# Phase 1 Archaeological Impact Assessment of a portion of land demarcated for development of a Sewerage Treatment Plant, Steynsburg, Eastern Cape Province.

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# Executive Summary

- The stone tool artifacts described in this report are derived as lag occurrences eroding out of dongas flanking the tributary of the Bulhoekspruit, which is also outside of the area that is going to be impacted upon.
- Historical buildings, structures or graves are absent from the site.
- There is no evidence for the accumulation and preservation of intact fossil material within the Quaternary sediments covering the underlying sedimentary rocks.
- The underlying sedimentary rocks have palaeontological potential, but impact should be low given that construction will not be intrusive.
- The site demarcated for development is of **low archaeological significance**.

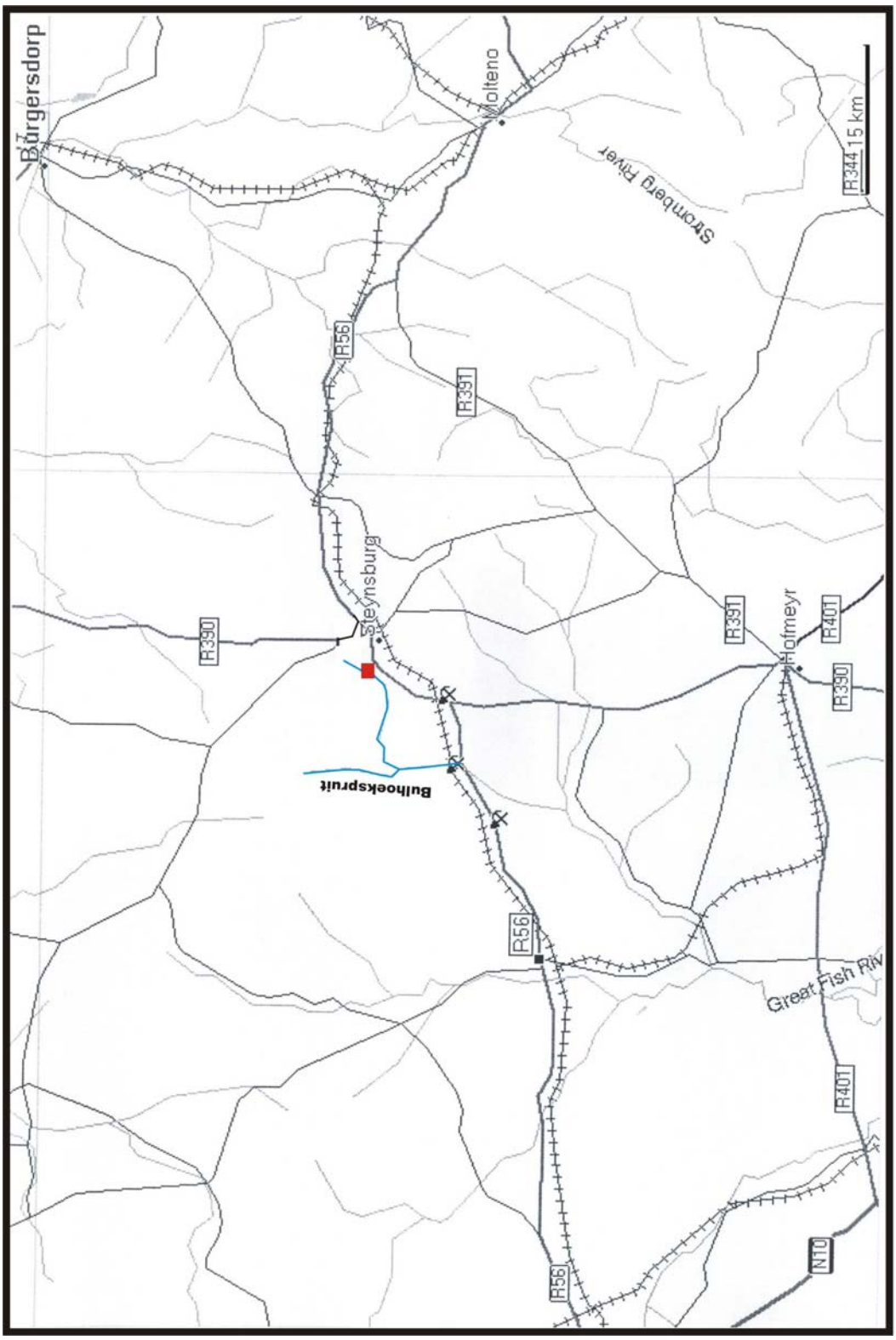


Figure 1. General map indicating the study area (red square). Coordinates S31 17.255 E25 47.701.

# Introduction

An Archaeological Impact Assessment (AIA) was conducted for a area demarcated for the construction of a new sewerage plant outside Steynsburg. The survey is required as a prerequisite for new development in terms of the National

Environmental Management Act and is also called for in terms of the National Heritage Resources Act 25 of 1999. The task involved identification of archaeological and palaeontological sites or occurrences, an assessment of their significance, possible impact by the proposed development and recommendations for mitigation.

