

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

for

**the proposed Gulf service station on erf
10742, Umhlathuze Village, Empangeni,
KwaZulu-Natal**

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January 2019

Phase 1 Archaeological Impact Assessment for the proposed Gulf service station on erf 10742, Umhlathuze Village, Empangeni, KwaZulu-Natal

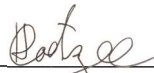
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I, Tobias Coetzee, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Gulf Service Station in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, regulations and any guidelines that have relevance to the proposed activity;
- I have not, 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 declaration are true and correct.



Date: 13 January 2019

Executive Summary

The author was appointed by Elemental Sustainability (Pty) Ltd to undertake a Phase 1 Archaeological study for Pilson Developers cc on erf 10742, Umhlathuze Village, Empangeni, KwaZulu-Natal. The study area is located about 2.4 km southwest of the Empangeni town centre with Inkanyamba Drive forming the northern border and the P166 the western border. The aim of the study is to determine the scope of archaeological resources that could be impacted on by the proposed construction of a Gulf service station.

Due to no visible heritage material exceeding 60 years within the area demarcated for development and subject to adherence of the recommendations and approval by SAHRA the development of the proposed construction may continue. Should skeletal remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). Also, should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist.

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1. Project Background

1.1 Introduction

Elemental Sustainability (Pty) Ltd appointed the author to undertake an Archaeological study for Pilson Developers cc on erf 10742, Umhlathuze Village, Empangeni, KwaZulu-Natal Province (**Figures 1 & 2**). The purpose of this study is to examine the demarcated study area in order to determine if any archaeological resources of heritage value will be impacted on by the proposed development on erf 10742, as well as to archaeologically contextualise the general study area. The aim of this report is to provide the developer with information regarding the location of heritage resources on the erf demarcated for development.

In the following report, I discuss the implication for the development of a Gulf service station on erf 10742 with regard to heritage resources. The legislation section included serves as a guide towards the effective identification and protection of heritage resources and will apply to any such material unearthed during development and construction phases on the demarcated study area.

1.2 Legislation

The South African Heritage Resources Agency (SAHRA) aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999), as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that must include an AIA if triggered.

AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

1.2.1 The EIA and AIA processes

Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact that the development might have, and relevant recommendations.

All Archaeological Impact Assessment reports should include:

- a. Location of the sites that are found;
- b. Short descriptions of the characteristics of each site;

- c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;
- d. Assessments of the potential impact of the development on the site(s);
- e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and
- f. Recommendations for conservation or mitigation.

This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:

- a. Whether or not it has objections to a development;
- b. What the conditions are upon which such development might proceed;
- c. Which sites require permits for mitigation or destruction;
- d. Which sites require mitigation and what this should comprise;
- e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and
- f. What measures should or could be put in place to protect the sites which should be conserved.

When a Phase 1 AIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an AIA it will be necessary to ensure that the study addresses such issues and complies with Section 38 of the National Heritage Resources Act.

1.2.2 Legislation regarding archaeology and heritage sites

National Heritage Resource Act No.25 of April 1999

Buildings are among the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Farming Community settlements. The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives;
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“No person may, without a permit issued by the responsible heritage resources authority:

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*

- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.*"(35. [4] 1999:58)

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources authority:

- (a) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals.*" (36. [3] 1999:60)

On the development of any area the gazette states that:

"...any person who intends to undertake a development categorised as:

- (a) *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) *the construction of a bridge or similar structure exceeding 50m in length;*
- (c) *any development or other activity which will change the character of a site-*
- i. exceeding 5000m² 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 by SAHRA or a provincial heritage resources authority;*
- (d) *the re-zoning of a site exceeding 10000m² in extent; or*
- (e) *any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the*

responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.” (38. [1] 1999:62-64)

and

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;*
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (c) an assessment of the impact of the development on such heritage resources;*
- (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (g) plans for mitigation of any adverse effects during and after the completion of the proposed development.”*
(38. [3] 1999:64)

