This Phase 1 HIA is being undertaken in accordance with the requirements of Section 41(1) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act 5 of 2018). The project site is located within an area that is designated as having a “low” fossil sensitivity according to the SAHRIS palaeo-sensitivity map. As such no palaeontological studies are required, however a protocol of finds is required, which has been included as Appendix B of this report. The Phase 1 HIA also forms part of the Environmental Authorisation process under the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998) for the proposed establishment of the eTafuleni Residential Development in Inanda.

2 SCOPE OF THE ASSESSMENT

The Phase 1 HIA aims to locate, identify and assess the significance of any heritage resources that may be found on the development site, including archaeological and palaeontological deposits/sites, built structures older than 60 years, burial grounds and graves, graves of victims of conflict and basic cultural landscapes and viewsapes, as defined and protected by the National Heritage Resources Act (NHRA), 1999 (Act 25 of 1999) and the KwaZulu-Natal Amafa and Research Institute Act.

As per the requirements set out in Section 41(3) of the KwaZulu-Natal Amafa and Research Institute Act, the key terms of reference for the Phase 1 HIA were as follows:

- The identification and mapping of all heritage resources in the study area.
- Undertaking an assessment of the significance of such resources in terms of the heritage assessment criteria set out in Section 6(2) and/or Section 7 of the NHRA.
- Undertaking an assessment of the impact of the proposed activity on the identified heritage resources.
- An evaluation of the impact of the proposed activity on such identified heritage resources relative to the sustainable social and economic benefits to be derived from the activity.

- Reporting on the results of the consultation with communities affected by the proposed activity and other interested parties regarding the impact of the activity on heritage resources.
- The consideration of alternatives should any heritage resources potentially be adversely affected by the proposed activity.
- The compilation of plans for mitigating of any adverse effects during and after the completion of the proposed activity.

3 ASSUMPTIONS AND LIMITATIONS

It is difficult to apply pure scientific methods within a natural environment without limitations or assumptions. The following apply to this study:

- Areas of very dense vegetation were present on the study site which may have compromised heritage site visibility.
- Heritage resources may be present below the surface. No subsurface investigations were undertaken as part of the Phase 1 HIA.
- The findings, results, observations, conclusions, and recommendations provided in this report are based on the authors' best scientific and professional knowledge as well as available information regarding the perceived impacts on heritage resources.
- The study results are based on a single day field investigation conducted during late summer when vegetation cover is denser. Once-off assessments such as this may potentially miss certain heritage information, thus limiting accuracy, detail, and confidence.
- Any additional information used to inform the assessment was limited to data and GIS data sets which were available for the area at the time of assessment.

4 LEGISLATIVE REQUIREMENTS

4.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA) 1998 (ACT 107 OF 1998)

This Phase 1 HIA has been undertaken in compliance with the requirements for specialist studies as contained in the EIA Regulations 2014 (amended 2017) under NEMA, as outlined in Appendix 6 of GNR 326 which provides the requirements for specialist reports, and Section 13 of GNR 326 which provides the general requirements for Environmental Assessment Practitioners (EAPs) and specialists.

4.2 NATIONAL HERITAGE RESOURCES ACT (NHRA) 1999 (ACT 25 OF 1999)

The NHRA makes provisions for the management and protection of heritage resources on a national level in South Africa. Section 3(1-3) of the NHRA defines those heritage resources in South Africa which form part of the national estate due to their cultural significance or other special value for the present community and future generations. Such resources include places, buildings, structures, equipment, oral traditions, historical settlements, townscapes, landscapes, geological sites, archaeological and palaeontological sites, graves and burial grounds and movable objects. Section 4 of the NHRA establishes both the national and provincial systems for the management of heritage resources within the country.

Section 7(1) of the NHRA provides for a three-tier management system which operates at a national, provincial and local level and distinguishes between three categories for the grading of places and objects which form part of the national estate, as follows:

- National (Grade I) heritage resources, which are resources that are regarded as being of national significance, and are managed at a national level by SAHRA;
- Provincial (Grade II) heritage resources, which have provincial or regional significance and are managed by provincial heritage resources authorities; and
- Local (Grade III) heritage resources which are the responsibility of local authorities.

Sections 34, 35 and 36 of the NHRA provides for the protection of heritage resources from damage, destruction or alteration, and Section 38 of the NHRA sets out the requirements for heritage resources management.

4.3 KWAZULU-NATAL AMAFA AND RESEARCH INSTITUTE ACT 2018 (ACT 5 OF 2018)

The KwaZulu-Natal Amafa and Research Institute Act provides for the recognition of the establishment of the KwaZulu-Natal Amafa and Research Institute as the provincial heritage resources authority for the Province of KwaZulu-Natal, to identify, conserve, protect, manage, and administer heritage resources in the Province of KwaZulu-Natal.

Chapter 7 of the Act provides for the establishment of the Amafa and Research Forum, whose objectives include the compilation of a consolidated register of all heritage resources in the Province of KwaZulu-Natal. Chapter 8 of the Act provides for the general protection of heritage resources, specifically the general protection of structures older than 60 years, graves of victims of conflict, informal and private burial grounds, battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite, and meteorite impact sites. Section 41(1 – 10) of Chapter 8 of the Act sets out the requirements for heritage resources management specifically in terms of the undertaking of developments, and the need and requirements for impact assessment studies and report requirements.

Chapter 9 of the Act provides for the special protection of heritage resources including the designation of protected area, heritage landmark and provincial landmark status, and special protection of graves of members of the Royal Family, battlefields, public monuments and memorials, and heritage objects. Chapter 9 of the Act also makes provision for the establishment of a consolidated register of heritage sites and heritage objects in the Province of KwaZulu-Natal. Chapter 10 of the Act provides for the determination of criteria for best practice, standards, norms and conditions for the management of heritage resources in the Province of KwaZulu-Natal. Lastly, Chapter 11 outlines the general provisions of the Act and includes allowances for the drafting of Regulations to enable the provincial heritage resources authority to regulate heritage matters in the Province of KwaZulu-Natal.

4.4 MINIMUM STANDARDS FOR HERITAGE SPECIALIST STUDIES

The South African Heritage Resources Agency (SAHRA) Minimum Standards for Heritage Specialist Studies (2007, 2016) in terms of Section 38(1) and 38(8) of the NHRA outlines the requirements for

Phase 1 HIA studies, including the requirements for Phase 1 HIA Reports and provides a standardised site significance and field rating methodology.

4.5 KWAZULU-NATAL AMAFA AND RESEARCH INSTITUTE REGULATIONS, 2021 (DRAFT REGULATIONS)

The draft KwaZulu-Natal Amafa and Research Institute Regulations, 2021 in terms of Section 58 of the KwaZulu-Natal Amafa and Research Institute Act, provides for the regulation of heritage matters in the KwaZulu-Natal Province. The Regulations specifically outline the requirements for permit applications and the application procedures to be followed. Section 7 of the Regulations outlines the requirements in terms of the discovery of archaeological or palaeontological material or a meteorite. Section 12 of the Regulations outlines the heritage resources management requirements in terms of undertaking developments, and procedures to be followed to ensure compliance with the requirements of the KwaZulu-Natal Amafa and Research Institute Act and NHRA.

Table 1 below outlines the legislative requirements as applicable to the Phase 1 HIA study for the proposed eTafuleni Residential Development in Inanda.

Table 1: Applicable Legislative Requirements

Legislation	Relevant Section	Description
KwaZulu-Natal Amafa and Research Institute Act 2018 (Act 5 of 2018)	Section 41(1)	<p><i>“Any person who intends to undertake a development categorized as –</i></p> <p><i>(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;</i></p> <p><i>(b) the construction of a bridge or similar structure exceeding 50 m in length;</i></p> <p><i>(c) any development or other activity which will change the character of a site - (i) exceeding 5 000 m² in extent; or (ii) involving three or more existing erven or subdivisions thereof; or (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or (iv) the costs of which will exceed a sum set in terms of regulations;</i></p> <p><i>(d) the re-zoning of a site exceeding 10 000 m² in extent; or</i></p> <p><i>(e) any other category of development provided for in regulations, must, at the very earliest stages of initiating such a development, notify the Institute and furnish it with details regarding the location, nature and extent of the proposed development.”</i></p>

5 STUDY METHODOLOGY

5.1 DESKTOP ASSESSMENT

An initial desktop assessment and review of relevant current and historical aerial imagery of the study site was undertaken at the start of the project. Historical imagery was obtained from the Department of Rural Development and Land Reform and the National Geospatial Information website (<http://cdngiportal.co.za/cdngiportal/>) in order to identify historical land uses associated with the study site and surrounds. The SAHRIS website and Provincial Heritage Register were consulted for data on the presence and significance of any heritage sites within the eThekweni

Municipal area and in particular Inanda. In addition, the available heritage literature covering the larger study area was also consulted.