# Description of the Study Area

## Details of area surveyed

Locality data

Coordinates: S31 17.255 E25 47.701

The site is located next to the R56 about 3 km west of the town (Figure 1). It is accessible via a gravel road leading directly from the main road. The area is part a wide floodplain dissected by a westward-running tributary of the Bulhoekspruit (Figure 1 & 2).

Geology

Fluvially derived sedimentary rocks of the Karoo Supergroup dominate the regional geology of the study area (Figure 2). Dominant rocks are shales, mudstones and intercalated sandstone formations of the Beaufort Group. The landscape is also punctuated by flat-topped dolerite hills, the result of Post Karoo intrusions that formed dykes and sills with high occurrences in the Beaufort Group zone. The bedrock sediments are generally horizontal and in places have been intruded by dolerite dykes, which form long interlocking ridges (Figure 2). The dolerite intrusions coincide with the wide-scale volcanism and outpouring of basaltic lava that covered virtually the whole of southern Africa during the early Jurassic period. Rocks of the Molteno Formation of the overlying Stormberg Group are exposed in the Bamboesberg range east of Steynsburg. Quaternary deposits made up of reworked sediments like unconsolidated sands, alluvial sediments and colluvial deposits, cover the underlying Karoo rocks. The topsoil exhibits a red-brown colour, becoming increasingly red on the slopes of dolerite ridges where the iron content is higher.