Human Tissue Act and Ordinance 7 of 1925

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

2.1 Location & Physical Environment

The study area is located roughly 2.4 km southwest of Empangeni and 18 km west of Richards Bay. The proposed development is located on open veld within the Umhlathuze Village with the P166 forming the western boundary and Inkanyamba Drive the northern boundary. A dirt road connecting Ngwelezana A to Umhlathuze Village crosses the proposed development area. The study area falls within the Uthungulu District Municipality and the uMhlathuze Local Municipality in the KwaZulu-Natal Province. In terms of vegetation, the study area falls within the Indian Ocean Coastal Belt Biome, which is typically associated with marginally non-seasonal rainfall concentrated in the summer. Winter rains occur as a result of frontal systems originating in the south. This Biome covers approximately 1.1% of South Africa. According to the vegetation classification by Mucina & Rutherford (2006) the study area falls within Maputaland Coastal Belt. This vegetation type is found in the KwaZulu-Natal Province and southern Mozambique and consists of a roughly 35 km broad strip stretching from Mozambique in the north to Mtunzini in the south. Maputaland Coastal Belt is considered vulnerable with a conservation target of 25%. About 15% is statutorily conserved in the Greater St Lucia Wetlands Park, as well as in Sileza, Enseleni and Amathikulu Nature Reserves. More than 30% of this vegetation unit has been transformed for plantations and cultivation and by urban sprawl. Also, scattered alien infestation are associated with this vegetation unit and erosion is generally very low.

Rainfall associated with the Maputaland Coastal Belt vegetation unit is characterised by weak rainfall seasonality near the coast tending toward summer rainfall toward the interior. The average annual rainfall is about 948 mm. The average maximum temperature for the study area ranges from 23 °C in July to 29 °C in January. The lowest temperatures occur during July, when the mercury drops to an average of 11.3 °C during the night (SA Explorer accessed 21/12/2018).

Altitudes may vary between 12 and 120 MASL (metres above sea level). The average elevation of the project area is 80 MASL and slopes from the elevated northern side to the lower southern side.

The study area falls within the Quaternary catchment W12F within the Mhlatuze and Mhlatuzana confluence. The closest perennial river to the study area is an offshoot from the Ngweni River that flows 150 m to the southwest, while the Mkumbane River flows about 800 m to the northeast.

The area demarcated for development is associated with a high level of disturbance, because a dirt road intersects the property and it appears that some construction preparation activity cleared some of the vegetation. Residential properties are located to the north, northeast and south of the demarcated area, while

open veld used as a soccer field is found directly to the east.

2.2 Project description

The proposed development will be located on erf 10742 and cover about 2200 m² (Table 1 & Figure 2). The development will consist of the following:

- Pump islands
- Tank farm consisting of underground storage tanks
- Offices
- Staff change rooms
- Ablutions
- Prayer room
- Service yard
- Kitchen
- Convenience store
- Customer parking bays

Table 1: Property name & coordinates

Property	Portion	Map Reference (1:50 000)	Coordinates
Erf 10742	-	2831 DD	S: -28.76541 E: 31.87644

