

**HIA FOR THE ENHLALAKAHLE PHASE 2
SUBSIDISED HOUSING DEVELOPMENT**

FOR K2M ENVIRONMENTAL

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Abbreviations

HP	Historical Period
IIA	Indeterminate Iron Age
LIA	Late Iron Age
EIA	Early Iron Age
ISA	Indeterminate Stone Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
HIA	Heritage Impact Assessment
PIA	Palaeontological Impact Assessment

INTRODUCTION

“The uMvoti Municipality has, through its IDP process, and extensive consultation with respective beneficiary communities residing within the uMvoti Municipality, identified the need to provide subsidised housing in its area of jurisdiction. This process was initiated as a means to address the municipality’s housing need and in doing so improve the living conditions and quality of life of its communities.

The total extend of the project area is approximately 59Ha and is situated on a portion of Ward 7 of the uMvoti Local Municipality. The proposed development is an urban housing project, which will be located approximately 2km east of Greytown. The project area is relatively flat in the north western and central section, but becomes steep in the eastern and southern sections of the project area. There are watercourses that traverse the northern and southern sections of the project area. It should be noted that the land was leased to Mondi for a timber planation, however, Mondi is now in the process of removing the timber trees to accommodate for the housing project. It should also be noted that there is a housing project that is currently taking place, west of the project area.”

Umlando was requested to undertake an HIA of the proposed housing development. Figures 1 – 4 show the location of the development.

