

**DESKTOP HERITAGE SURVEY OF THE PROPOSED
BRUNTVILLE MIDDLE INCOME HOUSING
DEVELOPMENT, MOOIRIVER, KWAZULU-NATAL**

FOR THRESHOLD PROJECT MANAGERS

DATE: 4 MARCH 2019

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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

Moorriver is located approximately 60km northwest of Pietermaritzburg. The project is for the establishment of a residential development on Portion 23 of 5, Farm lot H of Weston No. 13026 in Bruntville, Mooi River Mpofana Local Municipality, uMgungundlovu District of KwaZulu-Natal. This residential development is aimed at providing housing for young professionals and other individuals working in and around Mooi River who cannot afford high income housing but do not qualify for government housing. The site is currently an untransformed and vacant property. The proposed development would add value to the area through an increased supply of accommodation facilities

The area is 11 954m² in extent which will be used as follows:

- Residential Duplexes: 6 833m²
- Road Network: 5 121m²
- Green Open Space: 1 005m²

The development specifications are as follows

Description	Area / volume / distance
Number of flat units	100 -120 units
Units Size	55m ²
Storeys	2 to 3 storeys
Number of parking bays	90 with 0.75 bays/unit
Maximum persons per unit	4
Resident Population	480

The land has been partly disturbed by the Moorriver Tolls Plaza construction and general construction activities at Bruntville.

Umlando was appointed by Nature Stamp, via Threshold Project Managers, to undertake a desktop study of the proposed project. Fig.'s 1 – 3 show the location of the development.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