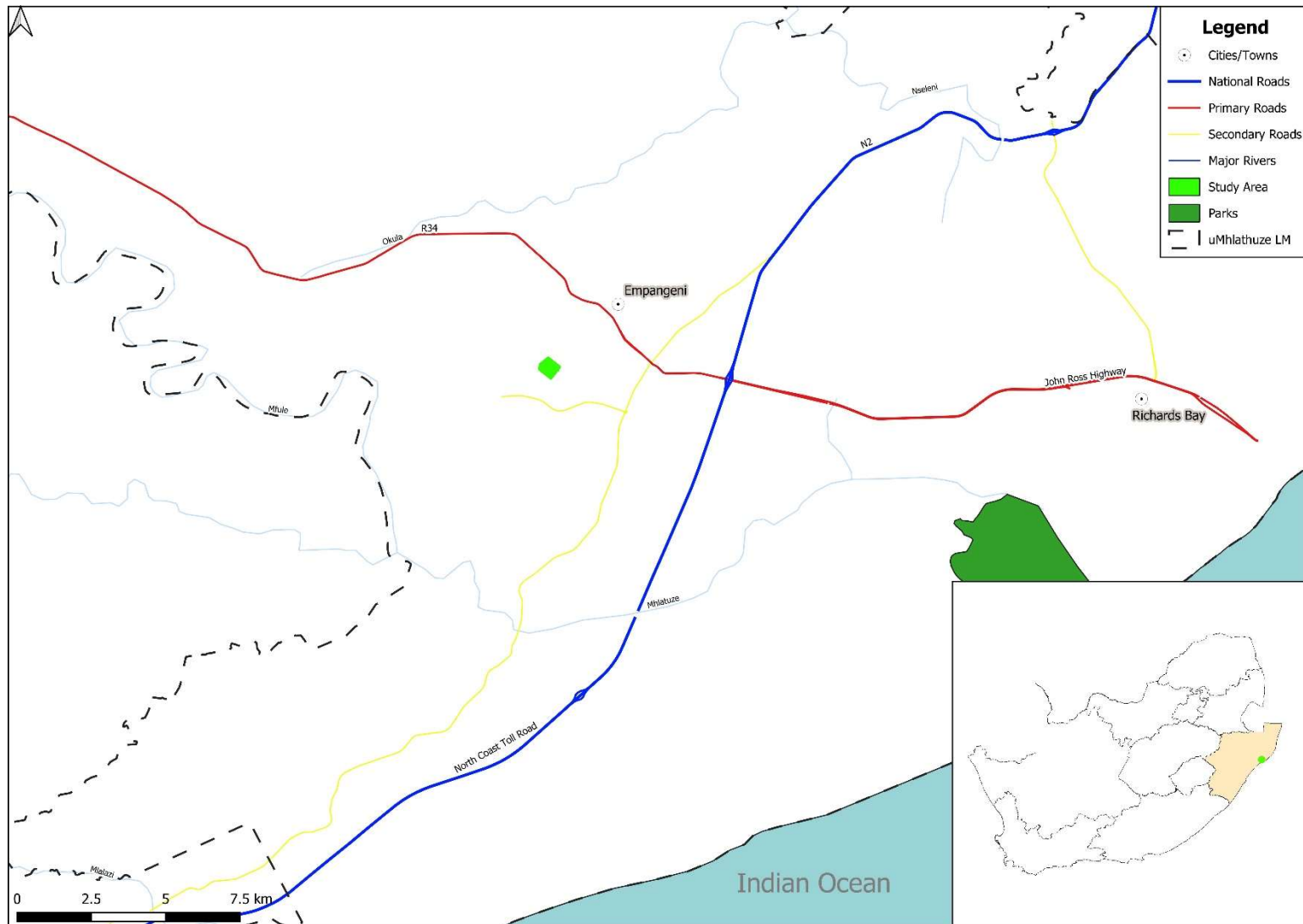


Figure 1: Regional and Provincial location of the study area.

