



## PHASE 1 HIA REPORT !KHEIS TOWNSHIP EXPANSION TOPLINE NORTHERN CAPE

PROPOSED TOWNSHIP EXPANSION ON  
ERVEN 1, 16, 87, SAALSKOP (TOPLINE) & PLOT 2777,  
BOEGOEBERG SETTLEMENT (KENHARDT),  
FARM BOEGOEBERGNEDERSETTING RE/48, !KHEIS LOCAL MUNICIPALITY,  
ZF MGCAWU DISTRICT MUNICIPALITY, NORTHERN CAPE.

REFERENCE: NC/21/2018/PP (TOPLINE 248)/BH0069

**PREPARED FOR:**  
ENVIROAFRICA

**PREPARED BY:**  
HEIDI FIVAZ & JAN ENGELBRECHT  
UBIQUE HERITAGE CONSULTANTS

29 JUNE 2020

**Client:** EnviroAfrica CC.

P.O. Box 5367, Helderberg, 7135  
Fax: 086 512 0154 / Tel: 021 8511616 /  
Email: admin@enviroafrica.co.za

**Contact Person:** Bernard de Witt  
Email: bernard@enviroafrica.co.za

**Heritage Consultant:** UBIQUE Heritage Consultants

**Contact Person:** Jan Engelbrecht (archaeologist and lead CRM specialist)  
Member of the Association of Southern African Professional  
Archaeologists: Member number: 297  
Cell: (+27) 0828456276  
Email: jan@ubiquecrm.com

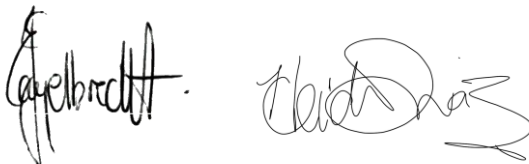
Heidi Fivaz (archaeologist)  
Member of the Association of Southern African Professional  
Archaeologists: Member number: 433  
Cell: (+27) 0721418860  
Email: heidi@ubiquecrm.com

For this project, Mr Engelbrecht was responsible for the field survey of the development footprint, identification of heritage resources, and recommendations. Ms Fivaz was responsible for research and report compilation. The desktop study was conducted by Sky-Lee Fairhurst and the PIA was completed by Elize Butler.

**Declaration of independence:**

We, Jan Engelbrecht and Heidi Fivaz, partners of UBIQUE Heritage Consultants, hereby confirm our independence as heritage specialists and declare that:

- we are suitably qualified and accredited to act as independent specialists in this application;
- we do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- the work was conducted in an objective and ethical manner, in accordance with a professional code of conduct and within the framework of South African heritage legislation.



**Signed:**

**J.A.C. Engelbrecht & H. Fivaz**  
**UBIQUE Heritage Consultants**

**Date: 2020-06-29**

Copyright: This report is confidential and intended solely for the use of the individual or entity to whom it is addressed or to whom it was meant to be addressed. It is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose or by a third party, without the author's prior written consent.

## JAN ENGELBRECHT

CRM ARCHAEOLOGIST

Jan Engelbrecht is accredited by the Cultural Resources Management section of the Association of Southern African Professional Archaeologists (ASAPA) to undertake Phase1 AIAs and HIAs in South Africa. He is also a member of the Association for Professional Archaeologists (ASAPA). Mr Engelbrecht holds an honours degree in archaeology (specialising in the history of early farmers in southern Africa (Iron Age) and Colonial period) from the University of South Africa. He has 12 years' experience in heritage management. He has worked on projects as diverse as the Zulti South HIA project of Richards Bay Minerals, research on the David Bruce heritage site at Ubombo in Kwa-Zulu Natal, and various archaeological excavations and historical projects. He has worked with many rural communities to establish integrated heritage and land use plans and speaks Zulu fluently. Mr Engelbrecht established Ubique Heritage Consultants during 2012. The company moved from KZN to the Northern Cape and is currently based at Askham in the Northern Cape within the Dawid Kruiper Local Municipality in the Kgalagadi region. He had a significant military career as an officer, whereafter he qualified as an Animal Health Technician at Technikon RSA and UNISA. He is currently studying for his MA Degree in Archaeology.