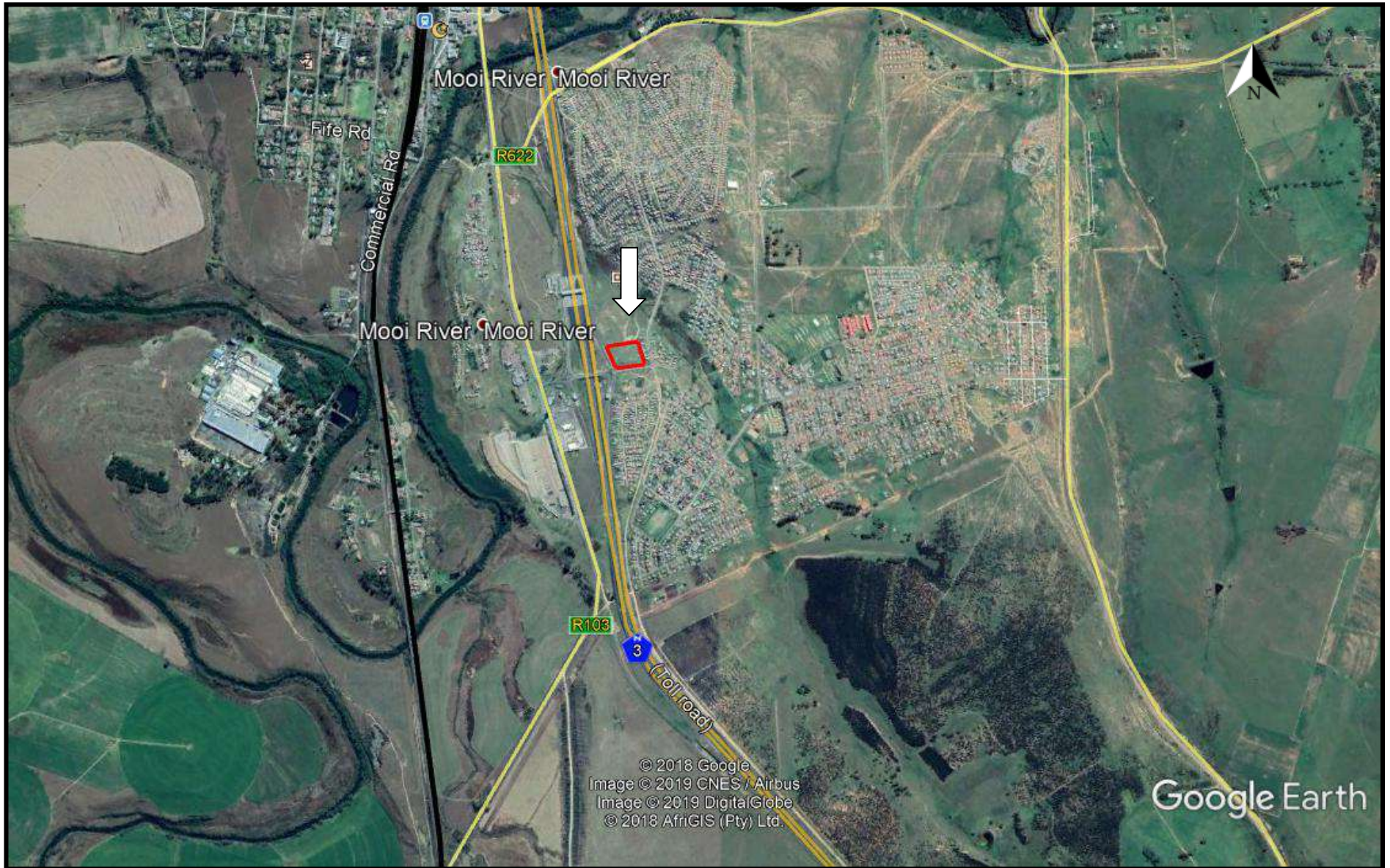
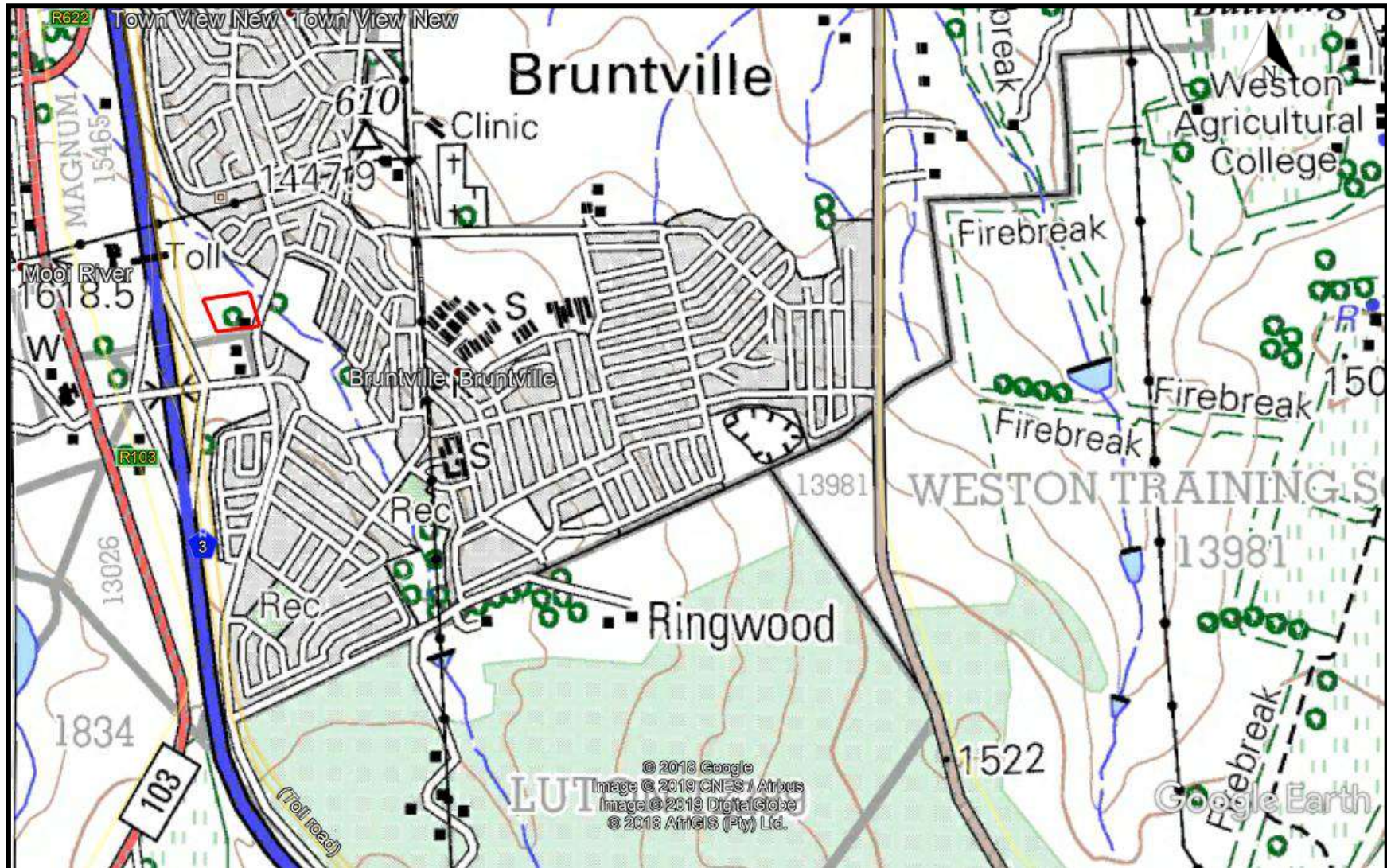


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA



FIG. 3: TOPOGRAPHICAL OVERVIEW OF THE STUDY AREA



KWAZULU NATAL AMAFA AND RESEARCH INSTITUTE, ACT 05, 2018

“General protection: Structures.—

- 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 Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
- A defined geographical area; or
- defined categories of sites within a defined geographical area, from the provisions of subsection where the Council 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.
- 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.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
- a cemetery made up of such graves; or
- any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- General protection: Traditional burial places.—
- No grave—
- not otherwise protected by this Act; and
- 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 Council having been obtained on written application to the Council.