FIG. 1 GENERAL LOCATION OF THE PROPOSED DEVELOPMENT

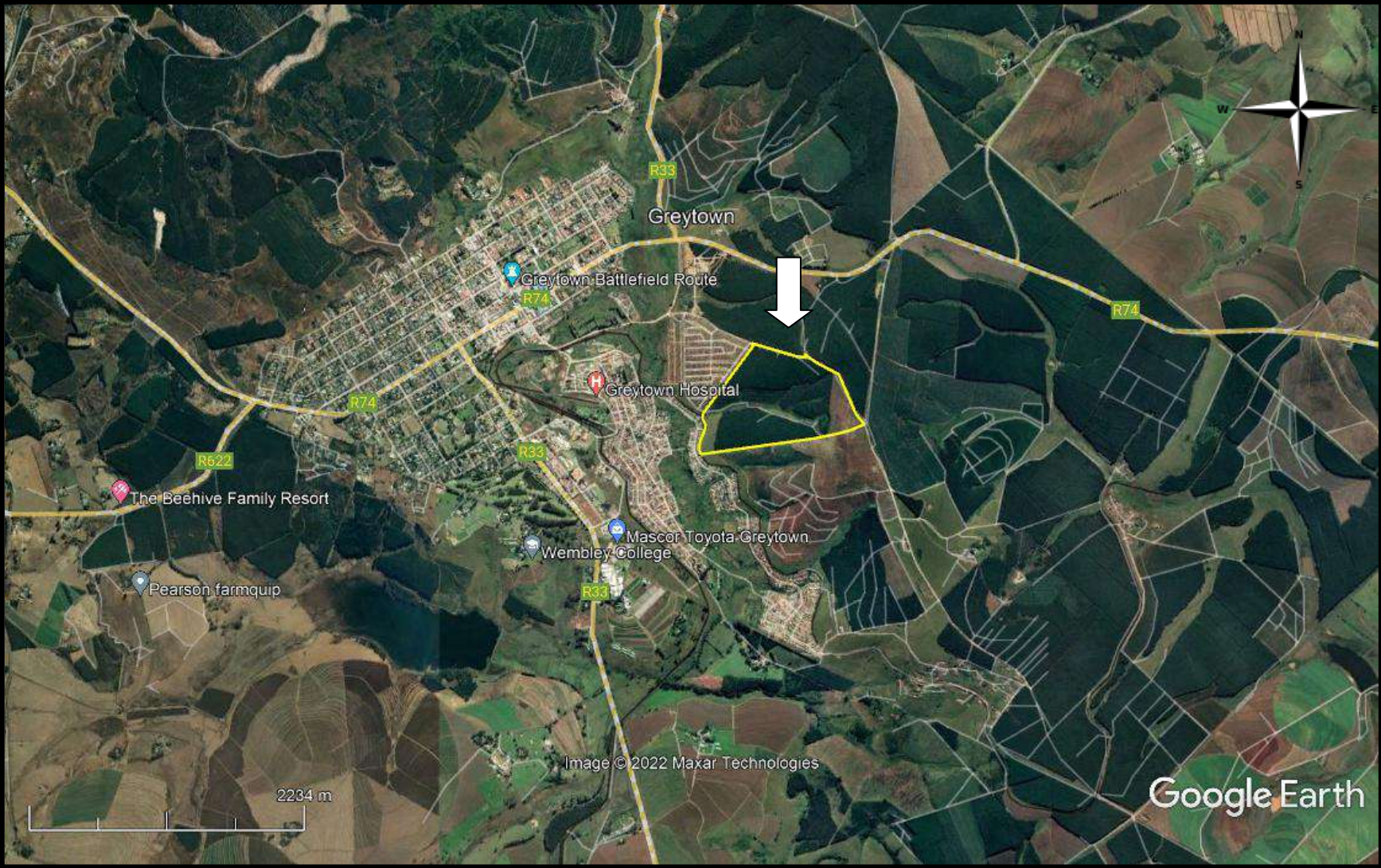


FIG. 2: AERIAL OVERVIEW OF THE PROPOSED DEVELOPMENT

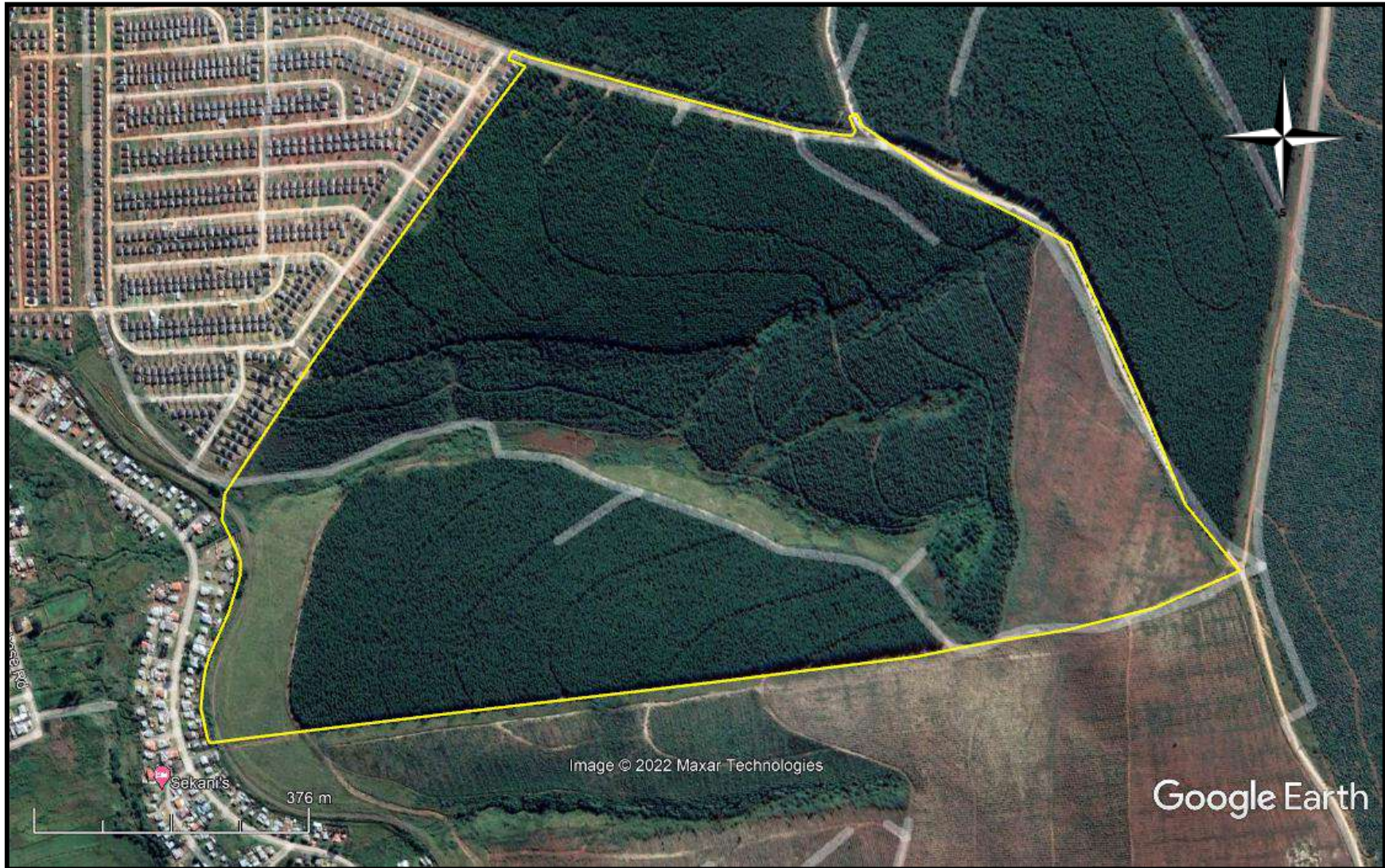


FIG. 3: TOPOGRAPHICAL MAP OF THE PROPOSED DEVELOPMENT (2000)

