

**HERITAGE SURVEY OF THE PROPOSED
KWAZINQAMU CROSSING RETAIL CENTRE ON
PORTION OF THE FARM ZWAARTKOP LOCATION
NO. 4669 AT ELANDSKOP / TAYLORS HALT AREA,
MSUNDUZI LOCAL MUNICIPALITY,
PIETERMARITZBURG, KWAZULU-NATAL**

FOR MONDLI CONSULTING

DATE: 22 July 2020

By Gavin Anderson

**Umlando: Archaeological Surveys and Heritage
Management**

PO Box 102532, Meerensee, 3901

Phone: 035-7531785 Cell: 0836585362

umlando@gmail.com



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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 project entails the construction of KwaZinqamu Retail Centre at Elandskop / Taylors Halt, KwaZinqamu area comprising the anchor shop, line shops, anchor yard, office, electrical room, toilets, bin area and parking area. All buildings are single storey.

The site is 10 874m² in extent as per the ITB lease agreement and the sketch plan attached thereto. The site is in the main vacant, with a structure used for the selling of the goats, with a windmill.

The site itself is highly transformed and currently not zoned, however the ITB lease agreement has allocated the piece of land for the commercial shopping Centre. The Registered Planner has been engaged to conduct the formal site rezoning process” (Mondli Consulting BID 2020).

Figures 1 – 4 show the location of the development.