5.2 GROUND SURVEY

A ground survey of the study site was conducted on the 04th of April 2023 which comprised a walkover and visual survey of the development footprint, where vegetation density and terrain allowed. The assessment was done by foot and limited to a Phase 1 visual survey. Geographic coordinates were taken using a handheld Garmin Etrek GPS unit (Datum: WGS84). All readings were taken using the GPS unit, and accuracy was to a level of 5m. Photographic documentation of the site was undertaken using a Samsung S21 Smartphone camera.

Ground visibility was good in the northern portion of the site which comprised recently cleared agricultural fields, as well as in the central portion of the site which comprised disturbed grassland. Ground visibility was poor in the southern portion of the study site which comprised thick grassland vegetation, as well as along the various watercourses on the site which comprise steeper terrain with dense woody vegetation. Archaeological and cultural heritage site recording, significance assignment and associated mitigation recommendations were done according to the field rating system prescribed by SAHRA (2007, 2016).

5.3 COMMUNITY CONSULTATION

A public liaison officer, Mr. Louis Dlamini was appointed for the site visit and accompanied the consultant on site during the ground survey. The consultant and Mr Dlamini were also accompanied on site by the following Qadi Traditional Council members from the area, Mr. Thwala, Mr. Nkosikhona Shoba, and Mr. Sihle Sibisi. The Traditional Council members assisted with the identification of heritage resources, in particular graves, on the study site during the ground survey. Public liaison also included consultation with local Nduna, Mr Gcwensa at the end of the site visit.

The relevant site photographs are included in Appendix C.

6 PROJECT DESCRIPTION AND LOCALITY

The project site is located at GPS coordinates S29°39'32.22" and E30°56'9.44" on the property Portion 14 (of 6) of the Farm Inanda No. 818 in Ward 56 of Inanda in the northern portion of the eThekweni Municipality. The site is located within the Qadi Traditional Council area, approximately 35km from the Durban CBD, and 20km and 10km from Phoenix and Verulam respectively. The project site is approximately 23ha in extent and is currently zoned for agricultural use. The site is surrounded by both formal and informal residential areas, and agricultural land. The site is currently undeveloped comprising a mixture of grasslands, cultivated lands and watercourses.

Table 2 below provides the details of the general project area and the specifics of the development, while Figures 1 - 2 below provide locality and layout maps.

Table 2: Details of the General Project Area and Development Specifics

Property description	Portion 14 (of 6) of the Farm Inanda No. 818
Magisterial District	eThekweni Metropolitan Municipality
1: 50 000 map sheet number	2930DB
Central co-ordinate of the development	S29°39'32.22" and E30°56'9.44"
Type of development	Residential
Property zoning	Currently Unzoned/Agriculture, to be rezoned to Low – Medium Density Residential.

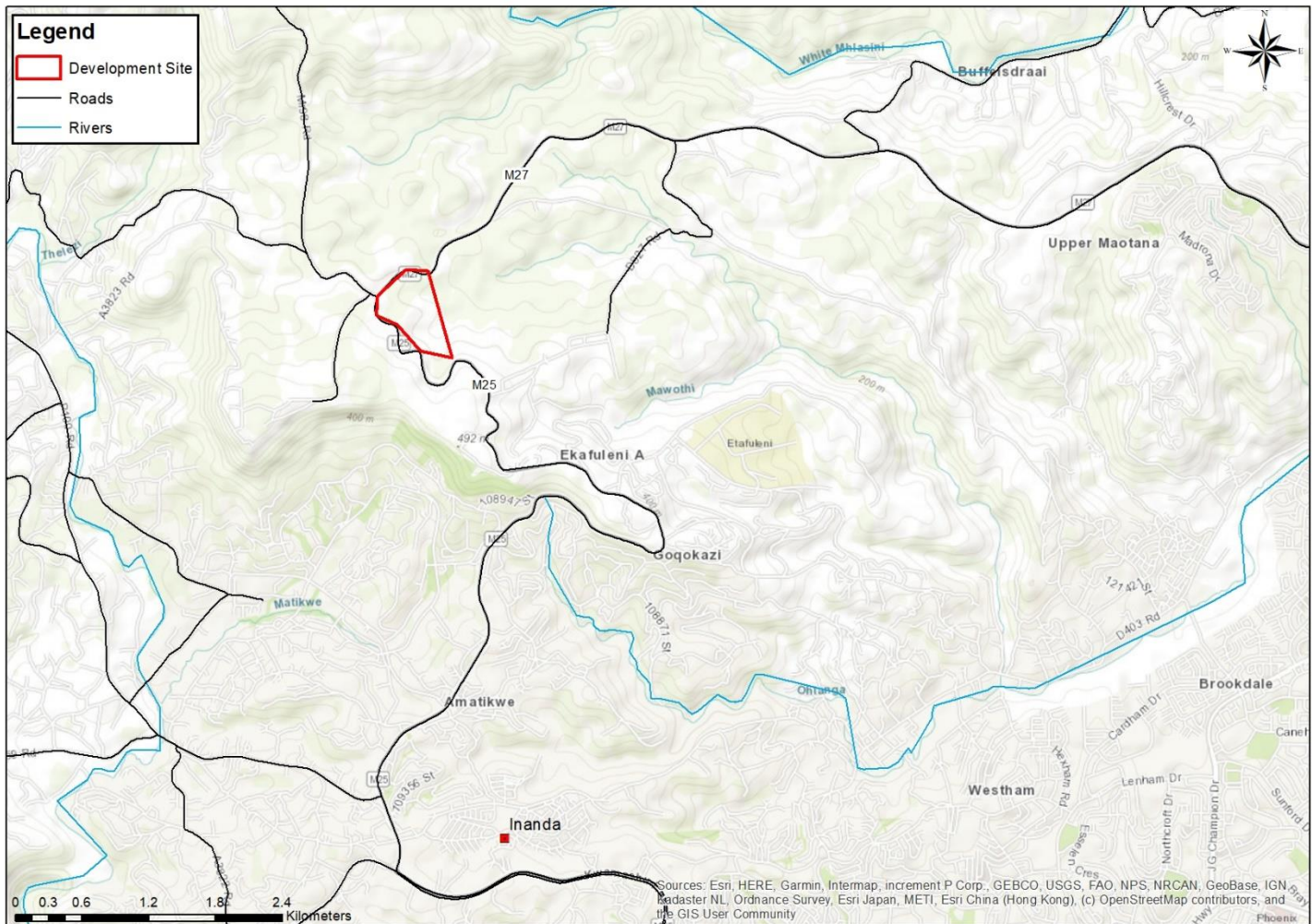


Figure 1: Topographical map of the project site in Inanda.