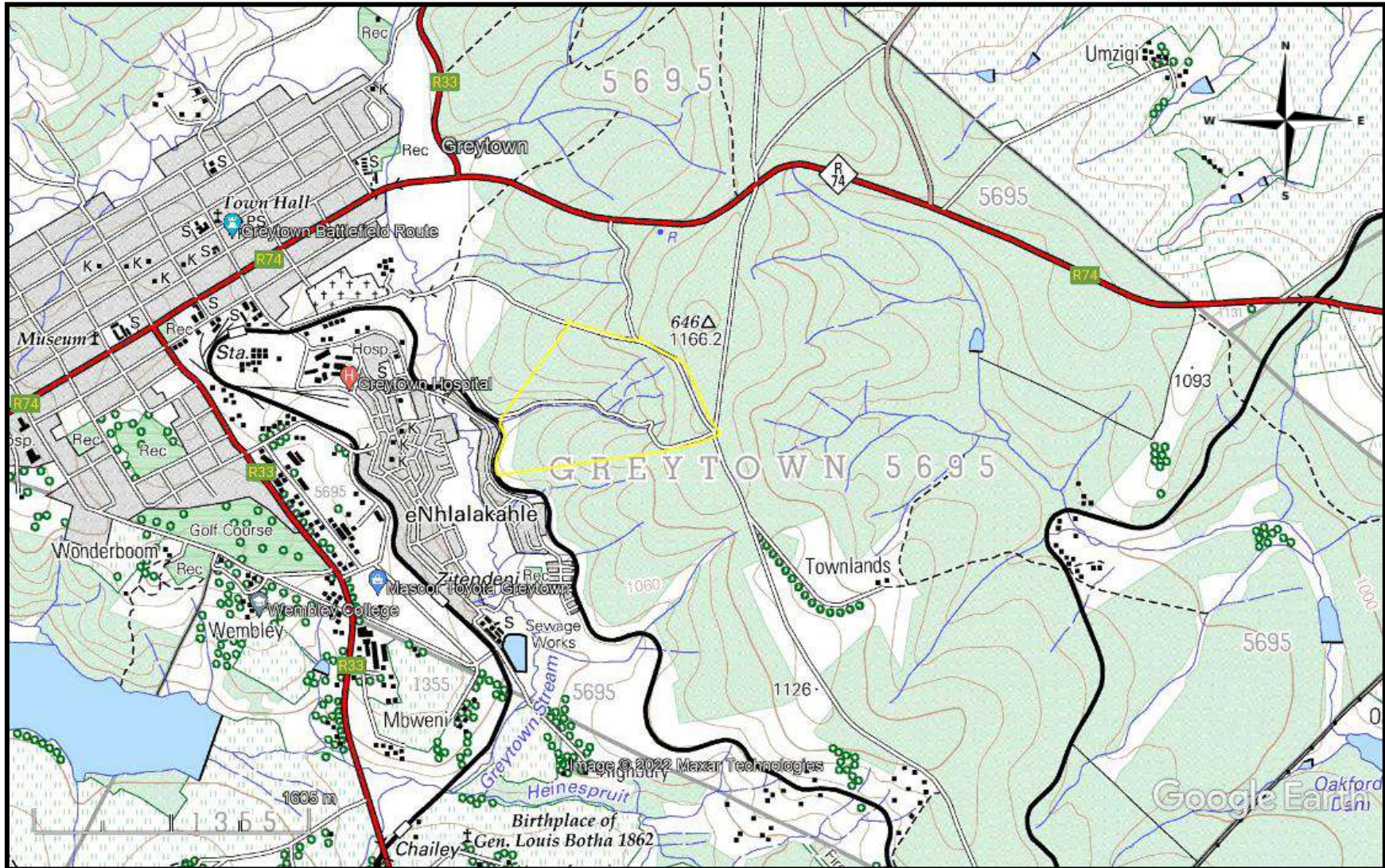


FIG. 4: SCENIC VIEWS OF THE STUDY AREA



KWAZULU NATAL AMAFA AND RESEARCH INSTITUTE, ACT 05, 2018,

The KwaZulu Natal Amafa And Research Institute, Act 05, 2018, Chapter 8 (pp 29 – 32) defines heritage resources.

“General protection: Structures.

37.(1)(a) No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Institute having been obtained on written application to the Council.

(b) Where the Institute does not grant approval, the Institute must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

The Institute may, by notice in the *Gazette*, exempt—

(a) A defined geographical area; or

(b) defined categories of sites within a defined geographical area, from the provisions of subsection where the Institute is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

(3) A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.

38. No person may damage, alter, exhume, or remove from its original position

(a) the grave of a victim of conflict;

(b) a cemetery made up of such graves; or

(c) any part of a cemetery containing such graves, without the prior written approval of the Institute having been obtained on written application to the Council.

General protection: Informal and private burial grounds

39.(1) or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority -

- (a) not otherwise protected by this Act; and
- (b) not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Council.

The Institute may only issue written approval once the Institute is satisfied that—

- (a) the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- (b) the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

40 (1) No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(2) Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Institute without delay.

(3) The Institute may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit

any activity considered by the Institute to be inappropriate within 50 metres of a rock art site.

(4) No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(5) No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Institute having been obtained on written application to the Council.

(6)(a) The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

(b) The Institute may establish and maintain a provincial repository or repositories for the

safekeeping or display of —

- (i) archaeological objects;
- (ii) palaeontological material;
- (iii) ecofacts;
- (iv) objects related to battlefield sites;
- (v) material cultural artefacts; or
- (vi) meteorites,

(7) The Institute may, subject to such conditions as the Institute may determine, loan any object or material referred to in subsection (6) to a national or provincial museum or institution.

(8) No person may, without the prior written approval of the Institute having been obtained on written application to the Institute, trade in, export or attempt to export from the Province ~

- (a) any category of archaeological object;
- (b) any palaeontological material;
- (c) any ecofact;
- (d) any object which may reasonably be regarded as having been recovered from a battlefield site;
- (e) any material cultural artefact; or
- (f) any meteorite.

(9)(a) A person or institution in possession of an object or material, referred to in paragraphs (a) ~ (f) of subsection (8), must submit full particulars of such object or material, including such information as may be prescribed, to the Institute.

(b) An object or material referred to in paragraph (a) must, subject to paragraph (c) and the directives of the Institute, remain under the control of the person or institution submitting the particulars thereof.

(c) The ownership of any object or material referred to in paragraph (a) vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.”

METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. This database contains

archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1st and 2nd edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

Defining significance

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:

- 1.1. Organic remains:
 - 1.1.1. Faunal
 - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
 - 1.5.1. Ash Features
 - 1.5.2. Graves
 - 1.5.3. Middens
 - 1.5.4. Cattle byres
 - 1.5.5. Bedding and ash complexes

2. Spatial arrangements:

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

3. Features of the site:

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site?
- 3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

- 4.1. Providing information on current research projects
- 4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

- 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
- 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

6. Archaeological Experience:

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

- 7.1. Does the site have the potential to be used as an educational instrument?
- 7.2. Does the site have the potential to become a tourist attraction?
- 7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

8. Other Heritage Significance:

- 8.1. Palaeontological sites
- 8.2. Historical buildings
- 8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites
- 8.4. Graves and/or community cemeteries
- 8.5. Living Heritage Sites
- 8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs

when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts. Table 1 lists the grading system.

TABLE 1: SAHRA GRADINGS FOR HERITAGE SITES

SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	
High / Medium Significance	Generally Protected A		Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C		On-site sampling monitoring or no archaeological mitigation required prior to or during development / destruction

RESULTS

DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. No systematic surveys have occurred near the study area (fig. 5). however, the area is known to be historically sensitive. Some of the historical areas include:

- General Louis Botha's birthplace (1862)
- Town Hall (1898)
- Greytown museum
- Voortrekker Eufees Monument
- St. Joseph's Catholic Church