FIG. 1 GENERAL LOCATION OF THE PROPOSED DEVELOPMENT

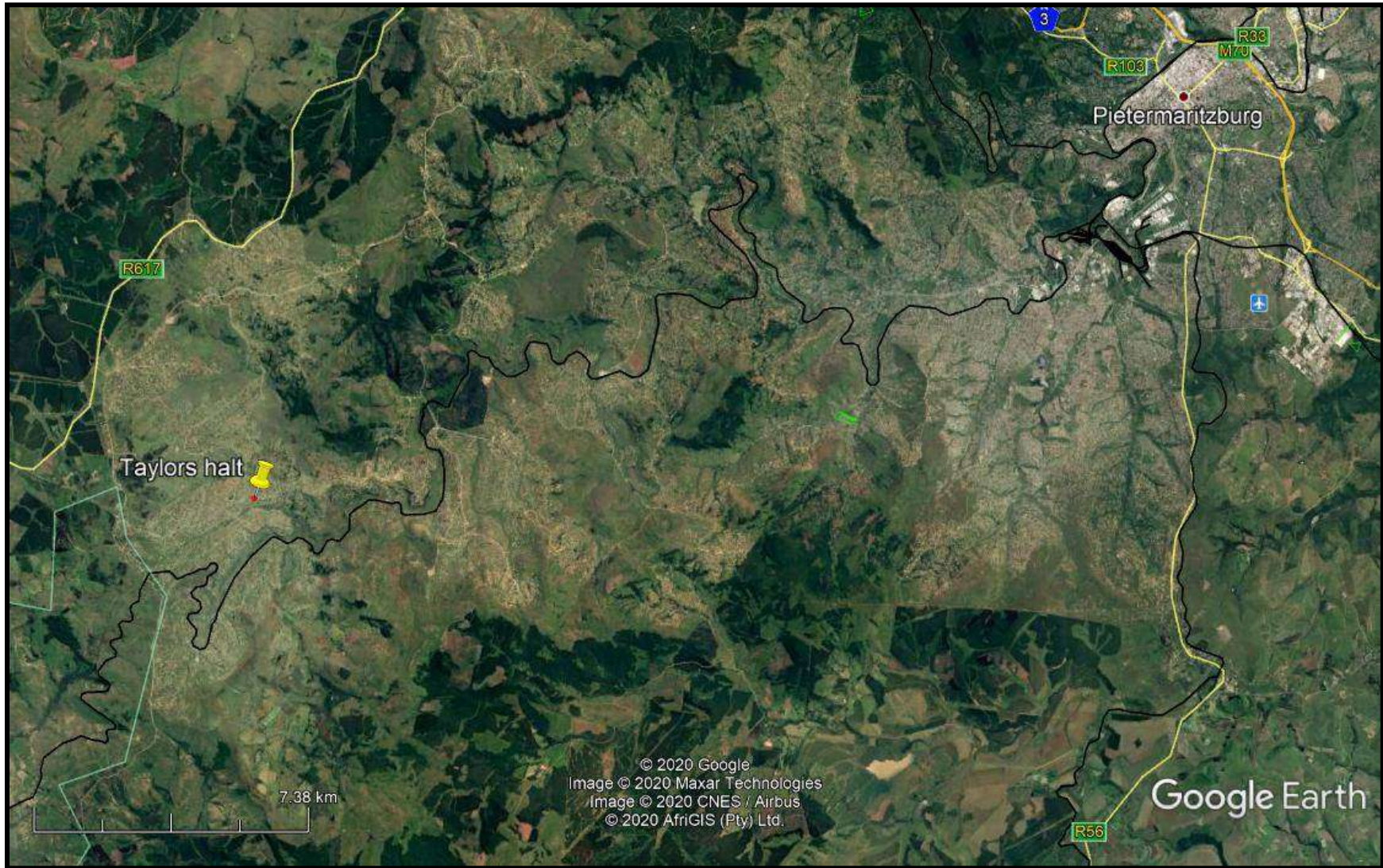


FIG. 2: AERIAL OVERVIEW OF THE PROPOSED DEVELOPMENT OF ERF 1703



FIG. 3: TOPOGRAPHICAL MAP OF THE PROPOSED DEVELOPMENT

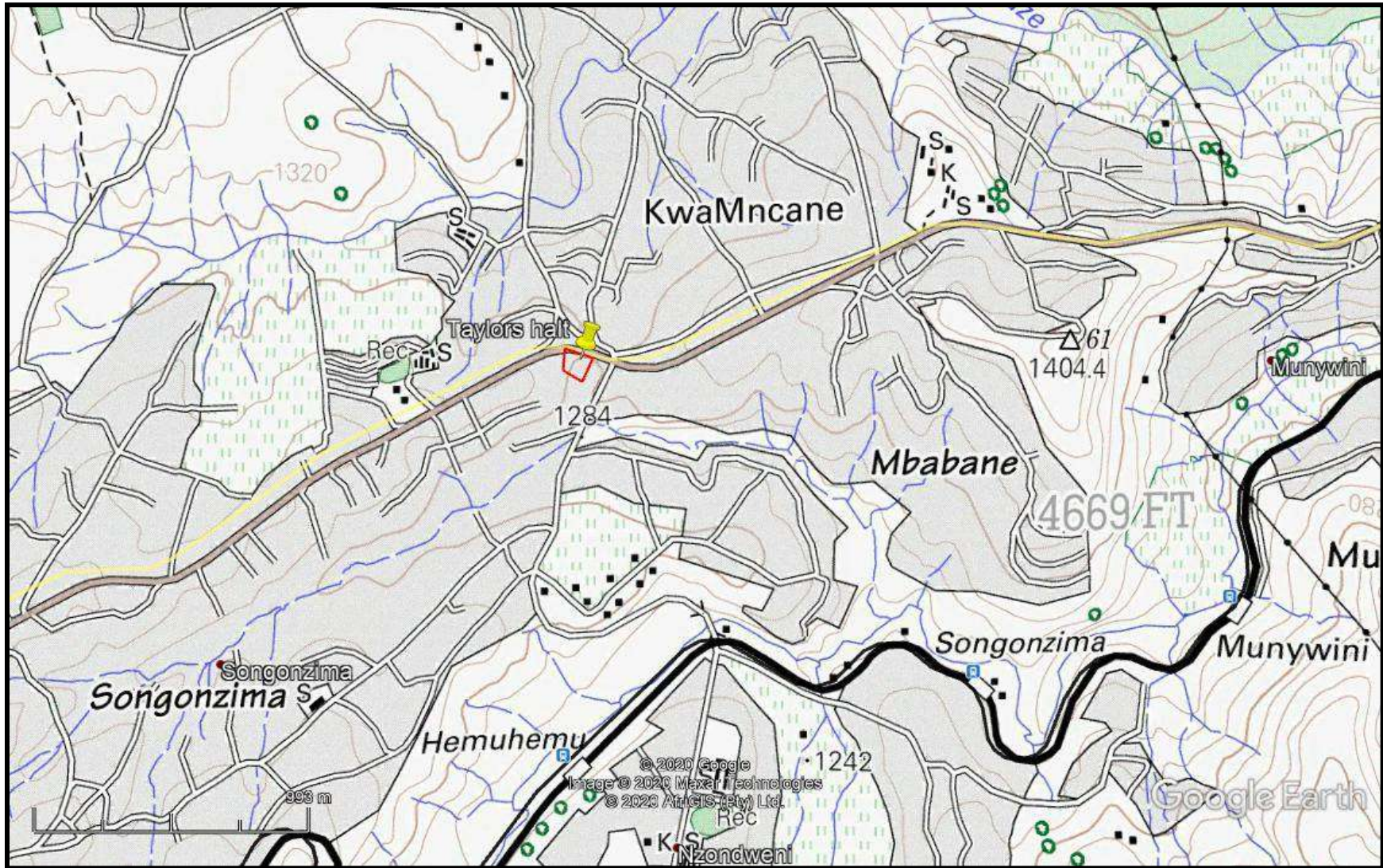


FIG. 4: SCENIC VIEWS OF THE STUDY AREA



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.”

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 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. 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. There have been no prior surveys in the study area. The