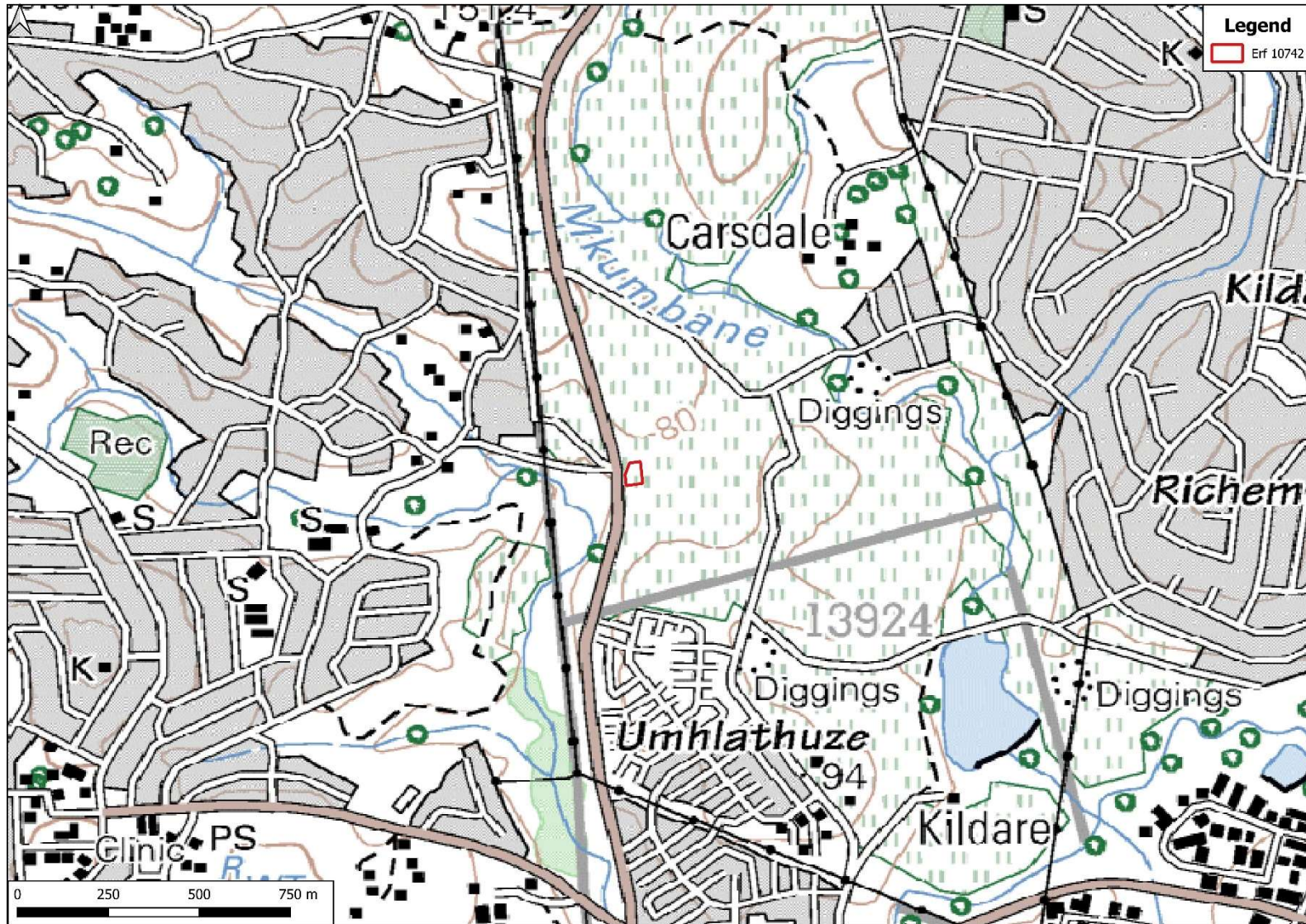


Figure 2: Segment of SA 1: 50 000 2831 DD indicating the study area.

3. Archaeological Background

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. This section of the report provides a general background to archaeology in South Africa and also focuses on more site specific elements where relevant.

3.1 The Stone Age

The earliest stone tool industry, the Oldowan, was developed by early human ancestors which were the earliest members of the genus *Homo*, such as *Homo habilis*, around 2.6 million years ago. It comprises tools such as cobble cores and pebble choppers (Toth & Schick 2007). Archaeologists suggest these stone tools are the earliest direct evidence for culture in southern Africa (Clarke & Kuman 2000). The advent of culture indicates the advent of more cognitively modern hominins (Mitchell 2002: 56, 57)

The Acheulean industry completely replaced the Oldowan industry. The Acheulian industry was first developed by *Homo ergaster* between 1.8 to 1.65 million years ago and lasted until around 300 000 years ago. Archaeological evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. The most typical tools of the ESA are handaxes, cleavers, choppers and spheroids. Although hominins seemingly used handaxes often, scholars disagree about their use. There are no indications of hafting, and some artefacts are far too large for it. Hominins likely used choppers and scrapers for skinning and butchering scavenged animals and often obtained sharp ended sticks for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals.

Middle Stone Age artefacts started appearing about 250 000 years ago and replaced the larger Early Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were, in some cases, attached to handles, indicating a significant technical advance. The first *Homo sapiens* species also emerged during this period. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999).

Although the transition from the Middle Stone Age to the Later Stone Age did not occur simultaneously across the whole of southern Africa, the Later Stone Age ranges from about 20 000 to 2000 years ago. Stone tools from this period are generally smaller, but were used to do the same job as those from previous periods; only in a different, more efficient way. The Later Stone Age is associated with: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Examples of Later Stone Age sites are Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999).

3.2 The Iron Age & Historical Period

The Early Iron Age marks the movement of farming communities into South Africa in the first millennium AD, or around 2500 years ago (Mitchell 2002:259, 260). These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Archaeological evidence from Early Iron Age sites is mostly artefacts in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Some scholars classify Early Iron Age ceramic traditions into different “streams” or “trends” in pot types and decoration, which emerged over time in southern Africa. These “streams” are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued until the end of the first millennium AD (Mitchell 2002; Huffman 2007). Some well-known Early Iron Age sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

The Middle Iron Age roughly stretches from AD 900 to 1300 and marks the origins of the Zimbabwe culture. During this period cattle herding appeared to play an increasingly important role in society. However, it was proved that cattle remained an important source of wealth throughout the Iron Age. An important shift in the Iron Age of southern Africa took place in the Shashe-Limpopo basin during this period, namely the development of class distinction and sacred leadership. The Zimbabwe culture can be divided into three periods based on certain capitals. Mapungubwe, the first period, dates from AD 1220 to 1300, Great Zimbabwe from AD 1300 to 1450, and Khami from AD 1450 to 1820 (Huffman 2007: 361, 362).