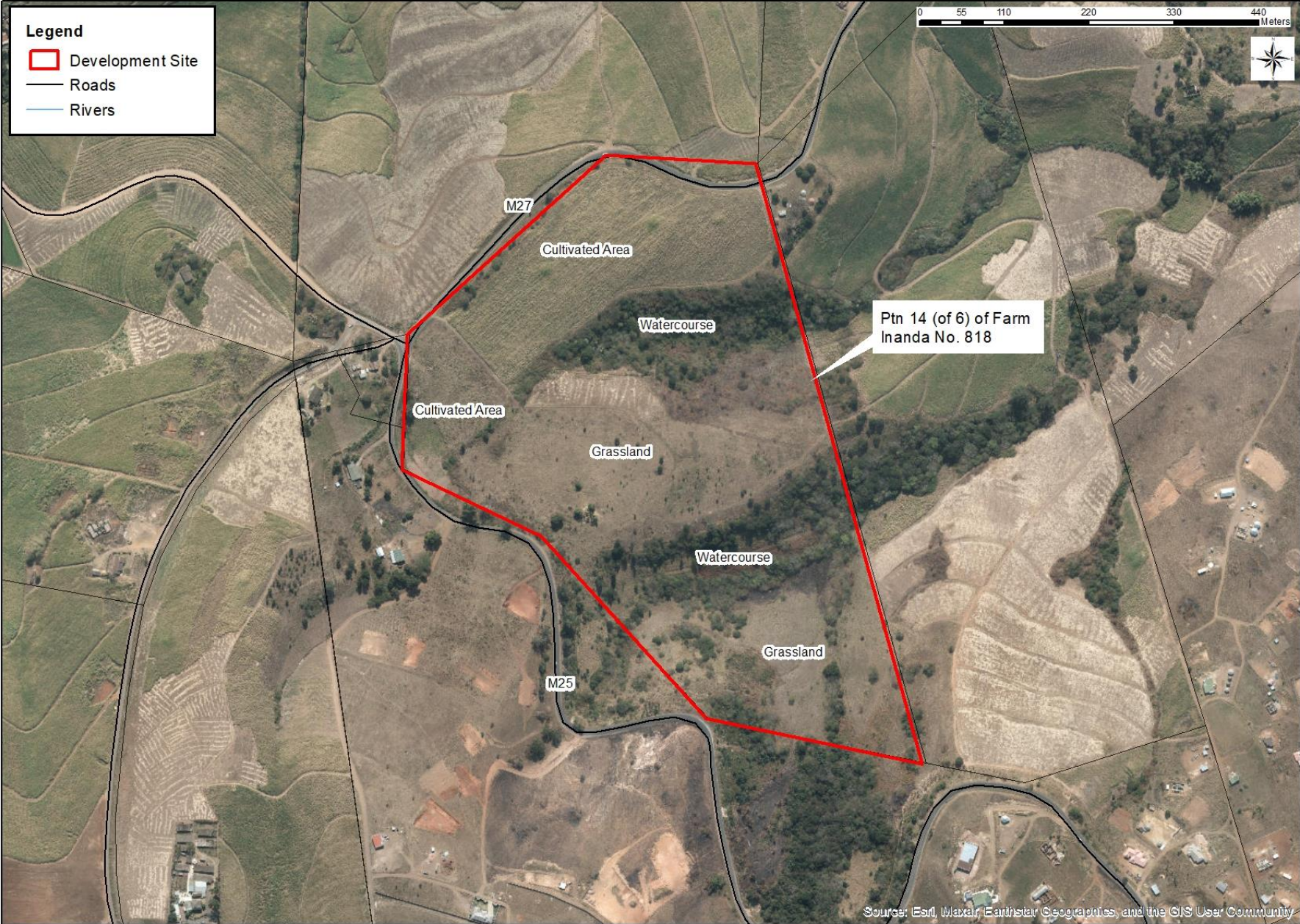


Figure 2: Layout map of the eTafuleni Residential Development site.

7 CULTURAL OVERVIEW OF THE STUDY AREA

Inanda is one of the original townships within the eThekweni Municipal area and has a history dating back to the 1800s when the area was populated by displaced Africans during the 'Boer Republic' period in Natal from 1839 to 1843. Indian farmers moved into the area during the 1930s as a result of the expanding sugar cane farming industry in the region. During the 1960s the African population of Inanda rapidly expanded due to the further displacement of people under the apartheid laws. Political tensions during the 1980s saw the Indian population moving away from Inanda into areas such as Verulam, Phoenix, and Durban.

The larger eThekweni Municipal area has been relatively well surveyed for archaeological and heritage sites by the KwaZulu-Natal Museum. Archaeological work has also been undertaken in the larger project area by the Universities of Cape Town and Witwatersrand due to the presence of the Sibudu Rock Shelter in the area. A number of heritage surveys have also been undertaken more recently by private heritage consultants.

A large number of archaeological sites are recorded in the KwaZulu-Natal Museum and Amafa heritage site inventories for the larger study area, with eighty heritage sites known to occur in the region. These include Early, Middle and Later Stone Age sites; Early, Middle and Later Iron Age sites; and more recent sites from the historical period relating to the Zulu Kingdom and the colonial era (Prins, 2017).

In coastal KwaZulu-Natal, a relatively large number of Early and Middle Stone Age sites are located within the coastal dunes of the Berea Formation within 1-2km of the coastline. Most Stone Age sites however comprise the presence of stone flakes or individual stone tools in open air contexts, exposed by erosion. As these Stone Age sites comprise open air surface scatter finds which do not occur in archaeological context, they generally have limited value.

The first Iron Age sites in KwaZulu-Natal date back to approximately 1500 years ago and are situated close to sources of iron ore and within 15km of the coast due to climatic conditions at that time (eThembeni, 2013). From 650AD onwards climatic conditions improved and Iron Age agriculturalists expanded into the valleys of KwaZulu-Natal where they settled close to rivers in savannah or bushveld environments (eThembeni, 2013). Very few Iron Age sites are found on steep slopes or hilltops in the KwaZulu-Natal coastal areas (eThembeni, 2013). Typical artefacts associated with these sites include ceramic sherds, marine shell, and grindstones as well as metal artefacts including furnace remains, slag, and bloom (eThembeni, 2013). Many of the recorded Iron Age sites are located within the valleys that are now inundated by Inanda Dam. None of the above-mentioned archaeological sites are known to occur on the development site or immediate surrounds.

Sibudu Rock Shelter is located approximately 20km to the northeast of the project site and is one of the most important Middle Stone Age sites identified in KwaZulu-Natal. Extensive excavations have been carried out at the site over the past two decades and evidence of some of the earliest examples of modern human technology have been unearthed including some of the earliest known bedding material and evidence for the use of medicinal plants (Mitchell, 2002; Wadley, 2004; Prins, 2020). Sibudu Shelter was occupied from approximately 77 000 to 38 000 years ago during the

Middle Stone Age which is associated with early behavioural innovations and the expansion of modern humans within and out of Africa (Wadley, 2004). Sibudu Shelter has been declared a National Heritage Site in terms of the NHRA as it has made a significant contribution to our understanding of the evolution of modern human behaviour (Prins, 2020).

8 GEOLOGY AND PALAEOLOGY

South Africa has a very rich fossil record, dating back over some 3.5 billion years. Fossil heritage is found in all provinces of South Africa. The palaeontological sensitivity of the study site as per the SAHRIS palaeo-sensitivity map is shown in Figure 3 below. The SAHRIS paleo-sensitivity map shows the development site as having a “low” fossil sensitivity. As such, no palaeontological studies are required, however a Protocol of Finds is required, which has been included as Appendix B.

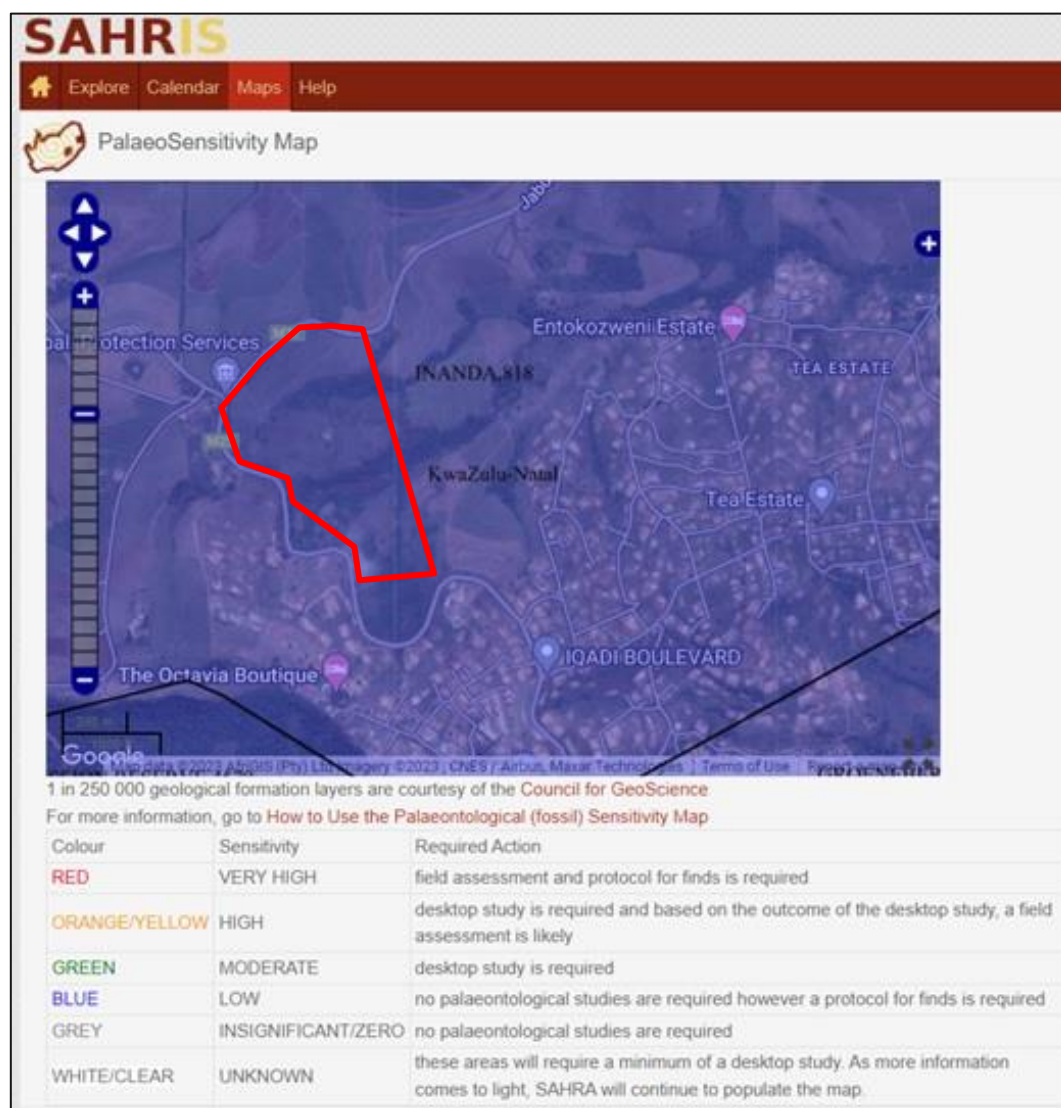


Figure 3: SAHRIS palaeo-sensitivity map for the project site in Inanda (SAHRIS).