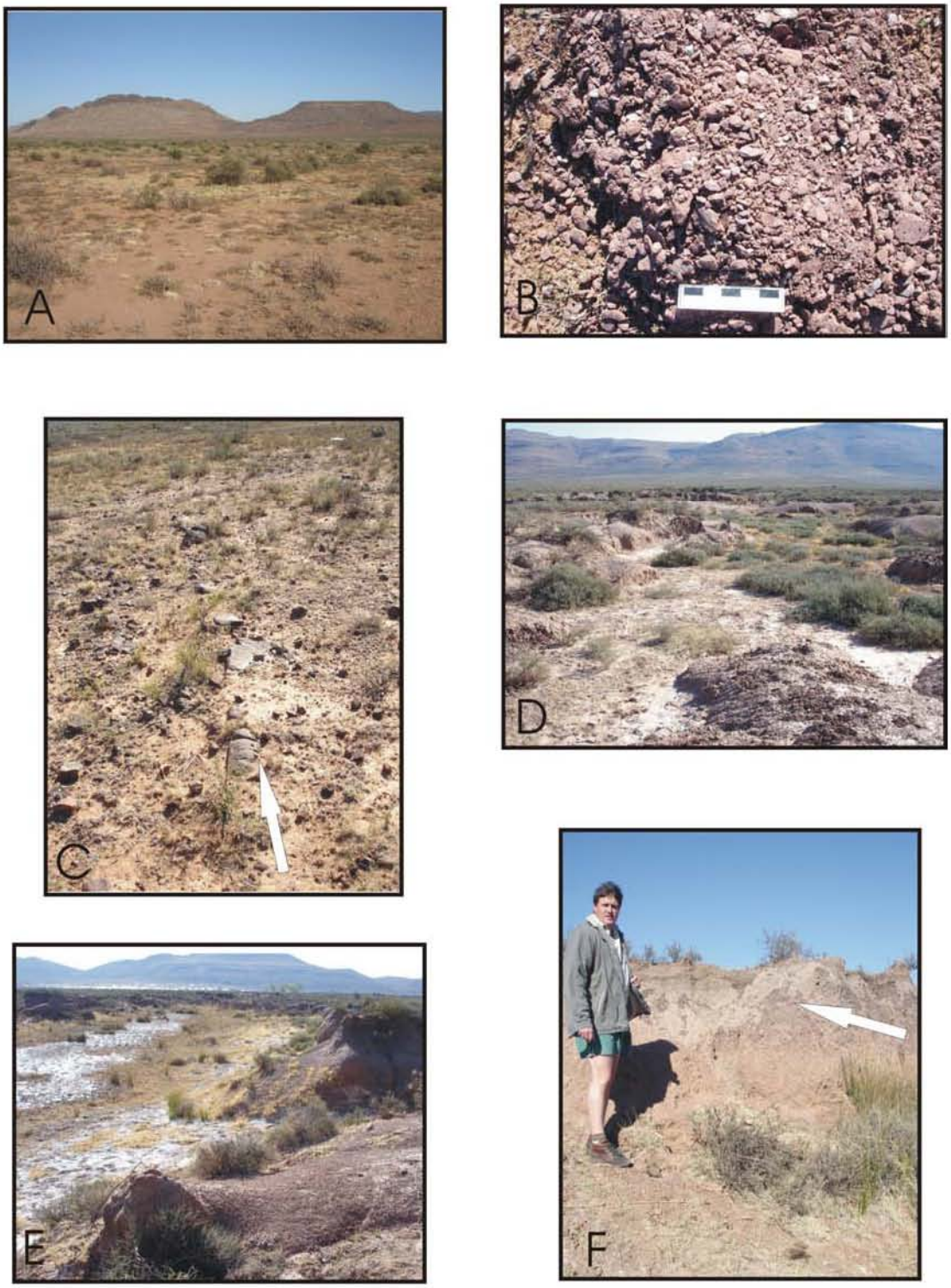


Figure 2. The site is situated on a wide floodplain consisting of reworked sediments (A) which is underlain by shales, mudstones and intercalated sandstone formations of the Beaufort Group (B). Intrusive dolerite dykes occur intermittently (C) and erosional gullies to the north of the site reveal individual as well as scatters of stone tool artifacts (D, E & F)

## Methodology

A field survey of the designated area was conducted on foot. All features that were observed were recorded using a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a SonyW17 digital camera.

# Palaeontological Background

The oldest rocks of the Beaufort Group have yielded the most primitive therapsid fossils that become more mammal-like in the successively younger Karoo rocks with the earliest true mammals appearing in the uppermost Elliot Formation of the Stormberg Group. Impressions, skull and fragmentary remains of *Procolophon* and *Lystrosaurus* have been found in siltstone horizons, and in mud-pebble comglomerate on the farms Harmonie, Doornberg and at Teebus (Figure 3).

# Archaeological Background

The South African central plateau is distinctive in that it supported Stone Age people over thousands of years, who were also prolific makers of stone tools until relatively recent times. This can be seen in the high density of Stone Age archaeological traces visible on the landscape today. For example, during the 1960's 70's and early 80's the areas south of the Gariep River between Bethulie and De Aar was extensively surveyed and a number of excavations were carried out for stone artefact samples from sealed and surface sites. The material from these surveys is housed at the National Museum in Bloemfontein. The range of stone tool industries encountered in the upper Gariep River drainage is extensive, in terms of both typology and chronology. This include Early Stone Age Acheulian bifaces and cores; long, high-backed blades from the early Middle Stone Age; typical Florisian retouched blades, trimmed points and Levallois core types; the characteristically large sidescrapers, sub-circular and endscrapers from the Lockshoek Industry of the terminal Pleistocene; and the microlithic Wilton and Smithfield Industries of the Holocene.