archaeological sites tend to be open Stone Age and Late Iron Age scatters of low significance (fig. 5). Some historical buildings also occur in the general area. This suggests that there is a possibility for heritage sites to occur in the study area

The 1937 aerial photograph indicates that a road bisects the study area and that it is grassland (fig. 6). There are several settlements near the study area, but none occurs within it.

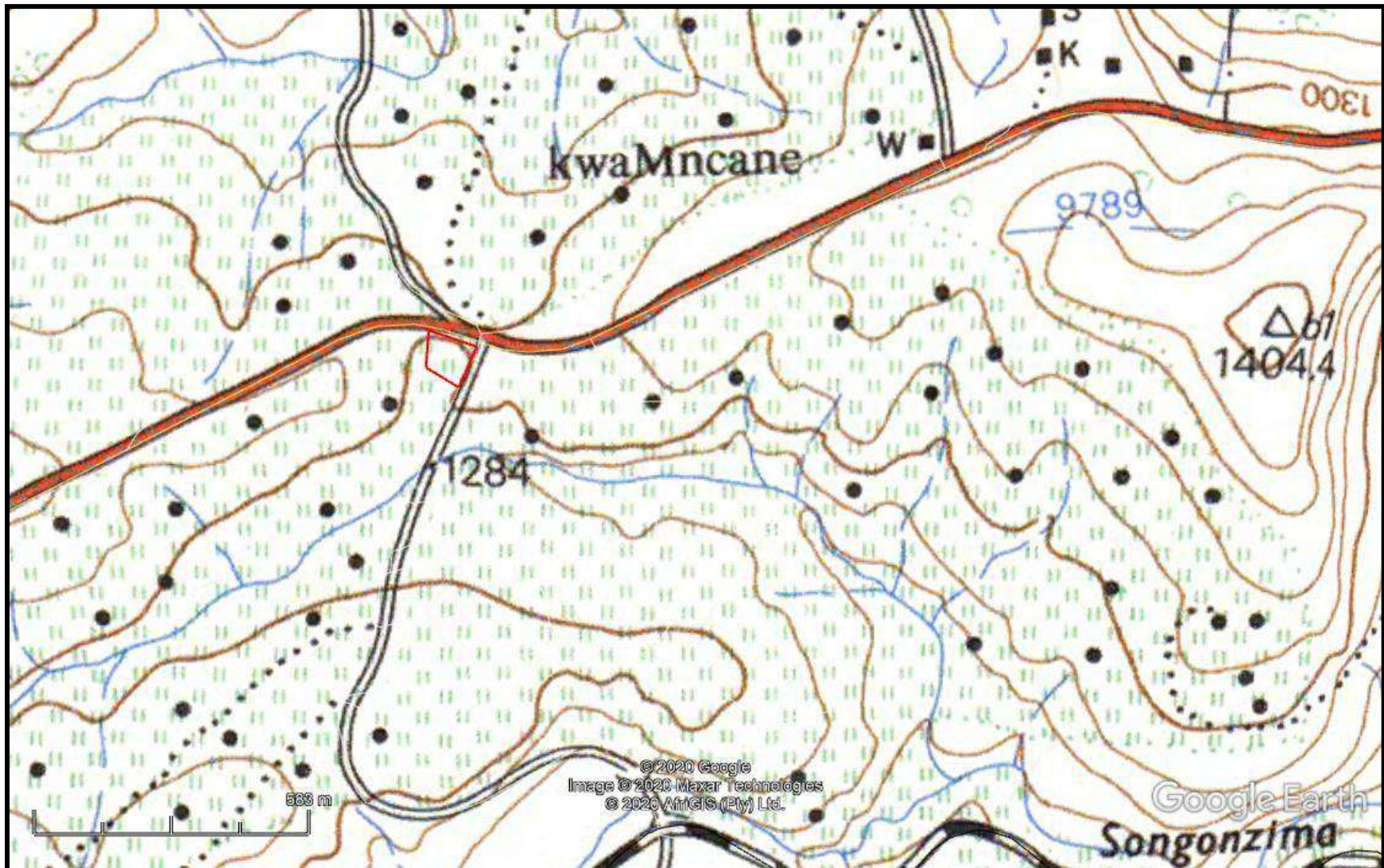
The 1972 1:50 000 topographical map indicates that there are no buildings in the study area (fig. 7)