The 2930 Durban 1:250 000 Geological map series (Council for Geosciences) was used to identify the general geology of the study site, as shown in Figure 4 below. The development site is underlain by Cambrian to Ordovician age sandstone of the Natal Group. The sedimentary sequence that makes up the Natal Group was deposited some 490 million years ago during the Cambrian to Ordovician

period and comprises coarse grained arkosic to subarkosic sandstone, quartz arenite, pebble conglomerate and siltstone and mudstone (Council for Geosciences; Groenewald, 2012). The sediments of the Natal Group were transported and deposited by rivers that drained highlands to the northeast. In northern KwaZulu-Natal, close to their source, the Natal Group deposits include thick accumulations of boulders and pebbles where deep valleys were in-filled, while further south, the sediments are finer grained and form resistant sandstone cliffs as seen in the Valley of a Thousand Hills and Oribi Gorge near Port Shepstone (Groenewald, 2012). Natal Group deposits have a low palaeo-sensitivity rating and no fossils have been recorded for the Natal Group deposits to date (Groenewald, 2012). It can therefore be considered a non-fossiliferous rock type.

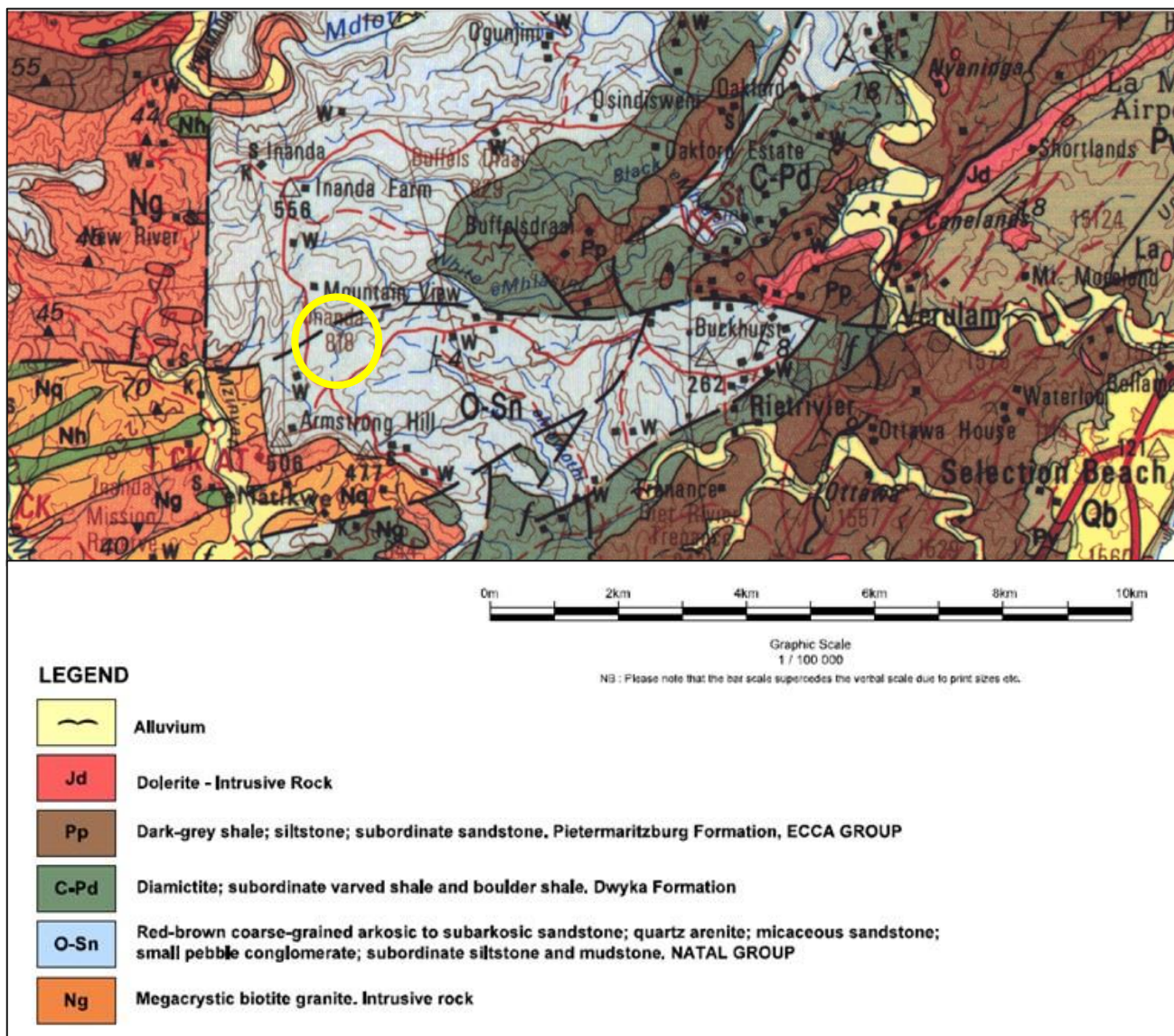


Figure 4: Regional geology of the study area (Council for Geosciences).

9 ASSESSMENT RESULTS

9.1 DESKTOP STUDY

An investigation into historical aerial imagery of the development site was undertaken as part of the Phase 1 HIA. Aerial imagery from 1937, 1968, and 2015 (Figures 5 – 7) was used to identify past activity on the site. The aerial imagery shows that the development site has had a long history of agricultural use and associated anthropogenic disturbance.

Aerial imagery from 1937 and 1968 (Figures 5 and 6) shows almost the entire site under sugar cane cultivation with the exception of the various watercourse areas on the site. There are homesteads evident to the east of the site in the 1937 imagery, but no built structures are present on the site footprint in both the 1937 and 1968 imagery.



Figure 5: Historic aerial imagery of the development site from 1937 shows most of the site and surrounding areas as comprising cultivated lands. There are homesteads present to the east of the site, but no built structures present on the site footprint.



Figure 6: Historic aerial imagery of the development site from 1968 shows little land use change, with cultivation still present on most of the site and surrounding areas. There are no built structures present on the site footprint.

More recent Google Earth imagery of the site from 2015 (Figure 7) shows the northern and central portions of the site under cultivation, however the cultivation has ceased in the southern portion of the site and the area has reverted back to grassland.



Figure 7: Google Earth imagery of the site from 2015 shows that the cultivation has ceased in the southern portion of the site and the area has reverted back to grassland.

The results of the desktop assessment show that the large-scale transformation of the site from grassland to sugarcane cultivation began prior to 1937. No heritage resources are evident on the site surface in the historic aerial imagery of the site. In addition, as cultivation has been taking place on the site for more than 85 years, it is likely that any subsurface heritage resources that may have been present on the site have been disturbed and/or destroyed.

9.2 GROUND SURVEY

No development activities associated with the eTafuleni Residential Development had begun on the project site at the time of the ground survey. Two heritage resources were identified on the development footprint during the ground survey. These comprised an informal graveyard containing between 20 to 30 modern-style graves, partially located on the southwestern portion of the site (Heritage Site 1), and a single traditional-style grave in the more central portion of the site (Heritage Site 2). Based on the conditions of the graves, and discussions with the community members during the ground survey, the graves are all younger than 60 years old. The location of the two heritage sites is shown in Figure 8 below, while the details of the identified heritage sites are outlined in Table 3 below.