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

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- 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.—

- 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 Council having been obtained on written application to the Council.
- 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 Council without delay.
- The Council 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 Council to be inappropriate within 50 metres of a rock art site.
- 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 Council having been obtained on written application to the Council.
- 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 Council having been obtained on written application to the Council.
- 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, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government.” (KZN Heritage Act of 2008)

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. These databases 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.

The above significance ratings allow one to grade the site according to SAHRA's grading scale. This is summarised in Table 1.

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. The archaeological database indicates that there are archaeological sites in the general area (fig. 4). These sites include all types of Stone Age and Iron Age sites. No sites occur in the study area. There are some 2nd Anglo-Boer War sites in the general area. No national monuments, battlefields, or historical cemeteries are known to occur in the study area. There are several cemeteries outside of the study area.

The SGD Diagrams suggests that Lot H and its subdivisions was first surveyed in 1916 (fig, 5). It was Crown Land before then, and was sold after 1916.

The 1937 aerial photographs indicate buildings to the west and southwest of the property (fig. 5). These have been demolished at some stage for the N3.

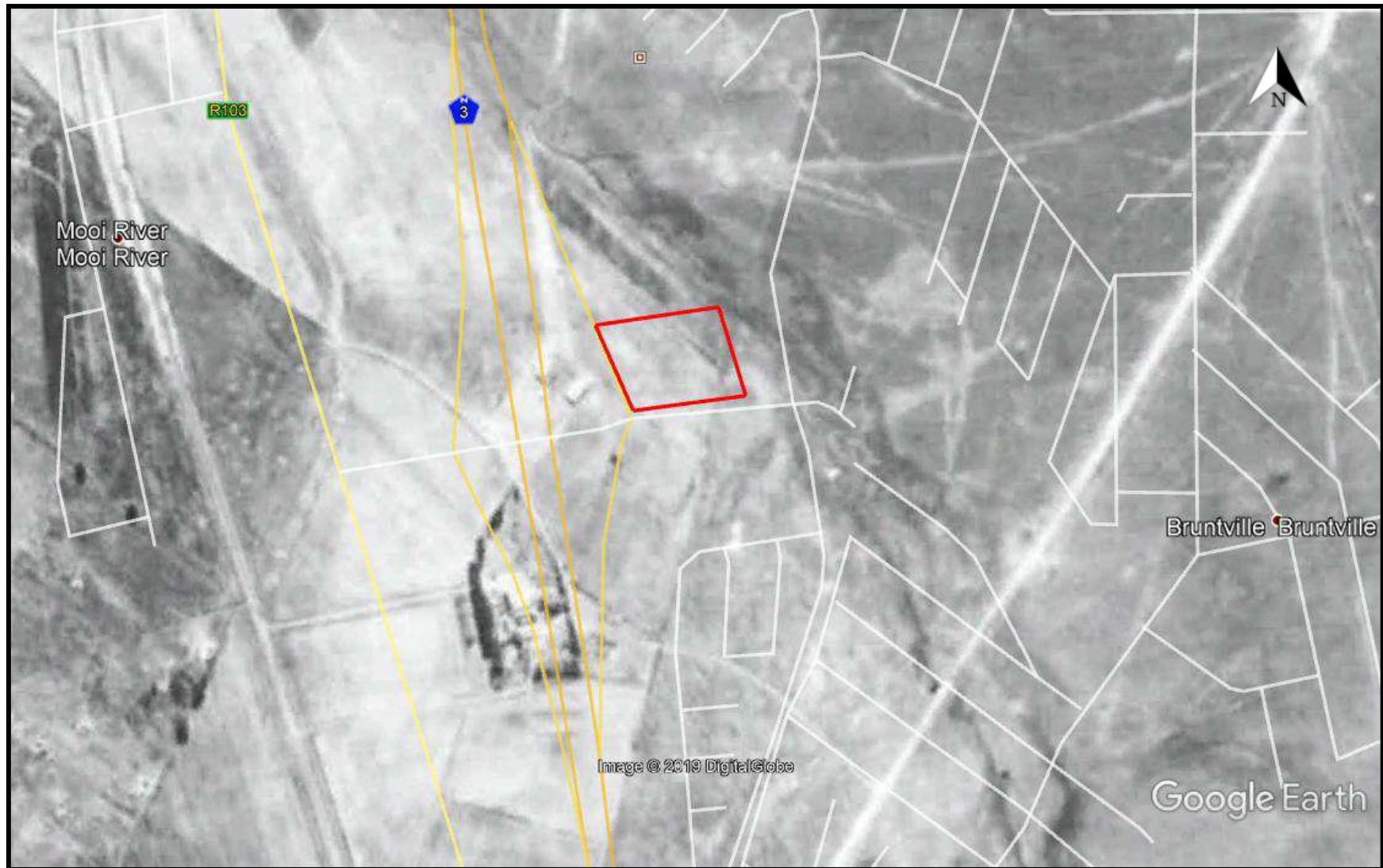
The 1962 1:50 000 topographical map indicates that there were structures to the southeast of the property and the area was referred to as Compton Verney (fig. 6). These buildings, or there foundations, would have been demolished with the construction of the tollgates and access road to Bruntville.