The desktop study thus suggests that while there are no known heritage sites in the study area, there is a possibility of archaeological sites.

FIG. 6: LOCATION OF PROPOSED DEVELOPMENT IN 1937



FIG. 7: LOCATION OF PROPOSED DEVELOPMENT IN 1968

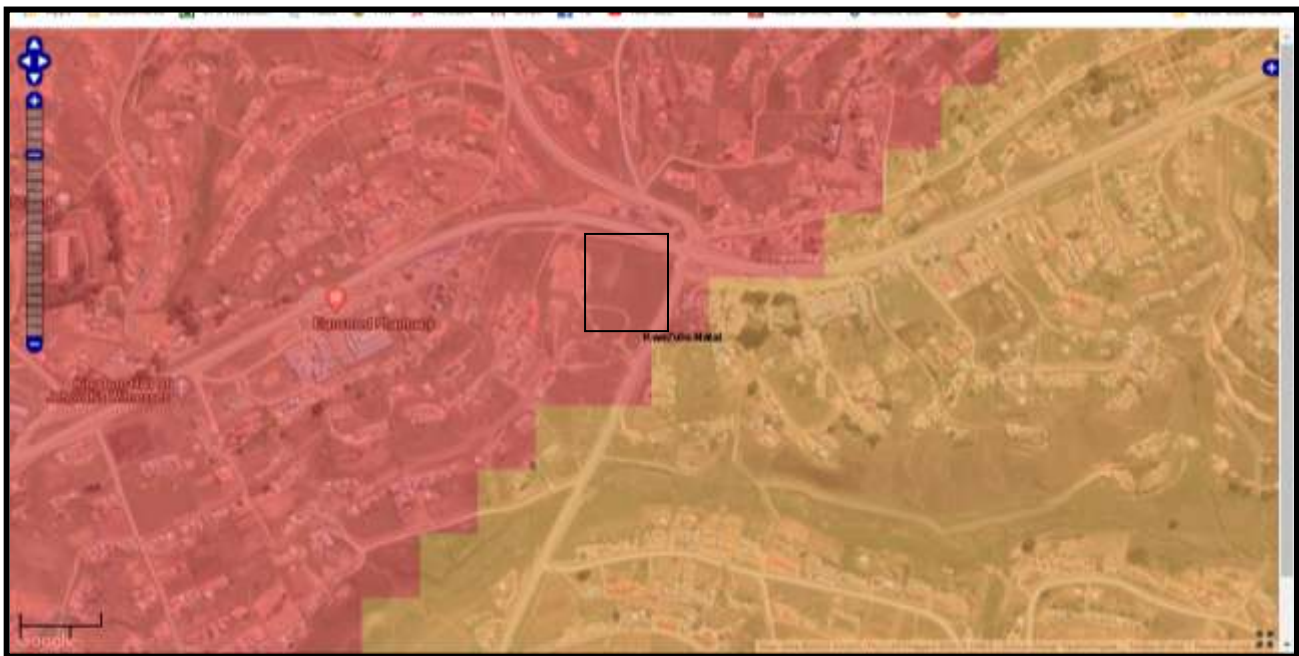


PALAEONTOLOGICAL SENSITIVITY

Dr A Smith undertook a desktop PIA for the project (Appendix a). He states:

“This proposed development site is on the border of the Volksrust and Estcourt Formations, both of which can contain Paleontological Material, although this is rare in the Volksrust Formation. The site is disturbed and the rock is weathered. Although this region is red-flagged in the SAHRIS Palaeosensitivity Map no purpose will be served by a pre-excitation field trip as fresh rock is not visible. A Chance Find Protocol has been inserted in case fossils are found during excavation. Should this take place then a Palaeontologist must be called to inspect the discovery“ (see Appendix A).