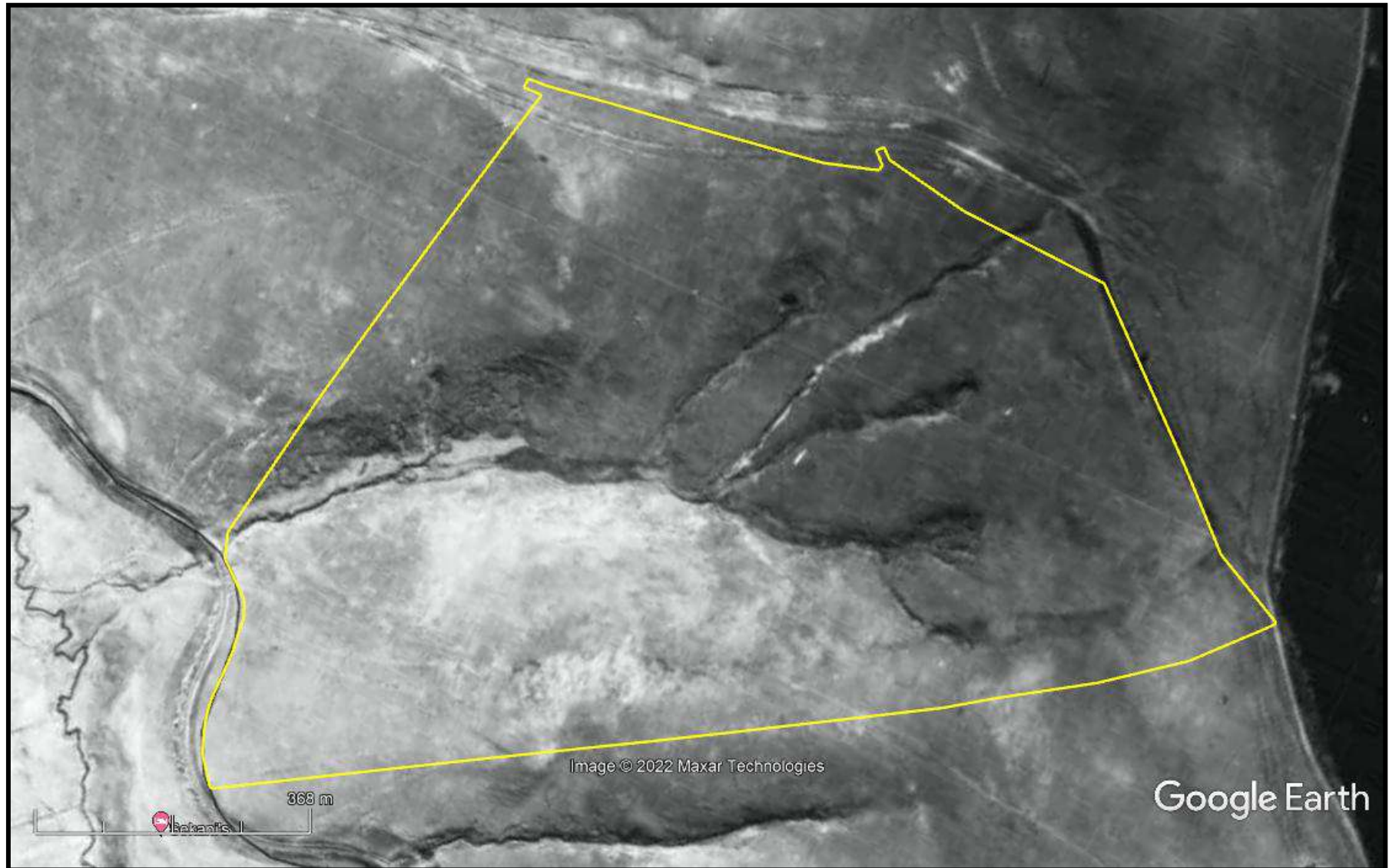
- Dutch Reformed Church and Bell (1860s?)
- 92 Cathcart Street
- Shri Vishnu Mandir Temple (1933)
- Bell Street Mosque (1898)
- Methodist church (1877)
- St James Anglican Church (1911)
- Umvoti Mounted Rifles Hall (1880)
- The Masonic Hall (1905)
- The Stables (1870s)
- Fort Mispah (1859)
- Greytown Gardens
- R33 turnoff to Bambatha Rock and Bambatha Rebellion sites

The recorded archaeological sites include Stone Age and Iron Age sites. The nearest survey to the study area (Anderson 2012) noted the occurrence of an ephemeral scatter of pottery sherds amongst the afforested area. This is probably the scenario for most of the general afforested area in the area: isolated small scatters of artefacts.

The 1937 aerial photograph indicates that the area is grassland with no visible structures (fig. 6).