## HEIDI FIVAZ

ARCHAEOLOGIST & OBJECT CONSERVATOR

Heidi Fivaz has been a part of UBIQUE Heritage Consultants since 2016 and is responsible for research and report compilation. She holds a B.Tech. Fine Arts degree (2000) from Tshwane University of Technology, a BA Culture and Arts Historical Studies degree (2012) from UNISA and received her BA (Hons) Archaeology in 2015 (UNISA). She has received extensive training in object conservation from the South African Institute of Object Conservation and specialises in glass and ceramics conservation. She is also a skilled artefact and archaeological illustrator. Ms Fivaz is currently completing her MA Archaeology at the University of South Africa (UNISA), with a focus on historical and industrial archaeology. She is a professional member of the Association of South African Archaeologists and has worked on numerous archaeological excavation and surveying projects over the past ten years.



## EXECUTIVE SUMMARY

### Project description

UBIQUE Heritage Consultants were appointed by EnviroAfrica cc as independent heritage specialists in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA), to conduct a cultural heritage assessment to determine the impact of the proposed township expansion on Erven 1, 16, 87, Saalskop (Topline) and Plot 2777, Boegoeberg Settlement, on the Farm Boegoebergnedersetting RE/48, !Kheis Local Municipality, ZF Mgawu District Municipality, Northern Cape, on any sites, features, or objects of cultural heritage significance.

### Findings and Impact on Heritage Resources

Eleven incidences of ESA/MSA lithic material were recorded across the development footprint. These include a few formal tools like scrapers and a Fauresmith hand axe, but the lithic assemblage predominantly consists of informal tools and knapping debris. The lithics are all banded ironstone formation (BIF), an abundant raw material within the area. The material was documented as surface scatters, with no archaeological context. The resources will be affected negatively by the proposed development, but due to the low significance of the material, the impact is negligible.

The proposed development is underlain by sediments of Kalkwerf Gneiss which in places intrude upon the Groblershoop Formation (Brulpan Group). Underlying these rocks are deposits of the Precambrian Transvaal Supergroup. According to the PalaeoMap of South African Heritage Resources Information System (SAHRIS), the Palaeontological Sensitivity of the Kalkwerf Gneiss is insignificant. The cherts, dolomites and iron formations of the underlying Transvaal Supergroup are too deep to affect the proposed development. The Kalkwerf Gneiss consists of biotite, epidote, garnet, strained quartz, and perthite augen, with some granophyric intergrowth muscovite. It is therefore recommended that the project be exempt from further palaeontological studies (Butler 2020).

### Recommendations

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

1. No significant heritage sites or features were identified within the surveyed sections of Topline township, on Erven 1, 16, 87, Saalskop (Topline) and Plot 2777, Boegoeberg Settlement, Farm Boegoebergnedersetting RE/48. The Early/Middle Stone Age cultural material identified is not conservation worthy. No further mitigation is recommended

with regards to these resources. Therefore, from a heritage point of view, we recommend that the proposed development can continue.

2. The Topline cemetery is situated well outside the development footprint. This site is graded as IIIB and is of High Local Significance. No further mitigation is recommended with regards to these resources. No graves were identified within the development footprint.
3. Due to the zero to low palaeontological significance of the area, no further palaeontological heritage studies, ground-truthing and/or specialist mitigation are required. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. It is therefore recommended that the project be exempt from a full Paleontological Impact Assessment (Butler 2020).
4. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or costs incurred as a result of such oversights.

# TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	i
Project description .....	i
Findings and Impact on Heritage Resources .....	i
Recommendations.....	i
TABLE OF FIGURES .....	iv
ABBREVIATIONS .....	v
GLOSSARY .....	v
1. INTRODUCTION.....	1
1.1 Scope of study.....	1
1.2 Assumptions and limitations .....	2
2. TERMS OF REFERENCE .....	3
2.1. Statutory Requirements.....	3
2.1.1 General .....	3
2.1.2 National Heritage Resources Act 25 of 1999 .....	3
2.1.3 Heritage Impact Assessments/Archaeological Impact Assessments.....	4
2.1.4 Definitions of heritage resources.....	4
2.1.5 Management of Graves and Burial Grounds.....	5
3. STUDY APPROACH AND METHODOLOGY.....	7
3.1 Desktop study .....	7
3.1.1 Literature review.....	7
3.2 Field study .....	7
3.2.1 Systematic survey .....	7
3.2.2 Recording significant areas .....	8
3.2.3 Determining significance .....	8
3.2.4 Assessment of development impacts .....	9
3.3 Oral history .....	11
3.4 Report.....	11
4. PROJECT OVERVIEW.....	12
4.1 Technical information .....	12
4.2 Description of the affected environment.....	16
5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND.....	18
5.1 Region.....	18
5.1.1 Stone Age.....	18
5.1.2 Iron Age.....	19
5.1.3 Historical period .....	20
5.2 Local .....	21
5.3 Topline (Saalskop), Wegdraai, Opwag, Groblershoop, Boegoeberg (Brandboom) .....	23