FIG. 8: PALAEONTOLOGICAL SENSITIVITY MAP



FIELD SURVEY RESULTS

The field survey was undertaken on 13 July 2020. Ground visibility was good and the vegetation was winter grasslands. The study area sits at the base of a small hill, below the main road.

The area has been highly disturbed due to a quarry, electrical transmission line and other ground disturbance. Most of this was not visible on the Google Earth Imagery.

No archaeological sites, nor artefacts, were noted in the study area.

No further mitigation is required.

MANAGEMENT PLAN

No further mitigation is required in terms of archaeological, historical and recent impacts.

The area is sensitive in terms of palaeontological studies; however, this area highly disturbed and no fresh bedrock will be visible. The development will not affect possible palaeontological layers below the surface. However, a Chance Find Protocol was introduced in case fossils were noted.

CONCLUSION

A heritage survey was undertaken for the proposed Kwazinqamu Crossing Retail Centre. The desktop study indicated that area was sensitive for heritage sites and highly sensitive for palaeontological horizons.

The field survey found no heritage sites within the study area. A Chance Find Protocol is required for the palaeontological aspects of the project.

REFERENCES

Maps:

2930CA Merrivale 1972, 2000

117B_007_39743

Database:

KZN Museum

SAHRIS

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
PIA DESKTOP**

**THE PROPOSED KWAZINQAMU CROSSING RETAIL
CENTRE ON PORTION OF THE FARM ZWAARTKOP
LOCATION NO. 4669 AT ELANDSKOP / TAYLORS HALT
AREA, WITHIN MSUNDUZI LOCAL MUNICIPALITY,
PIETERMARITZBURG, KWAZULU - NATAL**

FOR

**UMLANDO: Archaeological Surveys & Heritage Management
PO Box 102532, Meerensee, KwaZulu-Natal 3901
phone (035)7531785 fax: 0865445631
cell: 0836585362 / 0723481327
Email:umlando@gmail.com**

by

**Dr Alan Smith
Alan Smith Consulting
29 Browns Grove, Sherwood, Durban, 4091, South Africa
Telephone: 031 208 6896
asconsulting@telkomsa.net**

July 2020

EXECUTIVE SUMMARY

This proposed development site is on the border of the Volksrust and Estcourt Formations, both of which can contain Paleontological Material, although this is rare in the Volksrust Formation. The site is disturbed and the rock is weathered. Although this region is red-flagged in the SAHRIS Palaeosensitivity Map no purpose will be served by a pre-excavation field trip as fresh rock is not visible. A Chance Find Protocol has been inserted in case fossils are found during excavation. Should this take place then a Palaeontologist must be called to inspect the discovery.

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1. BACKGROUND AND PROPOSED PROJECT

The project entails the construction of KwaZinqamu Retail Centre at Elandskop / Taylors Halt, KwaZinqamu area comprising the anchor shop, line shops, anchor yard, office, electrical room, toilets, bin area and parking area. All buildings are single story. Site Description The site is 10 874m² in extent as per the ITB lease agreement and the sketch plan attached thereto. The site is in the main vacant, with a structure used for the selling of the goats, with a windmill. The site itself is highly transformed and currently not zoned; however the ITB lease agreement has allocated the piece of land for the commercial shopping Centre. The Registered Planner has been engaged to conduct the formal site rezoning process.



Figure 1: Location of the proposed project (solid white box). Source map GoogleEarth.

2. GEOLOGY

The proposed project site is located very close to the Volksrust-Estcourt Formations boundary (Fig. 2). This site is highly disturbed and the rock is deeply weathered.