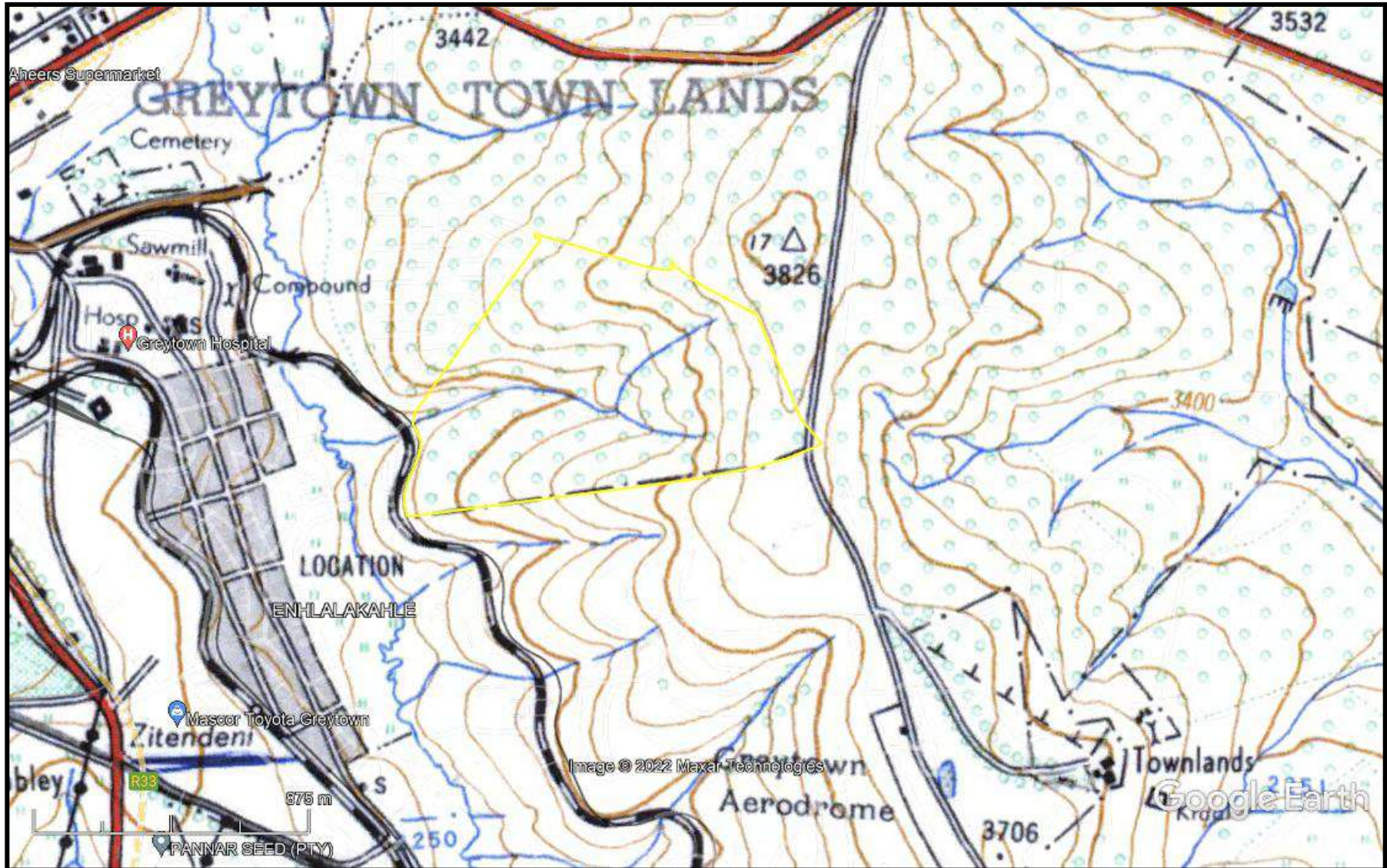
The 1963 topographical map indicates that there are no built structures within the study area and that it has been converted to a timber plantation (fig. 7). This means the area has had 60+ years of afforestation.

FIG. 6: LOCATION OF THE STUDY AREA IN 1937¹



¹ 117B_005_03648

FIG. 7: LOCATION OF THE STUDY AREA IN 1963



PALAEONTOLOGICAL SENSITIVITY

The area is in an area of medium palaeontological sensitivity (fig. 8). A desktop PIA was undertaken by Dr Alan Smith (Appendix A) who states:

The Pietermaritzburg Formation may contain scattered, fragmentary plant fossils and invertebrate trace fossils, some of which are diagnostic of marine conditions (such as *Helminthopsis*) (Bordy et al., 2017). Potentially it could contain vertebrate fossils, but to the writer's knowledge none have been found. The chances of finding Palaeontological Material is very low, but not zero, consequently a chance find protocol has been included in this report (see section 7).

FIG. 8: PALAEONTOLOGICAL SENSITIVITY MAP



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.

FIELD SURVEY

A field survey was undertaken on the 18 October 2022. Ground visibility was mostly good; and there were enough tracks and open areas to undertake a survey. The area appears to be covered by shallow soils with shale layers below it (fig. 9). These types of soils are not conducive for archaeological sites.

FIG. 9: SOIL PROFILES OF THE STUDY AREA



Much of the land is on a steep gradient except for the lower southwestern corner.

The survey did not record or note any artefacts or features. If any artefacts do occur, then they will be in a secondary context due to 50+ years of afforestation and colluvial movement.

RECOMMENDATIONS

No artefacts or features were noted within the study area.

While the area is of medium palaeontological sensitivity, the chance of finding fossil remains is low. A Chance Find Protocol was suggested for the palaeontology.

No further heritage mitigation is required.

CONCLUSION

A desktop heritage survey was undertaken for the proposed groynes on the Mkhonozana River. No heritage sites are known to occur in the study area. The project should be exempt from further heritage mitigation.

REFERENCES

Anderson, G. 2012. Heritage Survey Of The Proposed Greytown Landfill Site,
Kwa-Zulu Natal

1:50 000 Topographical Maps

2930BA_Greytown_2000

Aerial Photographs

117B_005_03648

Database

KZN Museum

SHARIS

Umlando

EXPERIENCE OF THE HERITAGE CONSULTANT

Gavin Anderson has a M. Phil (in archaeology and social psychology) degree from the University of Cape Town. Gavin has been working as a professional archaeologist and heritage impact assessor since 1995. He joined the Association of Professional Archaeologists of Southern Africa in 1998 when it was formed. Gavin is rated as a Principle Investigator with expertise status in Rock Art, Stone Age and Iron Age studies. In addition to this, he was worked on both West and East Coast shell middens, Anglo-Boer War sites, and Historical Period sites.

DECLARATION OF INDEPENDENCE

I, Gavin Anderson, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.

A handwritten signature in black ink, appearing to read 'G. Anderson', with a horizontal line underneath.

Gavin Anderson
Archaeologist/Heritage Impact Assessor

APPENDIX A
DESKTOP PIA

**ENHLALAKHLE HOUSING DEVELOPMENT IN
GREYTOWN, KWAZULU-NATAL: DESK-TOP
PIA**

FOR

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2 November 2022

Declaration of Independence

This report has been compiled by Dr Alan Smith (Pr. Sc. Nat.) of Alan Smith Consulting, Durban. The views expressed in this report are entirely those of the author, if not then the source has been duly acknowledged. No other interest was displayed during the decision making process for the Project.

Specialist: Dr Alan Smith

Signature:



EXECUTIVE SUMMARY

Alan Smith Consulting was appointed by **UMLANDO: Archaeological Surveys & Heritage Management** to conduct a Desk-Top field assessment of the potential impacts to **Palaeontology Resources** that might occur through the activities of the proposed Enhlalakhle Housing Development in Greytown, KwaZulu-Natal

Section 38 of the National Resources Act No 25 of 1999 (Heritage Resources Management), requires a Palaeontological Impact Assessment (PIA) to assess any potential impacts to palaeontological heritage.