5.3.1	Stone Age.....	23
5.3.2	Historical period .....	24
5.2.3	Graves and Burials.....	26
5.2.4	Oral history .....	27
6.	IDENTIFIED RESOURCES AND HERITAGE ASSESSMENT.....	28
6.1	Surveyed area .....	28
6.2	Identified heritage resources .....	29
6.3	Discussion .....	31
6.3.1	Archaeological features .....	31
6.3.2	Graves.....	31
6.3.3	Palaeontological resources .....	34
7.	ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT .....	35
8.	RECOMMENDATIONS.....	36
9.	CONCLUSION .....	37
10.	BIBLIOGRAPHY .....	38
	APPENDIX A .....	46
	PALAEONTOLOGICAL EXEMPTION LETTER FOR THE PROPOSED TOPLINE TOWNSHIP EXPANSION, !KHEIS LOCAL MUNICIPALITY, ZF MGCAWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE .....	46

## TABLE OF FIGURES

<b>Figure 1</b>	Proposed township expansion at Saalskop (Topline), !Kheis Local Municipality. Image provided by Macroplan. ....	13
<b>Figure 2</b>	Regional locality of the development footprint, Topline, !Kheis Local Municipality indicated on 1: 250 000 WGS2820-2920.....	14
<b>Figure 3</b>	Regional locality of the development footprint, Topline, !Kheis Local Municipality indicated on Google Earth Satellite imagery.....	14
<b>Figure 4</b>	Locality of the development footprint, Topline, !Kheis Local Municipality indicated on Chief Surveyor-General ArcGIS Web Map (source <a href="https://csg.esri-southafrica.com/">https://csg.esri-southafrica.com/</a> ) .....	15
<b>Figure 5</b>	Locality of the development footprint Topline !Kheis Local Municipality indicated on Google Earth Satellite imagery.....	15
<b>Figure 6</b>	Views of the affected development area .....	16
<b>Figure 7</b>	Detail of 1913 Topographical map of Upington, and detail of 1914 topographical map of Langeberg, available at <a href="https://digitalcollections.lib.uct.ac.za/">https://digitalcollections.lib.uct.ac.za/</a> .....	25
<b>Figure 8</b>	Survey tracks across the development footprint. ....	28
<b>Figure 9</b>	Distribution of identified heritage resources across Topline township, Farm Boegoebergnedersetting No. 48.....	30
<b>Figure 10</b>	Photographic selection of archaeological material recorded. ....	33
<b>Figure 11</b>	Selection of photographs of the Topline town cemetery.....	33
<b>Figure 12</b>	SAHRIS PalaeoSensitivity Map, indicating Moderate (green), Low (blue), Insignificant/Zero (grey), and Unknown (clear) palaeontological significance in the study area ( <a href="https://sahris.sahra.org.za/map/palaeo">https://sahris.sahra.org.za/map/palaeo</a> ).....	34

## ABBREVIATIONS

AIA:	Archaeological Impact Assessment
ASAPA:	Association of South African Professional Archaeologists
BIA:	Basic Impact Assessment
CRM:	Cultural Resource Management
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment*
EIA:	Early Iron Age*
EMP:	Environmental Management Plan
ESA:	Earlier Stone Age
GPS:	Global Positioning System
HIA:	Heritage Impact Assessment
LIA:	Late Iron Age
LSA:	Later Stone Age
MEC:	Member of the Executive Council
MIA:	Middle Iron Age
MPRDA:	Mineral and Petroleum Resources Development Act
MSA:	Middle Stone Age
NEMA:	National Environmental Management Act
NHRA:	National Heritage Resources Act
OWC:	Orange River Wine Cellars
PRHA:	Provincial Heritage Resource Agency
SADC:	Southern African Development Community
SAHRA:	South African Heritage Resources Agency
SAHRIS:	South African Heritage Resources Information System