San rock art are abundant in the area, especially along mountainous terrain (Figure 3).

A human skull discovered over fifty years ago near the town of Hofmeyr about 50 km south of Steynsburg, has been dated to 36 000 years ago (Figure 3). This skull provides critical evidence indicating that sub-Saharan Africa was an important center of development for anatomically modern humans.

Figure 3. Map (1 : 500 000 topographic) of the Steynsburg area, showing relevant localities.

# Historical Background

The Steynsburg region has witnessed a range of historical events since the early 19th century (Figures 3 & 4). Steynsburg is named after Douw Steyn of the farm Bulhoek,

who was also the grandfather of Paul Kruger, president of the *Zuid-Afrikaansche Republiek* during the Anglo-Boer War. Paul Kruger was born on the farm Verlatenfontein, about 20 km north of Steynsburg. The house is a declared national monument. The town itself was founded in 1873 and became a municipality in 1892. A series of skirmishes occurred in the region in 1899 during the Anglo Boer War and a monument commemorating the centennial celebrations of the Great Trek is found west of the town next to the R56.

## Results of Survey

Stone Age artefacts are generally common as surface material on the South African central plateau and the occurrence of the surface finds mentioned in this report is not unique. However, because it lacks high visibility and frequently escapes the attention of the public eye, Stone Age artifacts found on the landscape are vulnerable to disturbances caused by modern development.

The Stone Age artifact component comprises of scatters pieces as well as individual stone tools that are located in the donga area flanking the spruit to the north of the site. (Figure 5 & 6). All the artefacts observed are surface occurrences and because of their exposed state, most likely derived to a certain degree. The density of scatters is low and the majority of the stone tools observed were located as individual finds. The stone tools are made almost exclusively of hornfels, a dark, fine-grained isotropic rock found in the hot-contact zone between the dolerites and shales in the area.

Typologically, the artifacts are made up mostly of retouched blades and blade fragments. No side-, sub-circular or endscrapers were recorded.

## Statement of Significance

The stone tool artifacts described in this report are derived as lag occurrences eroding out of dongas flanking the tributary of the Bulhoekspruit, which is also outside of the area that is going to be impacted upon. These occurrences cannot be regarded as fully representative datasets for archaeological interpretation. The artefacts are uncapped and exposed and most likely out of context as a result of lateral displacement of the stone tools over time. Evidence of reworking by fluvial action is indicated by a number of individual finds. Accordingly, the surface scatter of artefacts in the survey area may be derived or mixed. Nonetheless, they remain valid archaeological elements and may still be regarded as meaningful points on a map.