The Pietermaritzburg Formation is coded green in the Sahris paleo-sensitivity map. To date no significant fossils have been found in it. The other lithologies are not fossiliferous.

The chances of encountering fossils are **Low**, but **Not Zero**; consequently a “*Chance Find Protocol*” has been included.

ACRONYMS

BA:	Basic Assessment
EDTEA:	(Department of) Economic Development, Tourism and Environmental Affairs
HIA:	Heritage Impact Assessment
PIA;	Palaeontological Impact Assessment
SAHRA:	South African Heritage Resource Agency
SAHRIS:	South African Heritage Resources Information System

1. TERMS OF REFERENCE

Alan Smith Consulting was requested by **UMLANDO: Archaeological Surveys & Heritage Management** to provide a Desk-Top Palaeo Impact Assessment for the Enhlalakhle Housing Project in Greytown, KwaZulu-Natal (Figure 1). This report is to meet the requirements of the National Environmental Management Act (Act 107 of 1998) [as amended] Environmental Impact Assessment (EIA) regulations, Appendix 6.

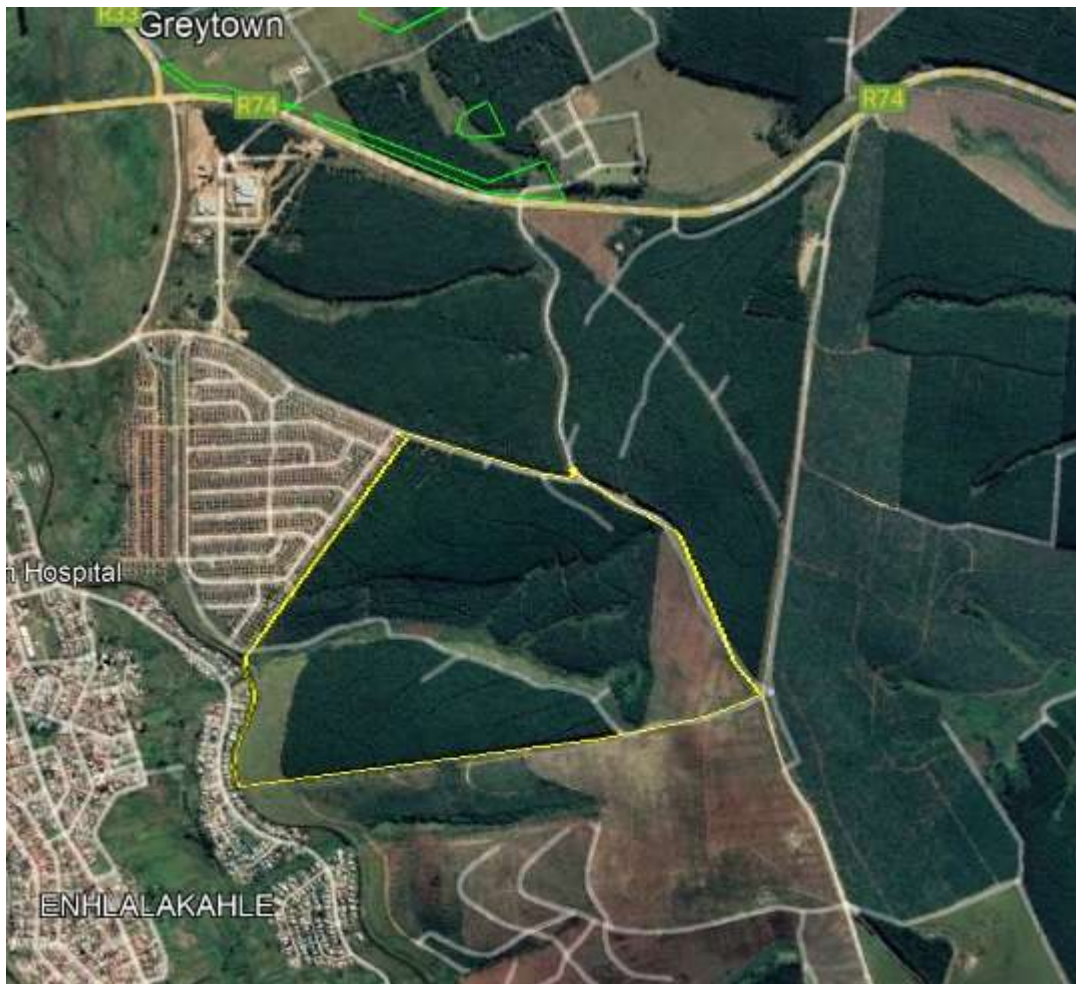


Figure 1: Location of the proposed Enhlalakhle Housing development (yellow border).

2. SCOPE AND PURPOSE OF REPORT

A Palaeontological Impact Assessment (PIA) is a means of identifying any significant palaeontological material before development begins, so that these can be managed in

such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This Desk-Top investigation fulfills the requirements of the heritage authorities (SAHRA), such that a comment can be issued by them for consideration by the competent authority (EDTEA), who will review the Basic Assessment (BA) and grant or refuse authorisation. The PIA report will outline any management and/or mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation, should this be granted.

3. METHODOLOGY

Geological maps, a literature review and personal experience (see Section 9) were used in this research.

4. GEOLOGY

The Pietermaritzburg Formation and Karoo dolerite may be present in this area (Figure 2).