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations it must be read and interpreted in the context it is used.*

## GLOSSARY

Archaeological:	<p>material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;</p> <ul style="list-style-type: none"> <li>– rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years (as defined and protected by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999) including any area within 10 m of such representation;</li> <li>– wrecks, being any vessel or aircraft, or any part thereof, which were wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;</li> <li>– features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found.</li> </ul>
-----------------	--

Stone Age:	The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.
Earlier Stone Age:	>2 000 000 - >200 000 years ago
Middle Stone Age:	<300 000 - >20 000 years ago
Later Stone Age:	<40 000 - until the historical period
Iron Age:	(Early Farming Communities). Period covering the last 1800 years, when immigrant African farmer groups brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age. Early Iron Age: AD 200 - AD 900 Middle Iron Age: AD 900 - AD 1300 Later Iron Age: AD 1300 - AD 1850
Historic:	Period of arrival of white settlers and colonial contact. AD 1500 to 1950
Historic building:	Structures 60 years and older.
Fossil:	Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.
Heritage:	That which is inherited and forms part of the National Estate (historic places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).
Heritage resources:	These mean any place or object of cultural significance, tangible or intangible.
Holocene:	The most recent geological period that commenced 10 000 years ago.
Palaeontology:	Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site that contains such fossilised remains or traces
Cumulative impacts:	“Cumulative Impact”, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.
Mitigation:	Anticipating and preventing negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.
A ‘place’:	a site, area or region;

- a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- an open space, including a public square, street or park; and
- in relation to the management of a place, includes the immediate surroundings of a place.

‘Public monuments and memorials’: mean all monuments and memorials—

- erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual;

‘Structures’: any building, works, device or other facility made by people and which are fixed to land, and include any fixtures, fittings and equipment associated therewith.

# 1. INTRODUCTION

## 1.1 Scope of study

The project involves the expansion of the Topline township on Erven 1, 16, 87, Saalskop (Topline) and Plot 2777, Boegoeberg Settlement (Kenhardt), on the Farm Boegoebergnedersetting RE/48 in the !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape. UBIQUE Heritage Consultants were appointed by EnviroAfrica cc as independent heritage specialists in accordance with the National Environmental Management Act 107 of 1998 (NEMA), and in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), to conduct a cultural heritage assessment (AIA/HIA) of the development area.

The assessment aims to identify and report any heritage resources that may fall within the development footprint; to determine the impact of the proposed development on any sites, features, or objects of cultural heritage significance; to assess the significance of any identified resources; and to assist the developer in managing the documented heritage resources in an accountable manner, within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

South Africa's heritage resources are both rich and widely diverse, encompassing sites from all periods of human history. Resources may be tangible, such as buildings and archaeological artefacts, or intangible, such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical, scientific, social, spiritual, linguistic, economic or technological values; their representation of a time or group; their rarity; and their sphere of influence.

The integrity and significance of heritage resources can be jeopardised by natural (e.g. erosion) and human (e.g. development) activities. In the case of human activities, a range of legislation exists to ensure the timeous and accurate identification and effective management of heritage resources for present and future generations.

The result of this investigation is presented within this heritage impact assessment report. It comprises the recording of heritage resources present/ absent and offers recommendations for the management of these resources within the context of the proposed development.

Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, taking into account any proposed mitigation measures.

## 1.2 Assumptions and limitations

It is assumed that the description of the proposed project, as provided by the client, is accurate. Furthermore, it is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is comprehensive and does not have to be repeated as part of the heritage impact assessment.

The significance of the sites, structures and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects. Cultural significance is site-specific and relates to the content and context of the site.

All possible care has been taken during the comprehensive field survey and intensive desktop study to identify sites of cultural importance within the development areas. However, it is essential to note that some heritage sites may have been missed due to their subterranean nature, or due to dense vegetation cover. No subsurface investigation (i.e. excavations or sampling) were undertaken since a permit from SAHRA is required for such activities. Therefore, should any heritage features and/or objects such as architectural features, stone tool scatters, artefacts, human remains, or fossils be uncovered or observed during construction, operations must be stopped, and a qualified archaeologist contacted for an assessment of the find. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to assess the significance of the site (or material) in question.