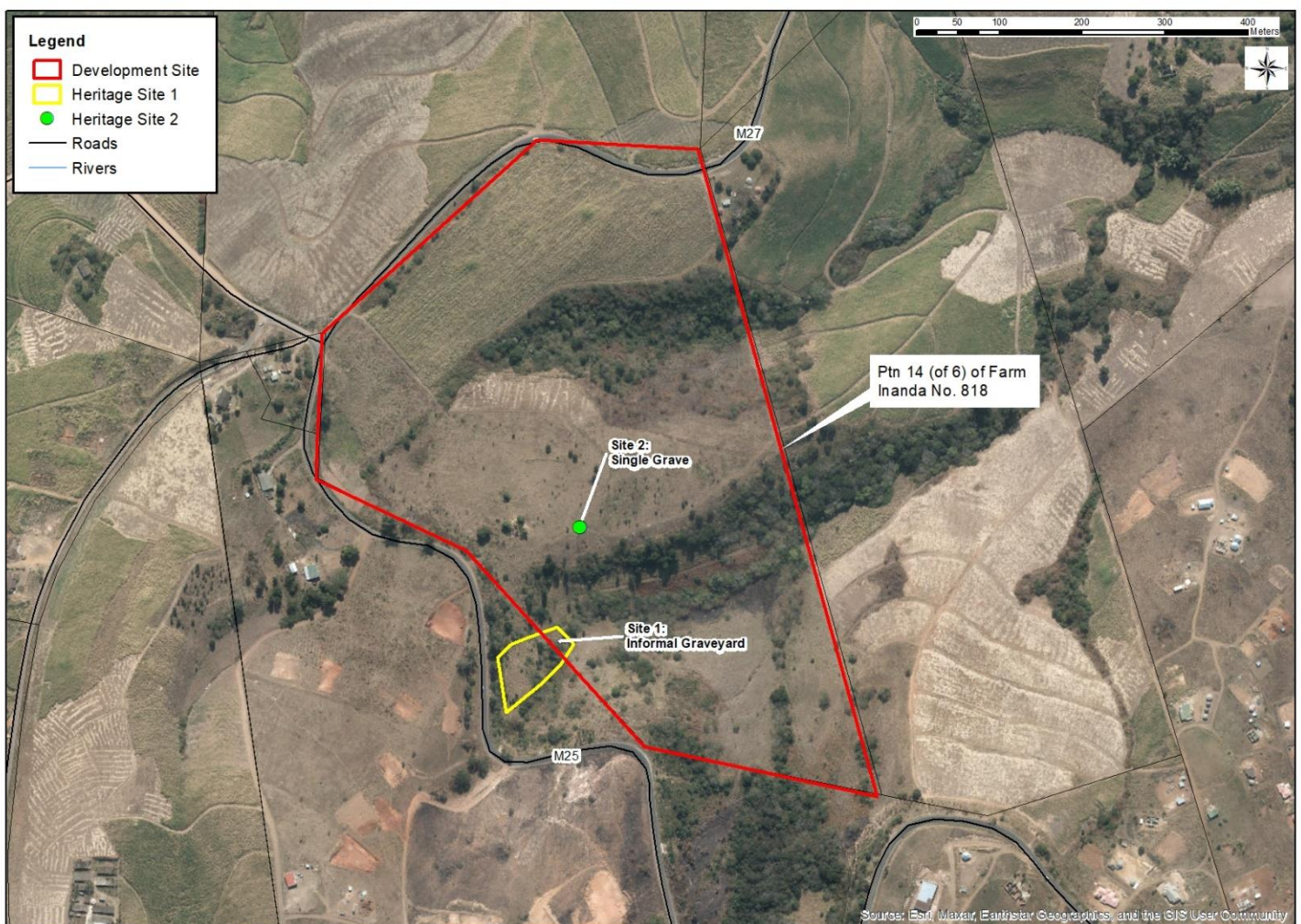




Figure 8: Location of identified heritage sites on the eTafuleni Residential Development site.

Table 3: Identified Heritage Sites on the eTafuleni Residential Development Footprint

Site	Description	Coordinates	Photographic Record
<p>Site 1</p>	<p>An informal graveyard comprising 20 to 30 modern-style graves, many with headstones. The graves are widely spaced within a 3000m² area along the southwestern boundary of the site, and extending outside of the site towards the M25 Road. Most of the graves are located just outside of the site boundary, however some are located within the development site. Most of the graves are located within close proximity to a watercourse that flows through the southern portion of the site. Many of the graves are obscured by very dense vegetation. The Traditional Council Members that accompanied the consultant on site stated that some of the graves belonged to their direct relatives, and that all of the graves belonged to local families currently living in the area. All of the graves are younger than 60 years.</p>	<p>Graveyard boundary</p> <p>Point 1: 29°39'36.77"S 30°56'6.59"E</p> <p>Point 2: 29°39'37.33"S 30°56'7.24"E</p> <p>Point 3: 29°39'39.66"S 30°56'4.61"E</p> <p>Point 4: 29°39'37.81"S 30°56'4.26"E</p>	

Site 2	One traditional-style unmarked grave comprising a mound of soil covered by stones. The grave is located within the more central portion of the site within a grassland area, approximately 100m to the northeast of the informal graveyard area. The grave is younger than 60 years.	29°39'33.45"S 30°56'7.46"E	
--------	--	-------------------------------	--

9.3 SITE SIGNIFICANCE AND FIELD RATING

An assessment in terms of the significance criteria outlined in Section 3(3) of the NHRA was undertaken for the graves as part of the Phase 1 HIA, as shown in Table 4 below.

Table 4: Evaluation of Heritage Sites or Objects in terms of Section 3(3) of the NHRA

Significance criteria for heritage sites or objects in terms of Section 3(3) of the NHRA 1999 (Act 25 of 1999)	Rating
Importance in the community, or pattern of South Africa's history.	None
In possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.	None
Has potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.	None
Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects.	None
Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;	None
Importance in demonstrating a high degree of creative or technical achievement at a particular period.	None
Has a strong or special association with a particular community or cultural group for social, cultural, or spiritual reasons.	The graves are of high cultural and spiritual significance as relatives still live within the area and visit the graves.
Has a strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.	None
Sites of significance relating to the history of slavery in South Africa.	None

The field rating system (Table 5) as developed by SAHRA (2007, 2016) was applied to the heritage resources (graves) identified on the development footprint. Given that the graves are of cultural significance locally, it is recommended that the graves receive a Grade IIIA Local Significance Field Rating (high significance locally) as relatives still live within the area and visit the graves.

Table 5: Site Significance and Field Rating (SAHRA 2007, 2016)

Level	Description	Action
Grade I National Resource	This site is considered to be of National significance.	Nominated to be declared by SAHRA and maintained in situ.
Grade II Provincial Resource	This site is considered to be of Provincial significance.	Nominated to be declared by Provincial Heritage Authority and maintained in situ.
Grade IIIA Local Resource	This site is considered to be of a High significance locally.	The site must be retained as a heritage register site.
Grade IIIB Local Resource	This site is considered to be of a High/Medium significance locally.	The site must be mitigated, and part retained as a heritage register site.
Grade IIIC Local Resource	This site is considered to be of a Low significance locally.	The site needs to be recorded but may be granted destruction authorisation at the discretion of the relevant heritage authority.
Generally Protected A	High to medium significance	Mitigation necessary before destruction.
Generally Protected B	Medium significance	Site to be recorded before destruction.
Generally Protected C	Low significance	Site has been sufficiently recorded (in the Phase 1). It requires no further recording before destruction.

10 IMPACT ASSESSMENT

Any development or anthropogenic activity in a natural system will have an impact on the surrounding environment, usually in a negative way. The assessment criteria as outlined in Table 6 below have been used to identify, predict, and assess the significance of any potential heritage related impacts associated with the eTafuleni Residential Development project.

Two heritage resources were identified on the development footprint during the ground survey comprising an informal graveyard in the southwestern portion of the site, and a single grave in the more central portion of the site. Some of the graves are at risk of destruction if mitigation measures are not implemented prior to the development commencing. As the graves will likely be directly impacted by the development, the proposed activity poses a **high risk** to the heritage resources, without mitigation. The risk to the heritage resources can however be reduced to a **low risk** with the implementation of mitigation measures, as shown Table 7 below.

Table 6: Summary of Aspects used for Assessing Heritage / Palaeontological Impacts

Aspect	Rating	Description
Nature	Positive	The impact on the resource will be positive.
	Negative	The impact on the resource will be negative.
Probability	Definitely	The impact will definitely occur even with mitigation (100%).
	Likely	It is likely that the impact will occur (60%-99%).
	Fair	There is a fair chance that the impact will occur (30% -59%).
	Unlikely	It is unlikely that the impact will occur (0% - 29%).
Reversibility	Possible	It is possible to reverse the impact.
	Partly	It is partly possible to reverse the impact.
	Not possible	It is not possible to reverse the impact.
Extent	Site	The impact will be limited to the site.
	Local	The impact will affect the local area (within a radius of 40km).
	Provincial	The impact will affect areas beyond the site but within the boundaries of KwaZulu-Natal.
	National	The impact will affect areas beyond the Province but within the boundaries of South Africa.
Duration	Short-term	0-5 years (construction phase).
	Medium-term	5-40 years (construction and operation).
	Long-term	(>40 years).
	Permanent	Permanent damage to the resource.
Significance of Impact without Mitigation	Low	Small impact / disturbance.
	Medium	Moderate impact / disturbance expected.
	High	Significant impact / disturbance expected.
Significance of Impact Post-Mitigation	Low	Small impact / disturbance.
	Medium	Moderate impact / disturbance expected.
	High	Significant impact / disturbance expected.