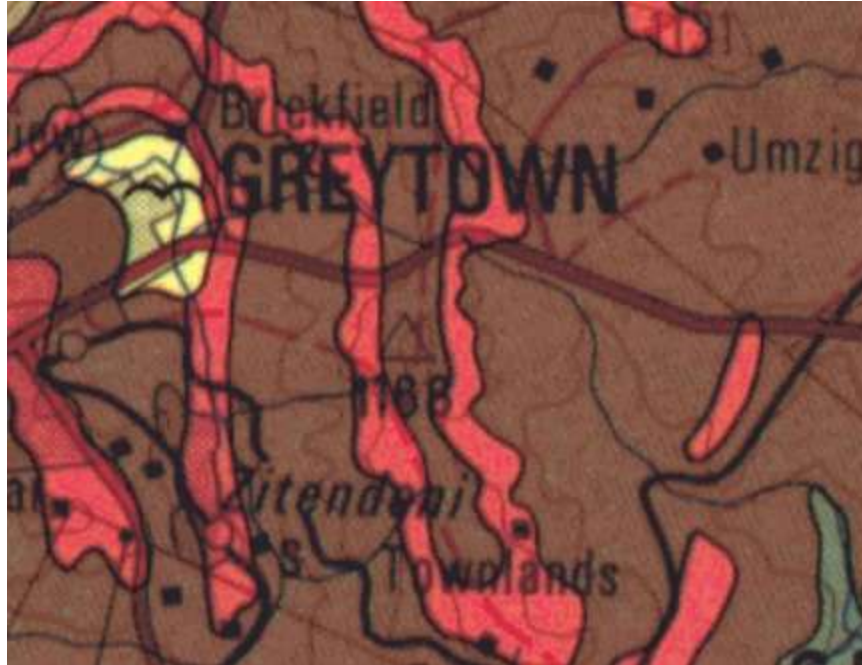


Figure 2: Approximate area of the Enhlalakhle Housing Project. Extract from the 125 000 Geological Map: Durban 2930. According to this map, the housing development will take place on Pietermaritzburg Formation (Pp: brown) and Karoo Dolerite (Jd: red).

Pietermaritzburg Formation (Pp: brown)

The Pietermaritzburg Formation is very dark blue (when fresh) and crops out as a massive siltstone. This formation belongs to the Karoo Sequence. The Pietermaritzburg Formation is Lower Permian in age and was deposited within the Karoo Sea, located in the centre of the Gondwana Supercontinent. This unit was deposited under post Dwyka Glacial (Late Paleozoic Glaciation) low energy conditions (Bordy et al., 2017) at circa 260 Ma.

Karoo Dolerite

At this location, the Karoo Dolerite is represented by dykes (vertical sheets) and sills, (sub-horizontal sheets). It is part of the Karoo Large Igneous Province (LIP). The Karoo LIP is a sequence of lavas up to 4.5 km thick which was deposited about 184 Ma (million years ago). These igneous rocks are part of the “plumbing” of the LIP, which was extruded as a “Continental Flood Basalt”, a process that has never been witnessed by mankind. This process is believed to have taken place by fissure eruption. This event may have triggered the break-up of the Gondwana supercontinent (Hastie et al., 2014).

5. PALAEOLOGY

The Sahrís coding for this proposed housing project is illustrated in Figure 3 below. The colour coding used in the Sahrís Palaeosensitivity Map is shown in Table 1.

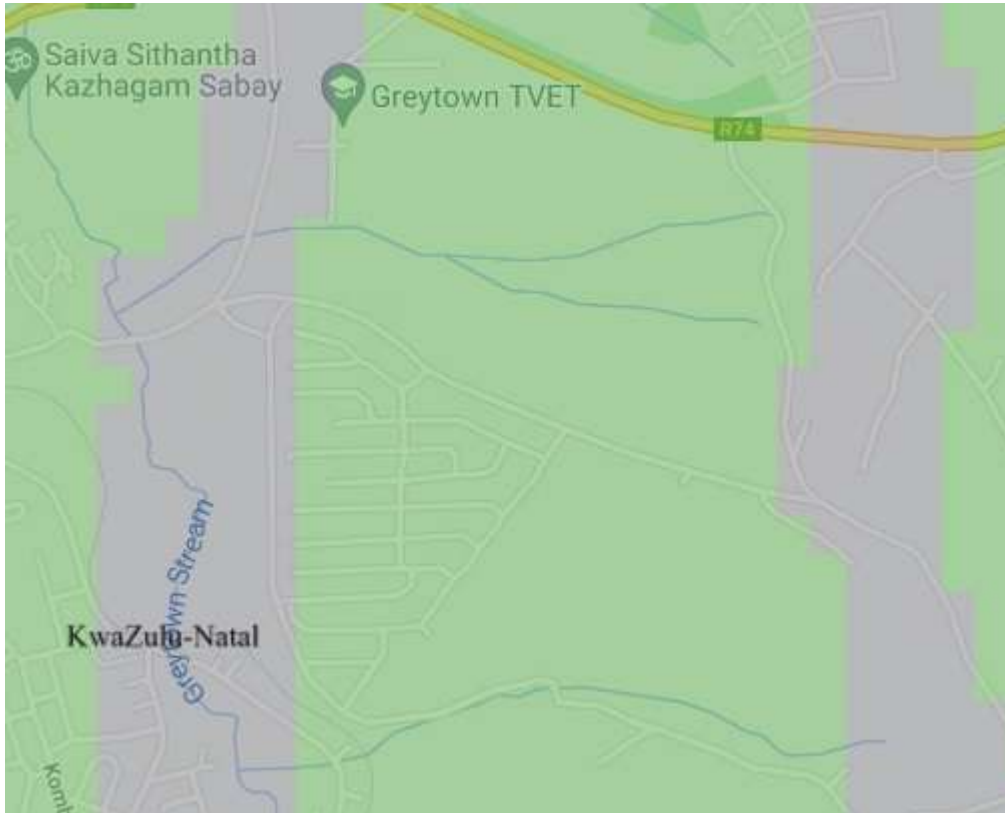


Figure 3: Palaeosensitivity of the approximate area where the Enhlalakhle Housing project will take place. Extract from Sahrís Palaeosensitivity Map).