The Late Iron Age roughly dates from AD 1300 to 1840. It is generally accepted that Great Zimbabwe replaced Mapungubwe. Some characteristics include a greater focus on economic growth and the increased importance of trade. Specialisation in terms of natural resources also started to play a role, as can be seen from the distribution of iron slag which tend to occur only in certain localities compared to a wide distribution during earlier times. It was also during the Late Iron Age that different areas of South Africa were populated, such as the interior of KwaZulu Natal, the Free State, the Gauteng Highveld and the Transkei. Another characteristic is the increased use of stone as building material. Some artefacts associated with this period are knife-blades, hoes, adzes, awls, other metal objects as well as bone tools and grinding stones.

The Historical period mainly deals with Europe’s discovery, settlement and impact on southern Africa. Some topics covered by the Historical period include Dutch settlement in the Western Cape, early mission stations, Voortrekker routes and the Anglo Boer War. This time period also saw the compilation of early maps by missionaries, explorers, military personnel, etc.

4. Methodology

I conducted archaeological reconnaissance of the study area through an unsystematic pedestrian site survey (**Figure 3**). Although dense vegetation and a high level of site disturbance prevented systematic transects, the track was recorded via GPS (Global Positioning System). General site conditions were recorded via photographic record (**Figures 4 – 8**). Also, the site was inspected beforehand on Google, as well as black and white aerial imagery in order to identify possible heritage remains. No remains were observed on aerial imagery (**Table 2**). Fairly good visibility allowed inspection of the surrounding area. The total area surveyed was 2200 m².

The reconnaissance of the area under investigation served a twofold purpose:

- To obtain an indication of heritage material found in the general area as well as to identify or locate archaeological sites on the area demarcated for development. This was done in order to establish a heritage context and to supplement background information that would benefit developers through identifying areas that are sensitive from a heritage perspective.
- All archaeological and historical events have spatial definitions in addition to their cultural and chronological context. Where applicable, spatial recording of these definitions were done by means of a handheld GPS during the site visit.