## 2. TERMS OF REFERENCE

An HIA/ AIA must address the following key aspects:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations;
- an assessment of the impact of the development on heritage resources;
- 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;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

In addition, the HIA/AIA should comply with the requirements of NEMA, including providing the assumptions and limitations associated with the study; the details, qualifications and expertise of the person who prepared the report; and a statement of competency.

### 2.1. Statutory Requirements

#### 2.1.1 General

The Constitution of the Republic of South Africa Act 108 of 1996 is the source of all legislation. Within the Constitution the Bill of Rights is fundamental, with the principle that the environment should be protected for present and future generations by preventing pollution, promoting conservation and practising ecologically sustainable development. With regard to spatial planning and related legislation at national and provincial levels the following legislation may be relevant:

- Physical Planning Act 125 of 1991
- Municipal Structures Act 117 of 1998
- Municipal Systems Act 32 of 2000
- Development Facilitation Act 67 of 1995 (DFA)

The identification, evaluation and management of heritage resources in South Africa are required and governed by the following legislation:

- National Environmental Management Act 107 of 1998 (NEMA)
- KwaZulu-Natal Heritage Act 4 of 2008 (KZNHA)
- National Heritage Resources Act 25 of 1999 (NHRA)
- Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)

#### 2.1.2 National Heritage Resources Act 25 of 1999

The NHRA established the South African Heritage Resources Agency (SAHRA) together with its Council to fulfil the following functions:

- coordinate and promote the management of heritage resources at national level;

- set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance;
- control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;
- enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; and
- provide for the protection and management of conservation-worthy places and areas by local authorities.

### 2.1.3 Heritage Impact Assessments/Archaeological Impact Assessments

Section 38(1) of the NHRA of 1999 requires **the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by such event:**

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity that will change the character of a site—
  - exceeding 5000m<sup>2</sup> in extent; or
  - involving three or more existing erven or subdivisions thereof; or
  - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- the rezoning of a site exceeding 10 000m<sup>2</sup> in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

### 2.1.4 Definitions of heritage resources

The NHRA defines a heritage resource as any place or object of cultural significance, i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. These include, but are not limited to, the following wide range of places and objects:

- living heritage as defined in the National Heritage Council Act No 11 of 1999 (cultural tradition; oral history; performance; ritual; popular memory; skills and techniques; indigenous knowledge systems; and the holistic approach to nature, society and social relationships);
- Ecofacts (non-artefactual organic or environmental remains that may reveal aspects of past human activity; definition used in KwaZulu-Natal Heritage Act 2008);
- places, buildings, structures and equipment;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features;
- geological sites of scientific or cultural importance;

- archaeological and palaeontological sites;
- graves and burial grounds;
- public monuments and memorials;
- sites of significance relating to the history of slavery in South Africa;
- movable objects, but excluding any object made by a living person; and
- battlefields.

Furthermore, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.

#### 2.1.5 Management of Graves and Burial Grounds

- **Graves younger than 60 years** are protected in terms of Section 2(1) of the Removal of Graves and Dead Bodies Ordinance 7 of 1925 as well as the Human Tissues Act 65 of 1983.
- **Graves older than 60 years, situated outside a formal cemetery administered by a local Authority** are protected in terms of Section 36 of the NHRA as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administered by a local authority. Graves in the category located inside a formal cemetery administered by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.

The **protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority** is detailed in Section 36 of the NHRA:

- (3) (a) 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; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in cooperation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

### 3. STUDY APPROACH AND METHODOLOGY

#### 3.1 Desktop study

The first step in the methodology was to conduct a desktop study of the heritage background of the area and the site of the proposed development. This entailed the scoping and scanning of historical texts/records as well as previous heritage studies and research around the study area.

By incorporating data from previous CRM reports done in the area and an archival search, the study area is contextualised. The objective of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves in the area.

No archaeological site data was available for the project area. A concise account of the archaeology and history of the broader study area was compiled (sources listed in the bibliography).

##### 3.1.1 Literature review

A survey of the literature was undertaken to obtain background information regarding the area. Through researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (<http://www.sahra.org.za/sahris>), it was determined that several other archaeological or historical studies had been performed within the broader vicinity of the study area. Sources consulted in this regard are indicated in the bibliography.