Table 7: Impact Assessment Results for the identified Heritage Resources (Graves)

Aspect	Rating	Description
Nature	Positive	-
	Negative	Impacts to the heritage resources (graves) resulting from the residential development will be negative.
Probability (without mitigation)	Definitely	The impact will definitely occur (100%).
	Likely	-
	Fair	-
	Unlikely	-
Probability (with mitigation)	Definitely	-
	Likely	-
	Fair	-
	Unlikely	It is unlikely that the impact will occur (0% - 29%).
Reversibility (without mitigation)	Possible	-
	Partly	-
	Not possible	It is not possible to reverse the impact.
Reversibility (with mitigation)	Possible	It is possible to reverse the impact.
	Partly	-
	Not possible	-
Extent	Site	-
	Local	The impact will affect the local area (within a radius of 40km).
	Provincial	-
	National	-
Duration	Short-term	-
	Medium-term	-
	Long-term	-
	Permanent	Permanent.
Significance of Impact without Mitigation	Low	-
	Medium	-
	High	Significant impact / disturbance expected.
Significance of Impact Post-Mitigation	Low	Small impact / disturbance.
	Medium	
	High	

11 DISCUSSION

The graves identified on the site are protected in terms of Section 39(1) of the KwaZulu-Natal Amafa and Research Institute Act which states “No grave or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority – (b) not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, inundated, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Institute.”

The on-site graves are highly significant to the family members residing in the surrounding community. As such, it is recommended that all of the identified graves be left in-situ on the site and that the development layout be designed to avoid the graves. More specifically, a 30 meter no-development buffer is recommended around the boundary of the informal graveyard (Heritage Site 1), and a 10 meter no-development buffer is recommended around the single, traditional-style grave in the central portion of the site (Heritage Site 2), as shown in Figure 9 below.

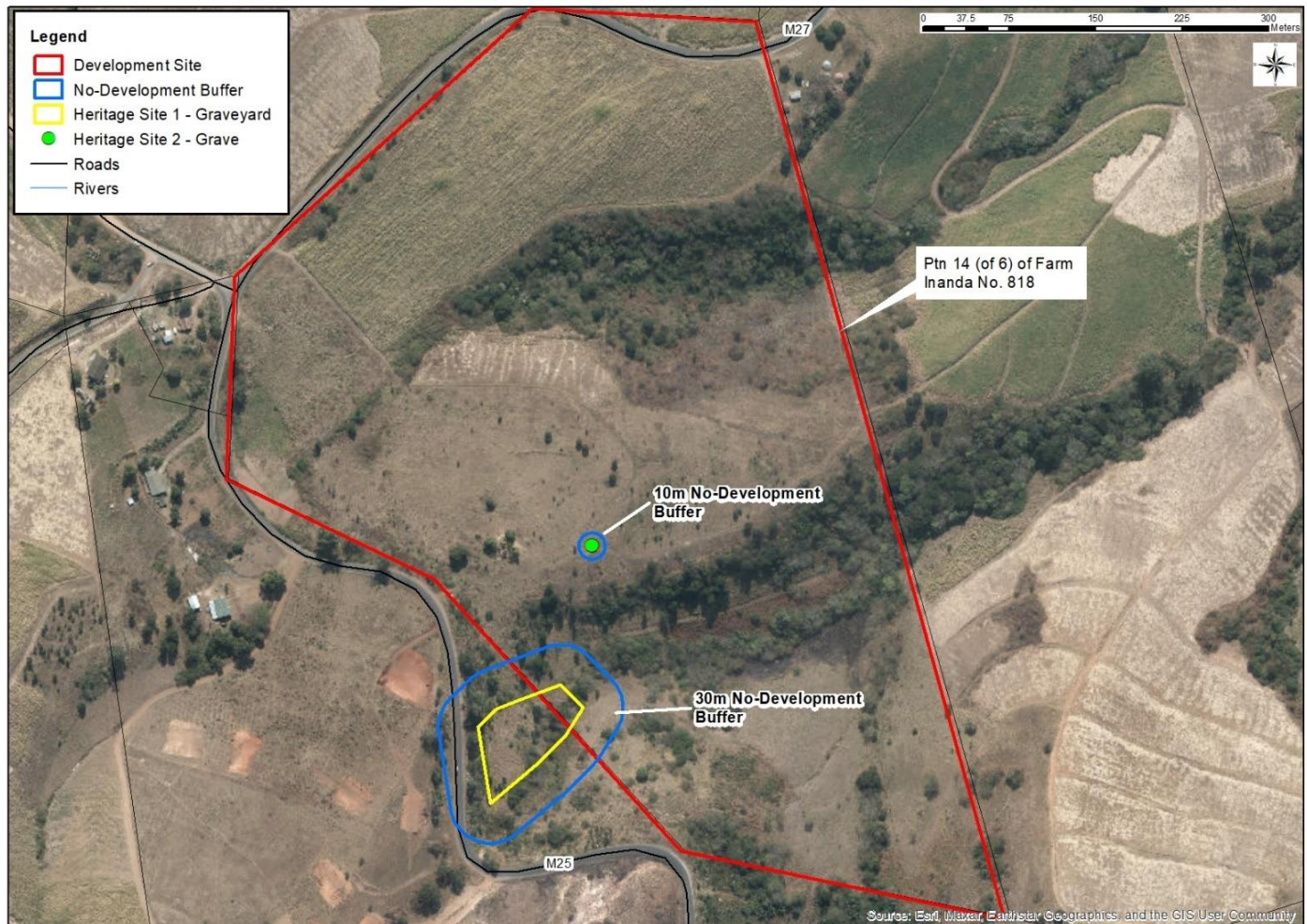


Figure 9: Recommended No-Development Buffers to be implemented around the identified heritage sites on the eTafuleni Residential Development site.

However, if it is not possible to avoid all of the identified graves on the site, and grave exhumation and relocation is an absolute necessity to allow for the development to commence, it is recommended that a Phase 2 HIA be undertaken to identify the exact location and number of graves that will require relocation. This was not possible during the Phase 1 HIA as a detailed layout of the development infrastructure was not available to the consultant at the time of the study. Once the Phase 2 HIA study has been completed, an application to the KwaZulu-Natal Amafa and Research Institute for the damage, alteration, exhumation, or removal of the relevant graves can be undertaken as provided for in Section 5 of the Draft KwaZulu-Natal Amafa and Research Institute Regulations, 2021.

12 RECOMMENDATIONS AND MITIGATION

Based on the findings of the Phase 1 HIA study, the following mitigation measures must therefore be implemented prior to the development proceeding:

- The informal graveyard (Heritage Site 1) in the southwestern portion of the development site must be excluded from the development layout.
- A 30m no-development buffer must be implemented around the boundary of the graveyard.

- The graveyard, together with the 30m buffer must be fenced off prior to any construction activities commencing on the site. An access gate must, however, be provided to allow for relatives to access the graveyard.
- The single traditional-style grave (Heritage Site 2) in the central portion of the site must be excluded from the development layout.
- A 10m no-development buffer must be implemented around the single grave and the grave must be cordoned off prior to any construction activities commencing on the site.
- It is recommended that a grave exhumation and relocation process only be considered as a last resort. If it is not possible to avoid grave relocation, it is recommended that a Phase 2 HIA be undertaken to identify the exact location and number of graves that will require relocation.
- An application to the KwaZulu-Natal Amafa and Research Institute for the damage, alteration, exhumation, or removal of the relevant graves must then be undertaken as provided for in Section 5 of the Draft KwaZulu-Natal Amafa and Research Institute Regulations, 2021.

13 CONCLUSION

The heritage consultant is of the opinion that the proposed eTafuleni Residential Development may proceed on the proposed development site, subject to the implementation of the recommendations and mitigation measures as outlined in Sections 11 and 12 of this report.

It must be noted that while the utmost care was taken to identify all of the graves present on the development footprint during the Phase 1 HIA, there is still a possibility that additional unidentified graves may be present in areas of dense vegetation on the site. Prior to construction commencing, the Environmental Control Officer (ECO) appointed for the residential development project must ensure that the Developer, appointed Contractor, and construction staff are made aware that graves may be present on other areas the development site. They must be informed that should any graves, as well as any other heritage features be discovered during vegetation clearing or excavations, all activity must cease immediately and the ECO must be contacted. The ECO must in turn notify the provincial heritage resource authority, the KwaZulu-Natal Amafa and Research Institute and/or the heritage consultant and the chance find protocol in Appendix B must be implemented. Should any human remains be unearthed by construction activities, the South African Police Services (SAPS) and the KwaZulu-Natal Amafa and Research Institute must be contacted immediately.

Lastly, the proposed project must adhere to the requirements of the NHRA and the KwaZulu-Natal Amafa and Research Institute Act, and Draft Regulations, which requires that a person that discovers any archaeological or palaeontological material or a meteorite must immediately cease all operations or activity within a 25m radius of the discovery and must notify the KwaZulu-Natal Amafa and Research Institute. In addition, no structures older than sixty years or parts thereof are allowed to be demolished, altered, or extended without a permit from the KwaZulu-Natal Amafa and Research Institute. Under no circumstances may any heritage material be destroyed or removed from site unless under direction of the KwaZulu-Natal Amafa and Research Institute and appointed heritage consultant.