The Google Earth image suggests that the area has been levelled more recently.

FIG. 4: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA



FIG. 7: STUDY AREA IN 1937²



² 117B_050_35989

FIG. 8: STUDY AREA IN 1968



PALAEONTOLOGICAL IMPACT ASSESSMENT

The SAHRIS map indicates that the area is of very high palaeontological sensitivity (fig. 9). The desktop PIA (Appendix A) suggests that a chance find protocol is undertaken. This means that the area needs to be visited by a qualified palaeontologist to determine the depth of weathering. This can only be undertaken while trenches are being excavated. This is in the absence of a geotechnical report. The PIA client will need to liaise with the PIA regarding suitable time frames.



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.

CONCLUSION

A desktop heritage survey was undertaken for the proposed Middle Income Housing Project, Bruntville, Mooi River, KZN. The heritage desktop study indicates that there are no heritage sites in the study area. Furthermore, the surface appears to have been levelled recently, probably with the construction of the toll gate.

The PIA, however, indicates that the area is of very high sensitivity and that a Chance Find Protocol (CPF) is required. This will involve a site inspection to determine the depth of the weathering of the rock formations.

Apart from the PIA CPF, no further heritage mitigation is required.

REFERENCES

SG Map: N_EF09T1

60 of 1 Flight path 23, photos

2930AA Weston 1:50 000 topographical map 1962, 2000

Natal Museum Site Record Database

SAHRIS Database

Umlando Database

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 'Anderson', with a stylized flourish above the name.

Gavin Anderson
Archaeologist/Heritage Impact Assessor

APPEBNDIX A
PIA DESKTOP

**Proposed middle income housing units on Portion 23 of
Farm Lot H Weston 13026,
Bruntville, Mpofana Local Municipality,
uMgungundlovu District Municipality, KwaZulu-Natal**

DESK-TOP PALAEOLOGY REPORT

FOR

**UMLANDO: Archaeological Surveys & Heritage Management
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March 2019

EXECUTIVE SUMMARY: The proposed site potentially contains body fossils so requires further investigation.

PROPOSED PROJECT

Project information

The proponent wishes to develop middle income housing units on Portion 23 of Farm Lot H Weston13026, located in Bruntville. The area is 11 954m² in extent which will be used as follows:

- Residential Duplexes: 6 833m²
- Road Network: 5 121m²
- Green Open Space: 1 005m²

Dr Alan Smith Pr. Sc. Nat was asked to conduct a desk-top Palaeontological Impact Assessment.

LOCATION

The project is situated adjacent to the N3 Freeway near the Mooi River Toll Plaza. (Figure 1). Foundations are unlikely to be dug deeper than 2m.



Figure 1: Location of the proposed Bruntville Low Cost Housing (yellow box). Image source: UMLANDO: Archaeological Surveys & Heritage Management; GoogleEarth..

GEOLOGY

The proposed Low Cost Housing site is underlain by the Estcourt Formation (Botha and Lindstrom, 1978; Durban 2930 1: 25 000 Geological Map). This site is red zoned in the AMAFA sensitivity map.