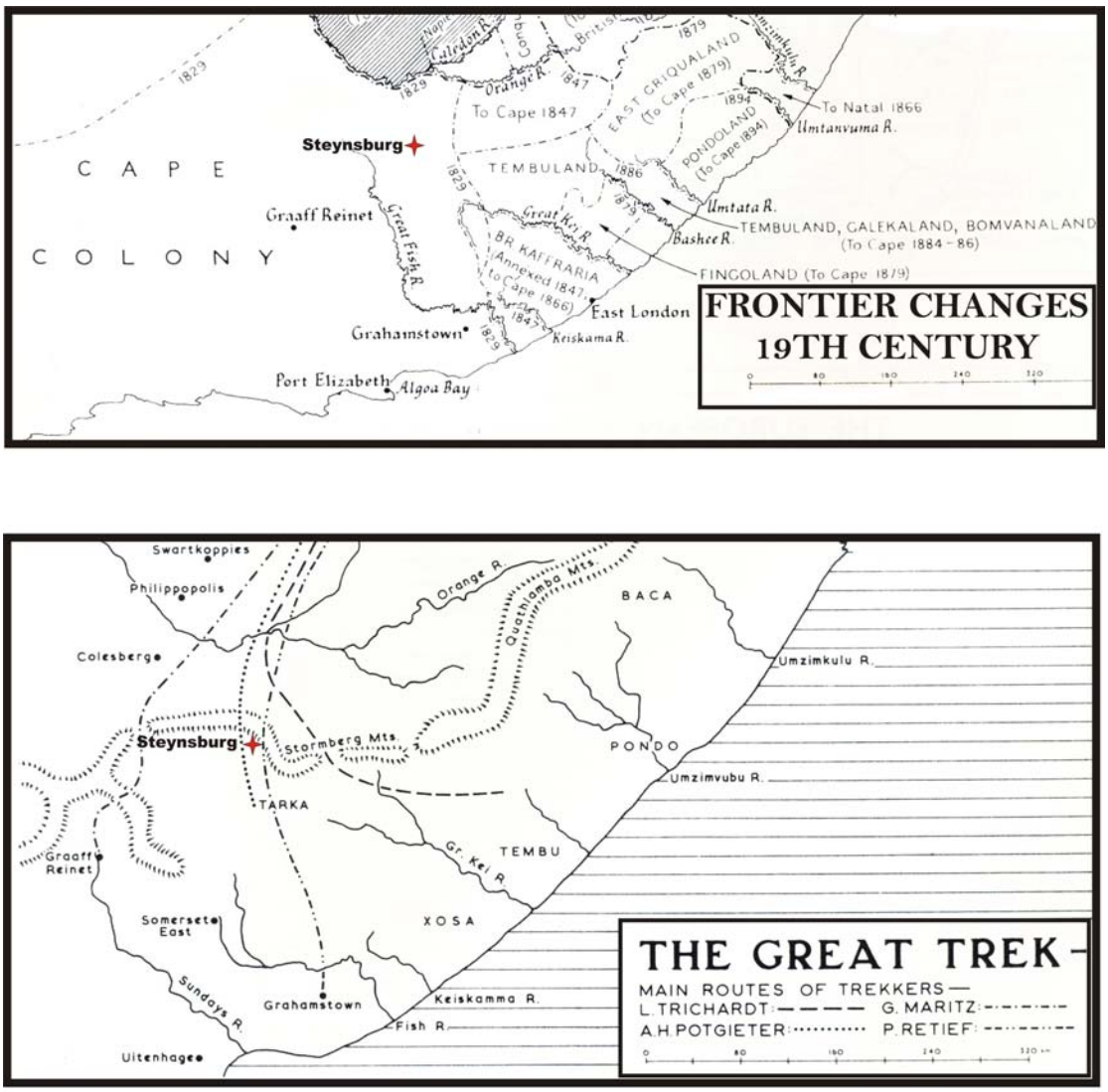


Figure 4. The locality of Steynsburg in relation to major historical events in the Eastern Cape during the 19th century.

Historical buildings, structures or graves are absent from the site. There is no evidence for the accumulation and preservation of intact fossil material within the Quaternary sediments covering the underlying sedimentary rocks. The underlying sedimentary rocks have palaeontological potential. However, impact should be low given that construction will not be intrusive.

## Field Rating

The site demarcated for development is of **low archaeological significance**.

Figure 5. The dongas of the Bulhoekspruit trbutary and scatters of stone tool artifacts occuring as derived lag deposits.


Figure 6. Individual stone tool artifacts recorded in the dongas (A - E). A semi-rectangular pattern of dolerite cobbles, approximately1x2m in size is also found in the vicinity of the study area.

# Recommendations

The area demarcated for development has been suitably recorded, mapped and documented in terms of conditions necessary for a Phase 1 impact assessment and can be accessed for further development.

# References

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