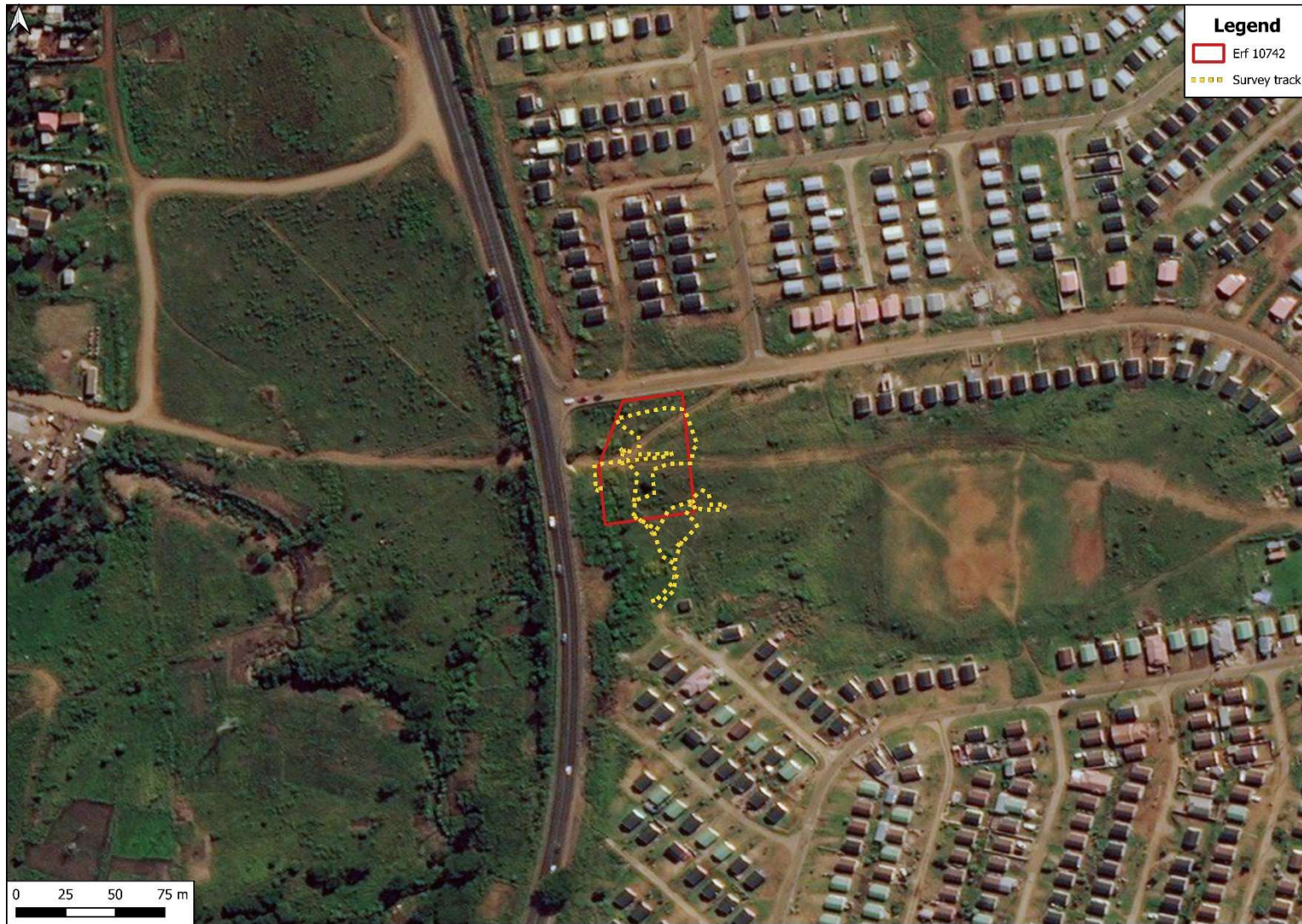


Figure 3: Study area with survey tracks.



Figure 4: Environment from the western section towards the east.



Figure 5: Environment from the north towards the south indicating the disturbed area.



Figure 6: One of the existing roads on erf 10742.



Figure 7: The southern section of the study area.



Figure 8: Towards the western boundary of the study area.

4.1 Sources of information

At all times during the survey I followed standard archaeological procedures for the observation of heritage resources. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, I paid special attention to disturbances; both man-made such as roads and clearings, and those made by natural agents such as burrowing animals and erosion. I recorded locations of archaeological material remains by means of a Garmin Oregon 550 GPS and photographed these sites as well as general conditions on the terrain with a Sony Cyber-shot camera.

I conducted a literature study, which incorporated previous work done in the region, in order to place the study area into context from a heritage perspective.

4.1.1 Previous research

Hillview Housing Development, Empangeni

An Archaeological investigation was done by Umlando cc for the Hillview Housing Development. The study area is located about 3.7 km to the north of the proposed study concerned in this report. During the site survey a scatter of thin-walled pottery, possibly dating to the Late Iron Age or Historical Period, was observed in a sugarcane. The site was recorded as having a low significance (Anderson 2008).

Rehabilitation of a culvert along the existing P230, Empangeni

Prins (2017) conducted a Phase 1 AIA for the rehabilitation of a culvert along the existing P230 from km 37.0 to km 47.0. The culvert is located approximate 6 km to the northwest of the proposed Gulf service station. During the survey no sites of heritage importance were observed. However, Prins (2017) noted that several heritage sites of importance are located in the general area, especially within the Umfolozi-Hluluwe Nature Reserve. These include: ESA, MSA, LSA sites, as well as several rock art sites. The importance of the greater Empangeni area in terms of the development of the Zulu state of King Shaka Zulu in the early 1800's is also noted.

Empangeni Hilltop Pipeline

Umlando cc conducted a Heritage survey for the construction of a bulk water pipeline from the Hilltop Reservoir to the EIRDP housing project. No sites of heritage significance were observed during the study. The pipeline study area is located about 4 km north of the proposed Gulf service station (Anderson 2017).