The following material was obtained on the following website:

<https://researchspace.ukzn.ac.za>

The Estcourt Formation is considered the lowest formation of the Beaufort Group (Adelaide Subgroup) in KwaZulu-Natal. The Estcourt Formation is upper Permian in age. This formation contains trace-, plant- and animal- fossils. The Estcourt Formation is dominated by a succession of alternating sandstones, siltstones and mudstones, which are interpreted as representing sediments deposited in a fluvial-floodplain environment, which can be divided into two sub-environments. The first is dominated by sediments that were deposited by meandering rivers on a semi-arid floodplain, and the second sub-environment is represented by those sediments deposited in lacustrine environments. Both of these subenvironments are closely linked and alternate in the rock record indicating many episodes of transgressive-regressive lacustrine episodes. The Estcourt Formation also contains a wide variety of body fossils (such as the mammal-like reptiles *Dicynodon* and *Lystrosaurus*) and trace fossils

No exposure is directly visible on the site. However exposure is present along the N3 Freeway near this site. The rock present is probably weathered but no definite statement can be made with reference to this.

CHANCE FIND PROTOCOL

As this site is on a red flagged Amafa site, I recommend a “Chance Find Protocol:.. | This protocol is based on that of Groenewald (2017).

Initially, and at least for the first three months of operation,

- • The paleontologist must visit the site at least once every two weeks to ensure recording of all significant fossil strata.
- • In the case of any unusual structures, the 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.

- The appointed specialist must acquaint themselves with the operation and determine feasible mitigation strategies. A plan for systematic sampling, recording, preliminary sorting and storage of palaeontological and sedimentological samples will be developed during the early stages of the project, in collaboration with the Museum in Pietermaritzburg, as arranged with AMAFA.
- 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, labelled, 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 characterise 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, labelling and boxing/bagging samples.
6. Costs of basic curation and storage in the sample archive at the ESI, WITS University and/or the Museum in Pietermaritzburg (labels, boxes, shelving and, if necessary, specifically-tasked temporary employees) as specified by or agreed with AMAFA.
Documentary record of palaeontological occurrences
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 accurately surveyed. Sample locations, measured sections, etc., must be recorded three-dimensionally if any “significant fossils” are recorded during the time of excavation. Functional responsibilities of the appointed palaeontologist
10. Establishment of a representative collection of fossils and a contextual archive of appropriately documented and sampled palaeoenvironmental and sedimentological geodata at the ESI at WITS University or the Museum in Pietermaritzburg.
11. Undertake an initial evaluation of potentially affected areas and of available exposures in excavations.
12. On the basis of the above, and evaluation during the early stages of excavation development, in collaboration with the contractor management team, more detailed practical strategies to deal with the fossils encountered routinely during excavation, as well as the strategies for major finds.
13. Informal on-site training in responses applicable to “normal” fossil finds must be provided for the ECO and environmental staff by the appointed specialist.
5. Respond to significant finds and undertake appropriate mitigation.
14. Initially, for the first three months of operation, at least two weekly visits to “touch base” with the monitoring progress, process and document interim Page 10 of 14 GBDBWSS Development Harry Gwala District Municipality 06/01/2017 “normal” finds and to undertake an inspection and documentation of new excavation faces. A strategy for further visits during the life of the excavation must then be determined.
15. Transport of material from the site to the ESI, WITS University and /or Pietermaritzburg.
16. Reporting on the significance of discoveries, as far as can be preliminarily ascertained. This report is in the public domain and copies of the report must be deposited at ESI, AMAFA, and the South African Heritage Resources Authority (SAHRA). It must fulfil the reporting standards and data requirements of these bodies.
17. Reasonable participation in publicity and public involvement associated with palaeontological discoveries. Exposure of palaeontological material In the event of construction exposing new palaeontological material, not regarded as normative/routine as outlined in the initial investigation, such as a major fossil plant find, the following procedure must be adhered to:

18. The appointed specialist or alternates (AMAFA, SAHRA; ESI WITS University) must be notified by the responsible officer (e.g. the ECO or contractor manager), of major or unusual discoveries during excavation, found by the Contractor Staff.

19. Should a major in situ occurrence be exposed, excavation will immediately cease in that area so that the discovery is not disturbed or altered in any way until the appointed specialist or scientists from the ESI at WITS University, or its designated representatives at AMAFA, have had reasonable opportunity to investigate the find. Such work will be at the expense of the Developer.

CONCLUSIONS

This site is red zoned in the AMAFA sensitivity map.

The proposed site is underlain by the Estcourt Formation (lowest part of the Beaufort Group) and may contain body fossils.

The weathered nature of the rock needs to be assessed as this may mitigate against the possibility of good quality body fossils being present.

A field visit by a competent Paleontologist is wise.

REFERENCES

Botha, B.J.V., Lindström, W., 1978. A note on the stratigraphy of the Beaufort Group in north-western Natal. Trans. Geol. Soc. S. Afr. 81, 35–40.

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