14 REFERENCES

eThembeni Cultural Heritage. 2013. Ugu District Municipality Environmental Management Framework. Heritage Resource Management Report. Unpublished Report, SAHRA.

Groenewald, G. 2012. Palaeontological Technical Report for KwaZulu-Natal. Amafa.

Mitchell, P. 2002. *The Archaeology of Southern Africa*. Cambridge University Press: Cambridge.

Prins, F. 2017. First Phase Heritage Impact Assessment of the proposed DTP Cottonlands Industrial Park, Verulam, eThekweni Municipality. Active Heritage cc. Unpublished Heritage Impact Assessment Report, SAHRA.

Prins, F. 2020. Phase One Heritage Impact Assessment of the Proposed Kwacele Quarry near Stanger, kwaDukuza Municipality, KwaZulu-Natal. Active Heritage cc. Unpublished Heritage Impact Assessment Report, SAHRA.

South African Heritage Resources Agency. 2007. Minimum Standards for the Archaeological and Heritage Components of Impact Assessments. (Unpublished guidelines).

South African Heritage Resources Agency. 2016. Updated Minimum Standards for the Archaeological and Heritage Components of Impact Assessments. (Unpublished draft guidelines).

Wadley, L., and Jacobs, Z. 2004. Sibudu Cave, KwaZulu-Natal: Background to the excavations of Middle Stone Age and Iron Age occupations. *South African Journal of Science*. March/April 2004.

<http://cdngiportal.co.za/cdngiportal/>

APPENDICES

APPENDIX A: SHORT CV OF THE HERITAGE CONSULTANT

CURRICULUM VITAE

Dr. Phillipa Harrison – Heritage Consultant / Archaeologist Land Matters Environmental Consulting (Pty) Ltd

CONTACT DETAILS

Telephone 082 408 6545
E-mail phillipa@lmenvironmental.co.za

QUALIFICATIONS

- 2015 – 2021: Bachelor of Arts Honours (Archaeology), University of South Africa (UNISA)
- 2003 – 2006: Doctor of Philosophy (PhD), University of KwaZulu-Natal
- 2001 – 2002: Master of Arts (MA), University of KwaZulu-Natal
- 2000: Bachelor of Arts Honours (Geography), University of KwaZulu-Natal
- 1997 – 1999: Bachelor of Arts (Geography, English, Geology), University of KwaZulu-Natal

PROFESSIONAL REGISTRATIONS

Association of Southern African Professional Archaeologists (ASAPA) (No. ASAPA545)

AREAS OF EXPERTISE

- Heritage Impact Assessment and Palaeontological Impact Assessment Studies;
- EIA and Basic Assessment Processes;
- Environmental Management Programmes;
- Water Use License Applications; and
- Waste Management License Applications.

WORK EXPERIENCE

Dr Phillipa Harrison holds a Bachelor of Arts Honours Degree in Archaeology from the University of South Africa (UNISA) and a Doctor of Philosophy in Geography from the University of KwaZulu-Natal. She is professionally affiliated to the Association of Southern African Professional Archaeologists (ASAPA) and has eleven years consulting experience in the Environmental Assessment field with experience in conducting Heritage Impact Assessments and Palaeontological Impact Assessments, as well as Basic Assessment and Scoping and EIA processes, compiling Environmental Management Programmes, and undertaking Water Use and Waste Management License Applications.

EXAMPLES OF RELEVANT PROJECT EXPERIENCE

PROJECT	DATE
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the Proposed Residential Development on Portion 34 and 64 of the Farm Hilton No. 12304 in Hilton, Umngeni Local Municipality, KZN.	December 2022
Phase 1 Heritage Impact Assessment: for the Operation of the Illovo Quarry on Rem of the Farm Ambleside No. 17474 near Port Shepstone, Ray Nkonyeni Local Municipality, KZN.	November 2022
Phase 1 Heritage Impact Assessment and Palaeontological Impact Assessment: for the Unauthorised Dams on the Farm Fouries Kraal No. 1183 located near Ladysmith, Alfred Duma Local Municipality, KZN.	November 2022
Phase 1 Heritage Impact Assessment and Palaeontological Impact Assessment: for the Unauthorised Dams and Cultivation on Tullinchinwall Farm located near Geluksburg, Okhahlamba Local Municipality, KZN.	November 2022
Phase 1 Heritage Impact Assessment and Palaeontological Impact Assessment: for the Establishment of an Unauthorised Irrigation Dam on Nineveh Farm located near Bergville, Okhahlamba Local Municipality, KZN.	November 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed Light Industrial Estate on Rem of Lot 20 Marburg Settlement No. 5096, Ray Nkonyeni Local Municipality, KZN.	September 2022
Heritage Comment: for the proposed rectification in terms of Section 24G of NEMA for the unauthorised establishment of a Private Staging Facility on a portion of the property Rem of Portion 55 of the Farm Langewacht No. 2168 near Mooi River, KwaZulu-Natal.	July 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed installation of an Outfall Sewer Pipeline for the Arbour Arch Mixed-Use Development in the Town Hill Area of Pietermaritzburg, KZN.	July 2022
Phase 1 Heritage Impact Assessment: for the proposed establishment of a Cattle Feedlot on Westlands Farm in the Kokstad Area, Greater Kokstad Local Municipality and Harry Gwala District Municipality, KZN.	July 2022
Phase 1 Heritage Impact Assessment: for the proposed establishment of a Mixed-Use Development on Rem of the Farm Usherwood West No. 303 in Kokstad, Greater Kokstad Local Municipality and Harry Gwala District Municipality, KZN.	July 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed establishment of the Ulundi Crossings Shopping Centre and Service Station on Erf 402 of Ulundi B, Ulundi Local and Zululand District Municipality, KZN.	April 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed establishment of a 67 900m ³ dam and the cultivation of approximately 45ha of macadamia nut trees on Hopewell Farm, KwaDukuza Local and iLembe District Municipality, KZN.	April 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed establishment of the Umlaas Junction Private Light Industrial estate located on Rem of the Farm Crookes No. 15732, Camperdown, Mkhambathini Local Municipality and uMgungundlovu District Municipality, KwaZulu-Natal.	March 2022
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed establishment of a 20ha cemetery located on Portion 43 of the Farm Honig Krantz No. 945 in the Cato Ridge Area of the Mkhambathini Local Municipality and uMgungundlovu District Municipality, KwaZulu-Natal.	January 2022
Phase 1 Heritage Impact Assessment: for the proposed establishment of a second residential development at Beacon Hill Country Estate on Portion 5 of Erf 1280 and a game park on Portion 9 of Erf 1280 in Bishopstowe, Pietermaritzburg, Msunduzi Local and uMgungundlovu District Municipality, KwaZulu-Natal.	December 2021
Phase 1 Heritage Impact Assessment and Desktop Palaeontological Impact Assessment: for the proposed establishment of the Richmond Cemetery in Richmond, Richmond Local Municipality and uMgungundlovu District Municipality, KwaZulu-Natal.	November 2021

APPENDIX B: PROTOCOL OF FINDS FOR HERITAGE / PALAEOLOGICAL RESOURCES

1. INTRODUCTION

The following procedures must be considered in the event that previously unknown heritage resources, including fossils, burial grounds or graves, are exposed or found during the life of the project. The procedures below are based on the National Heritage Resources Act, 1999 Regulations (Reg No. 6820, GNR 548) and the KwaZulu-Natal Amafa and Research Institute Draft Regulations, 2021.

The term 'heritage resource' here includes burial grounds and graves, structures, archaeology, palaeontology, meteors and public monuments. If any sign of the above are uncovered during excavation of the site, the following protocol must be observed:

- All work in the vicinity of the find must immediately cease, with a radius of at least 25 meters of the site or discovery, and further disturbance of the heritage resource must be avoided.
- The ECO and project manager/developer must be notified of the discovery.
- The ECO must arrange for a suitably qualified specialist to consider the heritage resource, either via communicating with the ECO via telephone or email, or based on a site visit.
- The ECO and specialist must advise on the appropriate mitigation measures to be implemented.
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA (1999) and the KwaZulu-Natal Amafa and Research Institute Act (2018), a written report must be submitted to the KwaZulu-Natal Amafa and Research Institute within a period of 30 days from the date of making such a discovery.
- The report must include – the names of the person reporting; the object discovered; the time and date of such discovery; the location of such discovery; and the municipal area within which the discovery was made.
- The Provincial Heritage Resource Authority (PHRA) may require that a full Heritage Impact Assessment (HIA) to be conducted and may require rescue excavations to take place.