Table 1: Summary of SAHRIS categories

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

Pietermaritzburg Formation (Green)

The Pietermaritzburg Formation may contain scattered, fragmentary plant fossils and invertebrate trace fossils, some of which are diagnostic of marine conditions (such as *Helminthopsis*) (Bordy et al., 2017). Potentially it could contain vertebrate fossils, but to the writer's knowledge none have been found. The chances of finding Palaeontological Material is very low, but not zero, consequently a chance find protocol has been included in this report (see section 7).

Karoo Dolerite

This is an intrusive igneous rock and by definition cannot be fossiliferous. This coded grey – no palaeo work required.

6. CONCLUSIONS

The chance of fossils being found on this site is **Low**, but not **Zero**. A “**Chance Find Protocol**” has been included to cover this eventuality (section 7). No further palaeontological work is required, unless triggered by the “**Chance Find Protocol**” in which a suitably qualified palaeontologist must be consulted. The “Chance Find Protocol” must form part of the Environmental Management Programme (EMPr) for the site.

7. CHANCE FIND PROTOCOL

This Chance Find Protocol must be included in the site EMPr.

If any fossils are found, a Palaeontologist must be notified immediately by the ECO and/or EAP and a site visit must be arranged at the earliest possible time with the Palaeontologist.

In the case of the ECO or the Site Manager becoming aware of suspicious looking palaeo-material:

- The construction must be halted in that specific area and the Palaeontologist must be given enough time to reach the site and remove the material before excavation continues.
- Mitigation will involve the attempt to capture all rare fossils and systematic collection of all fossils discovered. This will take place in conjunction with descriptive, diagrammatic and photographic recording of exposures, also involving sediment samples and samples of both representative and unusual sedimentary or biogenic features. The fossils and contextual samples will be processed (sorted, sub-sampled, labeled, and boxed) and documentation consolidated, to create an archive collection from the excavated sites for future researchers.

Functional responsibilities of the Developer

1. At full cost to the project, and guided by the appointed Palaeontological Specialist, ensure that a representative archive of palaeontological samples and other records is assembled to characterize the palaeontological occurrences affected by the excavation operation.
2. Provide field aid, if necessary, in the supply of materials, labour and machinery to excavate, load and transport sampled material from the excavation areas to the sorting areas, removal of overburden if necessary, and the return of discarded material to the disposal areas.
3. Facilitate systematic recording of the stratigraphic and palaeo-environmental features in exposures in the fossil-bearing excavations, by described and measured geological sections, and by providing aid in the surveying of positions where significant fossils are found.

4. Provide safe storage for fossil material found routinely during excavation operations by construction personnel. In this context, isolated fossil finds in disturbed material qualify as “normal” fossil finds.
5. Provide covered, dry storage for samples and facilities for a work area for sorting, labeling and boxing/bagging samples.
6. Costs of basic curation and storage until collected. Documentary record of palaeontological occurrences must be done.
7. The contractor will, in collaboration with the Palaeontologist, make the excavation plan available to the appointed specialist, in which appropriate information regarding plans for excavations and work schedules must be indicated on the plan of the excavation sites. This must be done in conjunction with the appointed specialist.
8. Initially, all known specific palaeontological information will be indicated on the plan. This will be updated throughout the excavation period.
9. Locations of samples and measured sections are to be pegged, and routinely and accurately surveyed. Sample locations, measured sections, etc., must be recorded three-dimensionally if any “significant fossils” are recorded during the time of excavation.

8. REFERENCES

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9. **DETAILS OF SPECIALIST**

Dr Alan Smith

Private Consultant: Alan Smith Consulting, 29 Brown's Grove, Sherwood, Durban, 4091

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Honorary Research Fellow: Discipline of Geology, School of Agriculture, Earth and Environmental Sciences, University of KwaZulu-Natal, Durban.

Role: Specialist Palaeontological Report production

Expertise of the specialist:

- PhD in Geology (University of KwaZulu-Natal), Pr. Sc. Nat., I.A.H.S.
- Expert in Vryheid Formation (Ecca Group) in northern KZN, this having been the subject of PhD.
- Scientific Research experience includes: Fluvial geomorphology, palaeoflood hydrology, Cretaceous deposits.
- Experience includes understanding Earth Surface Processes in both fluvial and coastal environments (modern & ancient).
- Alan has published in both national and international, peer-reviewed journals. He has published + 50 journal articles with 590 citations (detailed CV available on request).
- Attended and presented scientific papers and posters at numerous international and local conferences (UK, Canada, South Africa) and is actively involved in research.

Selected recent palaeo-related work includes:

- Desktop PIA: Proposed middle income housing units on Portion 23 of Farm Lot H Weston 13026, Bruntville, Mpofana Local Municipality. Client: UMLANDO.
- Desktop PIA: Proposed ByPass Pipeline for Ulundi bulk water pipeline upgrade. Client: UMLANDO.
- Fieldwork PIA: Bhekuzulu Epangweni KZN water reticulation project, Cathkin Park. Client: Mike Webster, HSG Attorneys.
- Fieldwork PIA: Mpungoze water supply scheme, Empangeni. Client: Enviropro.
- Fieldwork PIA: Helpmekaar Dam. Client: Afzelia environmental consultants.
- Desktop PIA: Zuka valley, Ballito. Client: Mike Webster, HSG Attorneys.
- Mevamhlope proposed quarry palaeontology report. Client: Enviropro.
- Desktop PIA: Proposed Lovu Desalination site. Client: eThembeni Cultural Heritage.

- Desktop PIA: Tinley Manor phase 2 North & South banks: eThembeni Cultural Heritage
- Desktop PIA: Tongaat. Client: eThembeni Cultural Heritage.
- Palaeontological Assessment Reports (3) to Scatec Solar SA (Pty) Ltd on an Appraisal of Inferred Palaeontological Sensitivity for a Potential Photo Voltaic Park at (1) Farm Rooilyf near Groblershoop, N Cape; (2) Farm Riet Fountain No. Portions 1 and 6, 18km SE of De Aar, N Cape; and (3) Dreunberg, near Burgersdorp, Eastern Cape. Client: Sustainable Development Projects.