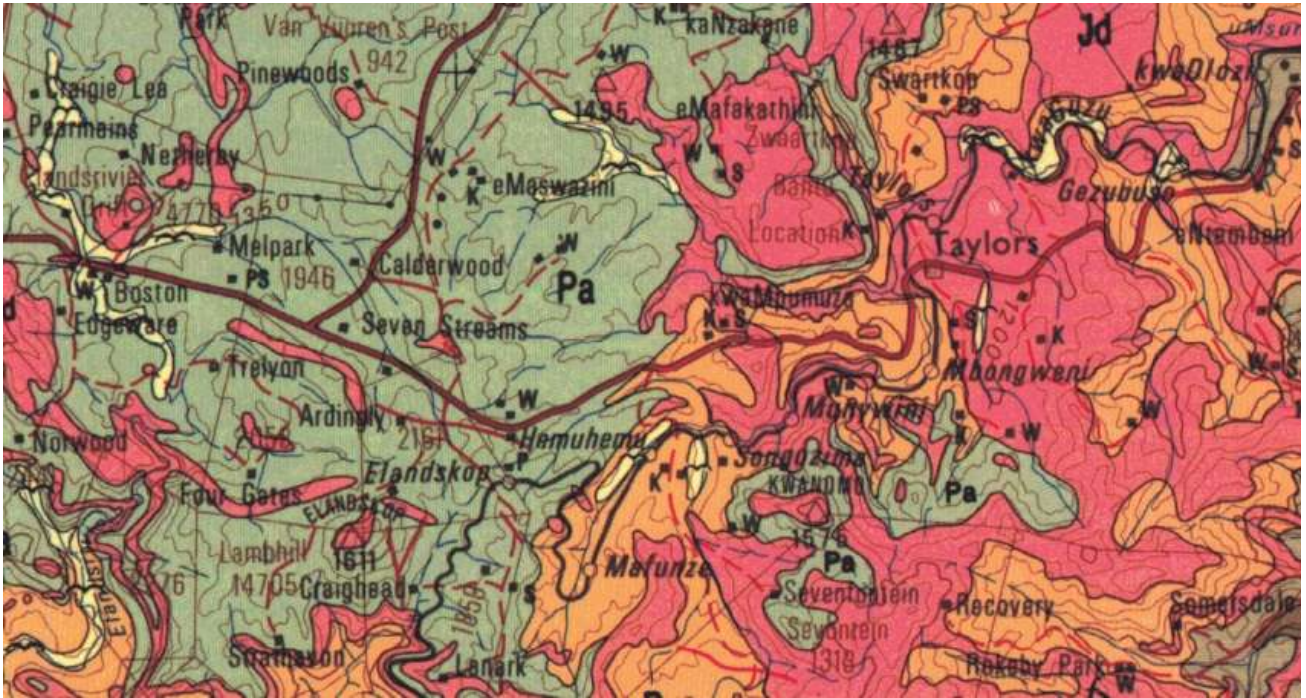


Figure 2: Extract from the Durban 2930 1:250 000 Geological Map. Blue-grey (Pa) is Estcourt Formation, Orange is Volksrust Formation and Red is Karoo Dolerite.

Volksrust Formation

The Volksrust Formation is Late Permian in age (Cairncross et al. 2005). Typically it comprises a blue-black shale. This unit was deposited in generally non-marine conditions (Cataneneau et al., 1998), but pockets of marine conditions were present (Cairncross et al., 2005).

Estcourt Formation

The Estcourt Formation is the basal unit of the Beaufort Group, part of the Karoo Supergroup (SACS, 1980). It is a sequence of fluvio-lacustrine sedimentary rocks that accumulated in a landlocked, intracratonic foreland basin in SW Gondwana during the Upper Permian (Neveling et al., 2005). The Estcourt Formation, typically forms a flat terrain. The Estcourt Formation comprises alternating sandstones, siltstones and mudstones. This Formation was laid down in a fluvial-floodplain constructed by meandering rivers on a semi-arid floodplain. Lacustrine environments were also present. These subenvironments alternate in the rock record indicating transgressive-regressive lacustrine episode (Green, 1997).

Karoo Dolerite

Karoo dolerite intrusions are present. These are 184 million years (Ma) old and represent the onset of the break-up of the Gondwana Supercontinent (Hastie et al (2014). According to Watkeys (2006), Gondwana rifting commenced between 155 and 135 Ma.