2. BURIAL GROUND AND GRAVE FIND PROCEDURE

In the event that human remains are accidentally exposed, the project manager and / or ECO must immediately be notified of the discovery in order to take the required further steps:

- The local SAPS will be notified on behalf of the Applicant;
- A suitably qualified specialist must be arranged to inspect the exposed burial and determine in consultation with the SAPS:
 - a) The temporal context of the remains, i.e.:
 - forensic
 - authentic burial grave (informal or older than 60 years); or
 - archaeological (older than 100 years).
 - b) If any additional graves or burial sites may exist in the vicinity.
- Should the specialist conclude that the find is a heritage resource protected in terms of the NHRA (1999) and the KwaZulu-Natal Amafa and Research Institute Act (2018), a written report must be submitted to the KwaZulu-Natal Amafa and Research Institute within a period of 30 days from the date of making such a discovery.
- The SAHRA / PHRA may require that interested parties be identified and that consultation and /or grave relocation take place.
- If consultation and / or grave relocation are required, consultation and grave relocation must take place in terms of the NHRA (1999) and the KwaZulu-Natal Amafa and Research Institute Act (2018).

3. FOSSIL FIND PROCEDURES

3.1 Introduction

In the context of this application, it is unlikely that any fossil finds will require the declaration of permanent "no go" areas and it is likely that if any fossil finds are made, a temporary pause in activity within a particular area will be required. In the event that fossil material is uncovered during excavation, the strategy to be employed will be to rescue the material as quickly as possible.

The procedures outlined below are in general terms and will require adaptation depending on the specifics of type of fossil find. The procedures outlined below are detailed in terms of fossil bone finds, which usually occur sparsely. However, they do serve as a guideline for other fossil material finds, which may occur on the site.

3.2 Isolated and Cluster Bone Finds

There are two types of fossil bone finds – 'isolated bone finds' and 'cluster bone finds'. During the excavation process, isolated bones may be found within the walls or base of the excavation, or as they appear on the stockpile or spoil heap. When bones appear singly, in different parts of the excavation site, they are considered 'isolated bone finds', however, when six or more isolated bones / pieces are found, the finds are considered a 'cluster bone find'. A 'cluster bone find' is when several bones are uncovered in the same spot or grouped together within the excavation site. These bones may or may not resemble an intact or partially intact skeleton.

3.2.1 Response by Personnel in the Event of an Isolated Bone Find

The following responses should be undertaken by personnel in the event of isolated bone finds:

1. An isolated bone exposed in an excavation or spoil heap must be retrieved before it is covered by further spoil from the excavation and set aside;
2. The site foreman and ECO must be informed;
3. The responsible field person (site foreman or ECO) must take custody of the fossil. The following information is to be recorded:
 - Position (excavation position);
 - Depth of find in hole;
 - Digital image of hole showing vertical section (side); and
 - Digital image of fossil.
4. The fossil should be placed in a bag (e.g. a Ziploc bag), along with any detached fragments. A label must be included with the date of the find, position information, and depth; and
5. The ECO is to inform the Applicant who must then contact the heritage consultant. The ECO is to describe the occurrence and provide images via email.

3.2.2 Response by Palaeontologist in the Event of Isolated Bone Finds

The palaeontologist will assess the information and liaise with the Applicant and the ECO and a suitable response procedure will be established.

3.3 Response by Personnel in the Event of a Cluster Bone Find

The following responses should be undertaken by personnel in the event of bone cluster finds:

1. Immediately stop excavation in the vicinity of the potential material. Mark or flag the position as well as the spoil heap that may contain fossils;
2. Inform the site foreman and the ECO; and
3. The ECO is to inform the developer who must then contact the heritage consultant. The ECO must then describe the occurrence and provide images via email.

3.3.1 Response by Palaeontologist in the Event of a Bone Cluster Find

A palaeontologist must assess the information and liaise with the Applicant and the ECO and a suitable response procedure must be established. It is likely that a Field Assessment by the palaeontologist will be required. The response time / scheduling of the Field Assessment will be decided in consultation with the Applicant and the ECO. The Field Assessment could have the following outcomes:

- If a human burial, the appropriate authority is to be contacted. The find must be evaluated by a human burial specialist to decide if Rescue Excavation is feasible, or if it is a Major Find.
- If the fossils are of an archaeological context, an archaeologist must be contacted to evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.
- If the fossils are of a palaeontological context, the palaeontologist must evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.

3.4 Rescue Excavation

Rescue Excavation refers to the removal of the material from the site excavation. This is applicable if the volume or significance of the exposed material appears to be relatively confined and it is feasible to remove it without compromising the contextual data. The time span for Rescue Excavation should be relatively rapid to avoid any undue delays (e.g. less than one week).

In principle, the strategy during the mitigation is to “rescue” the fossil material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the density of the fossils. The methods of collection would depend on the preservation or fragility of the fossil and whether in loose or in lithified sediment.

These could include:

- On-site selection and sieving in the case of robust material in sand; and
- Fragile material in loose sediment would be encased in blocks using Plaster-of-Paris or reinforced mortar.

If the fossil occurrence is dense and is assessed to be a “Major Find”, a carefully controlled excavation is required.

3.5 Major Finds

A Major Find is when the occurrence of material that, by virtue of quantity, importance and time constraints, cannot be feasibly rescued without compromising the detailed material recovery and contextual data / observations.

3.5.1 Management Options for Major Finds

In consultation with the Applicant and the ECO, the following options should be considered when deciding on how to proceed in the event of a Major Find.

Option 1: Avoidance

Avoidance of the Major Find through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from a heritage resource management perspective. When feasible, it can also be the least expensive option from a construction perspective. The find site will require site protection measures, such as erecting fencing or barricades. Alternatively, if excavation of the find will be delayed substantially or indefinitely, the exposed finds can be stabilised and the site refilled or capped. Appropriate protection measures should be identified on a site-specific basis and in wider consultation with the heritage and scientific communities. This option is preferred as it will allow the later excavation of the finds with due scientific care and diligence.

Option 2: Emergency Excavation

Emergency excavation refers to the “no other option” situation where avoidance is not feasible due to design, financial and time constraints. It can delay construction and emergency excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It could involve the removal of a large, disturbed sample by an excavator and conveying this by truck from the immediate site to a suitable place for “stockpiling”. This material could then be processed later. Emergency excavation is not the preferred option for a Major Find due to the loss of contextual data and the loss of sample integrity.

3.6 Exposure of Other Fossil Types (e.g. Plants, Fossil Shell Beds)

3.6.1 Response for Personnel in the Event of Other Fossil Finds

The following responses should be undertaken by personnel in the event of any type of fossil finds:

1. The site foreman and ECO must be informed;
2. The responsible field person (site foreman or ECO) must record the following information:
 - Position (excavation position);
 - Depth of find in hole;
 - Digital image of the hole showing the vertical section (side); and
 - Digital images of the fossiliferous material.
3. A generous quantity of the excavated material containing the fossils should be stockpiled near the site, for later examination and sampling;
4. The ECO is to inform the developer who must then contact the heritage consultant. The ECO is to describe the occurrence and provide images via email.

3.6.2 Response by the Palaeontologist in the Event of Other Fossil Finds

The palaeontologist will assess the information and liaise with the developer and the ECO and a suitable response will be established. This will most likely be a site visit to document and sample the exposure in detail, before it is covered up.

4. MONITORING FOR FOSSILS

A regular monitoring presence over the period during which excavations are made, by either an archaeologist or palaeontologist, is generally not practical.

The field supervisor or foreman and workers involved in digging excavations must be encouraged and informed of the need to watch for potential fossil and buried archaeological material. Workers seeing potential objects are to report to the field supervisor who, in turn, will report to the ECO. The ECO will inform the heritage consultant in the case of fossil finds.

To this end, responsible persons must be designated. This will include hierarchically:

- The field supervisor or foreman who is going to be most often in the field;
- The ECO for the project; and
- The Project Manager.

Should the monitoring of excavations be stipulated in the Archaeological Impact Assessment and / or the Heritage Impact Assessment, the contracted Monitoring Archaeologist (MA) can also monitor for the presence of fossils and make field assessment of any material brought to attention. The MA is usually sufficiently informed to identify fossil material and this avoids additional monitoring by a palaeontologist.

The MA then becomes the responsible field person and fulfils the role of liaison with the palaeontologist and coordinates with the Applicant and the ECO. If fossils are exposed in non-archaeological contexts, the palaeontologist should be summoned to document and sample / collect them.

APPENDIX C: SITE PHOTOGRAPHS



Plate 1: Photograph showing the central portion of the site facing eastwards.



Plate 2: Photograph showing the public liaison officer and Qadi Traditional Council members on site during the ground survey.



Plate 3: Photograph showing the informal graveyard area in the southwestern portion of the site.



Plate 4: Photograph showing the traditional-style unmarked grave identified on the site.



Plate 5: Photograph showing the dense grassland vegetation in the southern portion of the site.



Plate 6: Photograph showing the cultivated lands in the northern portion of the site.



Plate 7: Photograph showing dense woody vegetation along the watercourses on the site.