4.2 Limitations

The vegetation of the study area consists mainly of relatively short grass along the northern section and disturbed areas towards the south of the study area. Visibility was therefore good during the time of surveying (December 2018).

5. Archaeological and Historical Remains

5.1 Stone Age Remains

I found no Stone Age archaeological remains within the demarcated study area.

Although I located no Stone Age archaeological remains, such artefacts may occur in the area. These artefacts are often associated with rocky outcrops or water sources. **Figures 9 - 11** below are examples of stone tools often associated with the Early, Middle and Later Stone Age of southern Africa.

Archaeological studies done in the surrounding areas did not locate material pertaining to the Stone Age.

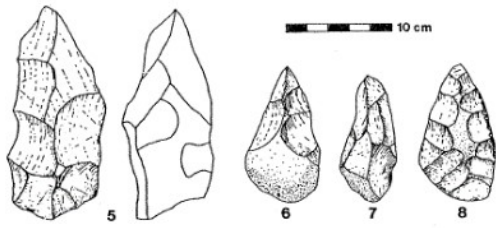


Figure 9: ESA artefacts from Sterkfontein (Volman 1984)

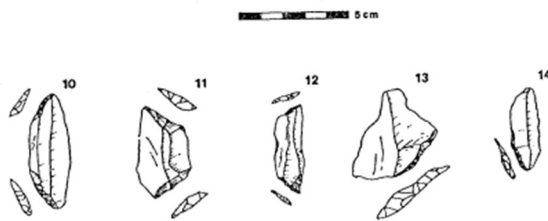


Figure 10: MSA artefacts from Howiesons Poort (Volman 1984)



Figure 11: LSA scrapers (Klein 1984)

5.2 Iron Age Farmer Remains

I found no Iron Age Farmer remains within the demarcated study area.

The archaeological study done by Anderson (2008) to the north of the study area located thin-walled pottery fragments possibly dating to the LIA.

5.3 Historical Remains

I found no Historical remains within the demarcated study area. **Figures 12 & 13** indicate the study area on a 1957 aerial image, as well as a 1957 topographical map. No potential heritage sites are visible on these figures. Accordingly the area was used for crop cultivation.

Archaeological studies done in the surrounding areas also did not locate historical remains.

5.4 Recent remains

I found no recent remains within the demarcated study area.