3. PALAEOONTOLOGY



Fig. 3: Palaeosensitivity map (Sahris.co.za)

Volksrust Formation Trace fossils

Evidence of trace fossil bioturbation is common within the Volksrust Formation siltstones and mudstones. The various trace fossil (ichnofossil) types are not always identifiable. These are common and of little Palaeontological Significance.

Volksrust Formation Body fossils

The bivalve *Megadesmus* has been recorded from the Volksrust Formation (Cairncross et al., 2005). This fossil is large, 9 cm dorsally and 8.4 cm laterally (Fig. 4). *Megadesmus* is known from other parts of the Gondwana Supercontinent (Australia, India, Siberia, South America and Tasmania). Its presence indicates exclusively marine conditions. The implication for the northeastern Karoo Basin during the Late Permian is that a marine enclave still existed in this geographic area and that terrestrial conditions did not yet prevail as in the southern basin region (Cairncross et al, 2005). These fossils are rare.



Fig. 4: Megadesmus bivalve. This image was obtained from Cairncross et al. (2005).

Estcourt Formation Trace fossils

Evidence of trace fossil bioturbation is ubiquitous within the Estcourt Formation siltstones and mudstones, however the various trace fossil (ichnofossil) types are not always identifiable (Fig. 5). Generally these cannot be ascribed to an ichnofossil (trace fossil) type. Trace fossils are very common and **Not Significant**.



Fig. 5: Example of an Estcourt Formation trace fossils.

Estcourt Formation Vertebrate Fossils

The Estcourt Formation contains plant- and animal- fossils, including the mammal-like reptiles such as the Upper Permian- Dicynodon (Neveling et al., 2005) and trace fossils (Green, 1997) (Fig. 6).

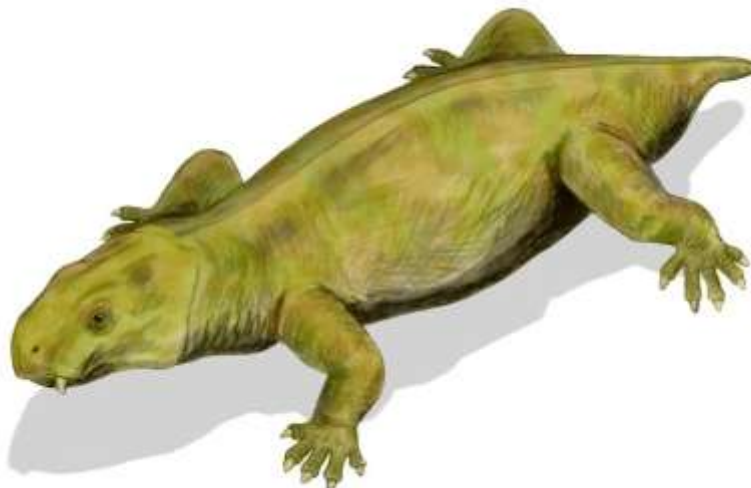


Fig. 6: Dicynodon reproduction (Wikipedia).

Karoo Dolerite

Karoo Dolerite is also present. This is an igneous intrusive rock and by definition cannot be fossiliferous.

Paleontological Material Discussion

Significant Palaeontological Material could be found on site. However there are several mitigating factors:

1. The site is highly disturbed
2. The site is highly weathered and no fresh rock is exposed.

These factors mitigate against a field visit. It is possible that Paleontological Material could be exposed during site excavation, consequently a **Chance Find Protocol** has been inserted.

4. CHANCE FIND PROTOCOL

As this site includes areas flagged red on the SAHRIS PalaeoSensitivity Map (Fig. 2), a “Chance Find Protocol” is **Recommended**.

In the case of any unusual finds, 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, 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.

5. CONCLUSIONS & RECOMMENDATIONS

The proposed development is on rock which could be fossiliferous. However, the rock is weathered and the site is disturbed. It is unlikely that **Palaeontological Material** will be discovered on a pre-excavation field trip.

A **Chance Find Protocol** has been inserted. Should any **Palaeontological Material** be uncovered a Palaeontologist must be called in to investigate.

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<https://sahris.sahra.org.za/map/palaeo>

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7. DETAILS OF SPECIALIST

Dr Alan Smith

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

&

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 more than 50 journal articles with 360 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.
- 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.