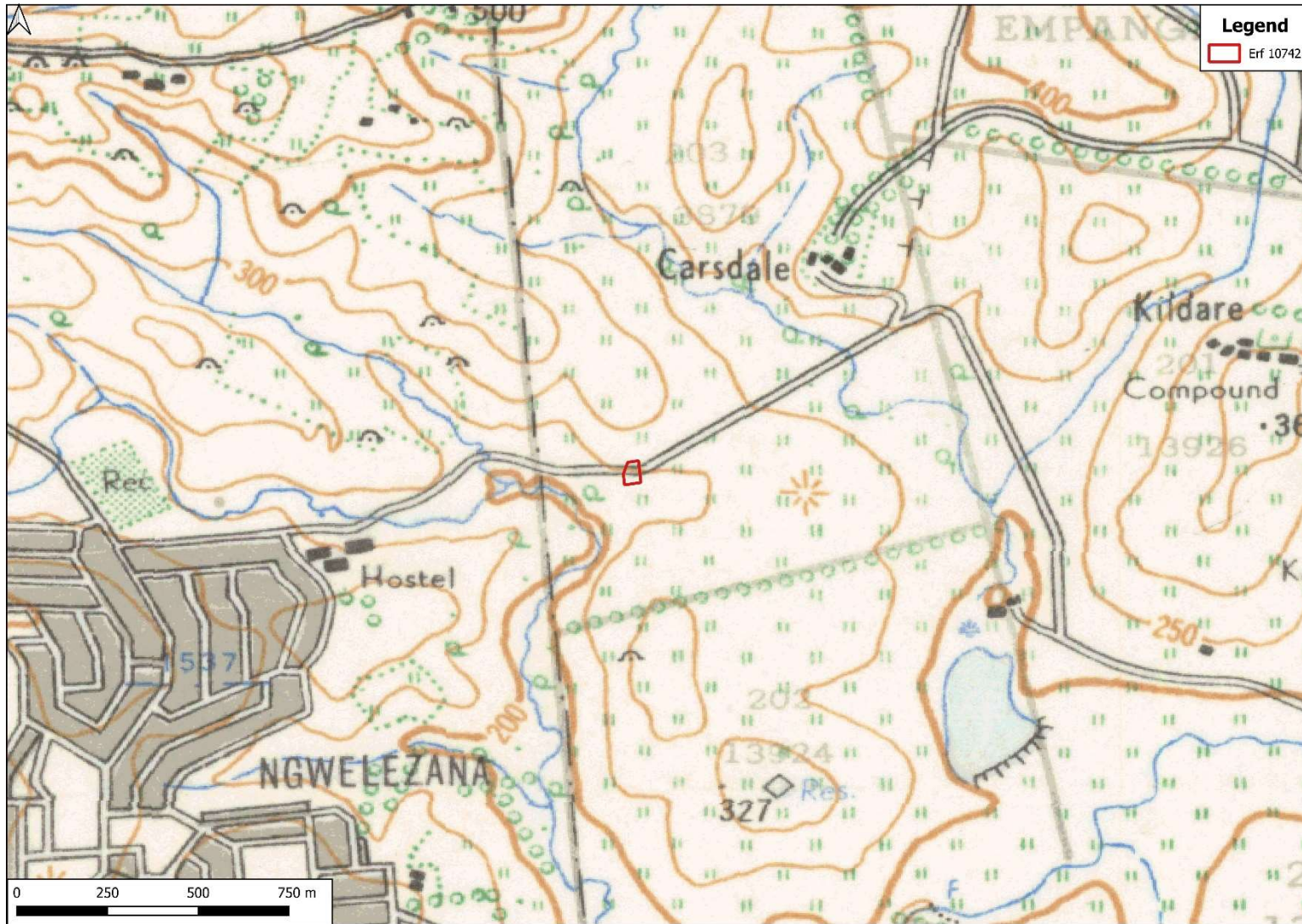


Figure 12: 1957 topographical map indicating the study area.



Figure 13: 1957 aerial image indicating the study area

5.5 Graves

No graves were observed during the survey of the area demarcated for development.

Archaeological studies done in the surrounding areas did not locate burial/grave sites within the respective development areas.

6. Evaluation

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. No heritage resources exceeding 60 years were observed within the demarcated study area. This statement is supported by the historical aerial image and topographical map that indicate that the area was used for crop cultivation 61 years ago.

6.1 Field Rating

All sites should include a field rating in order to comply with section 38 of the National Heritage Resources Act (Act No. 25 of 1999). The field rating and classification in this report are prescribed by SAHRA.

Table 2: Field Ratings

Rating	Field Rating/Grade	Significance	Recommendation
National	Grade 1		National site
Provincial	Grade 2		Provincial site
Local	Grade 3 A	High	Mitigation not advised
Local	Grade 3 B	High	Part of site should be retained
General protection A	4 A	High/Medium	Mitigate site
General Protection B	4 B	Medium	Record site
General Protection C	4 C	Low	No recording necessary

*It should no noted that not sites of heritage importance were observed

7. Statement of Significance & Recommendations

7.1 Statement of significance

The study area: The proposed Gulf service station

No sites of heritage importance were observed within the boundary of erf 10742 or the immediate surrounding areas. Historical aerial imagery verified that the area was used for crop cultivation and that no structures appear to have existed 60 years ago. No other material of heritage importance were observed within the demarcated study area. The study area is disturbed due to the presence of earthworks and roads on the site.

7.2 Recommendations

The following recommendations are made in terms with the National Heritage Resources Act (25 of 1999) in order to avoid the destruction of heritage remains within the area demarcated for development:

- Because archaeological artefacts generally occur below surface, the possibility exists that culturally significant material may be exposed during the development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage Resources Act, 25 of 1999 section 36 (6)).

- Should the need arise to expand the development beyond the surveyed area mentioned in this study, the following applies: a qualified archaeologist must conduct a full Phase 1 Archaeological Impact Assessment (AIA) on the sections beyond the demarcated areas which will be affected by the expansion, in order to determine the occurrence and extent of any archaeological sites and the impact development might have on these sites.
- From a heritage point of view, development may proceed on the demarcated portion, subject to the abovementioned conditions and recommendations.

8. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

A group of artefacts occurring together at a particular time and place, and representing the sum of human activities.

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through salvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

There are two kinds: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked ally, thus making the recording of finds more accurate.

9. References

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