#### 3.2 Field study

Phase 1 (AIA/HIA) requires the completion of a field study to establish and ensure the following:

##### 3.2.1 Systematic survey

A systematic survey of the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest, was completed.

UBIQUE Heritage Consultants inspected the proposed development and surrounding areas on 20, 21 & 25 May 2020 and completed a controlled-exclusive, pre-planned, pedestrian survey. We conducted an inspection of the surface of the ground, wherever the surface was visible. This was done with no substantial attempt to clear brush, sand, deadfall, leaves or other material that may cover the surface and with no effort to look beneath the surface beyond the inspection of rodent burrows, cut banks and other exposures fortuitously observed.

The survey was tracked with a handheld Garmin global positioning unit (Garmin eTrex 10).

### 3.2.2 Recording significant areas

GPS points of identified significant areas were recorded with a handheld Garmin global positioning unit (Garmin eTrex 10). Photographs were taken with a Canon IXUS 185 20-megapixel camera. Detailed field notes were taken to describe observations. The layout of the area and plotted GPS points, tracks and coordinates, were transferred to Google Earth and QGIS and maps were created.

### 3.2.3 Determining significance

Levels of significance of the various types of heritage resources observed and recorded in the project area will be determined to the following criteria:

#### *Cultural significance:*

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium Any site, structure or feature being regarded less important due to several factors, such as date and frequency. Likewise, any important object found out of context.
- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorised as of a high importance. Likewise, any important object found within a specific context.

#### *Heritage significance:*

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of Conservation

#### *Field ratings:*

- i. National Grade I significance should be managed as part of the national estate
- ii. Provincial Grade II significance should be managed as part of the provincial estate
- iii. Local Grade IIIA should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)

- |      |                             |   |
|------|-----------------------------|---|
| v.   | General protection A (IV A) | site should be mitigated before destruction (high/ medium significance)             |
| vi.  | General protection B (IV B) | site should be recorded before destruction (medium significance)                    |
| vii. | General protection C (IV C) | phase 1 is seen as sufficient recording and it may be demolished (low significance) |

*Heritage value, statement of significance:*

- a. its importance in the community, or pattern of South Africa's history;
- b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- d. its importance in demonstrating the principal characteristics of a particular class of south Africa's natural or cultural places or objects;
- e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i. sites of significance relating to the history of slavery in South Africa.

### 3.2.4 Assessment of development impacts

A heritage resource impact may be defined broadly as the net change, either beneficial or adverse, between the integrity of a heritage site with and without the proposed development. Beneficial impacts occur wherever a proposed development actively protects, preserves or enhances a heritage resource, by minimising natural site erosion or facilitating non-destructive public use, for example. More commonly, development impacts are of an adverse nature and can include:

- destruction or alteration of all or part of a heritage site;
- isolation of a site from its natural setting; and / or
- introduction of physical, chemical or visual elements that are out of character with the heritage resource and its setting.

Beneficial and adverse impacts can be direct or indirect, as well as cumulative, as implied by the examples. Although indirect impacts may be more difficult to foresee, assess and quantify, they must form part of the assessment process. The following assessment criteria have been used to assess the impacts of the proposed development on possible identified heritage resources:

Criteria	Rating Scales	Notes
Nature	Positive	An evaluation of the type of effect the construction, operation and management of the proposed development would have on the heritage resource.
	Negative	
	Neutral	
Extent	Low	Site-specific affects only the development footprint.
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national.
Duration	Low	0-4 years (i.e. duration of construction phase).
	Medium	5-10 years.
	High	More than 10 years to permanent.
Intensity	Low	Where the impact affects the heritage resource in such a way that its significance and value are minimally affected.
	Medium	Where the heritage resource is altered, and its significance and value are measurably reduced.
	High	Where the heritage resource is altered or destroyed to the extent that its significance and value cease to exist.
Potential for impact on irreplaceable resources	Low	No irreplaceable resources will be impacted.
	Medium	Resources that will be impacted can be replaced, with effort.
	High	There is no potential for replacing a particular vulnerable resource that will be impacted.
Consequence, (a combination of extent, duration, intensity, and the potential for impact on irreplaceable resources).	Low	A combination of any of the following:  - Intensity, duration, extent and impact on irreplaceable resources are all rated low.  - Intensity is low and up to two of the other criteria are rated medium.  - Intensity is medium and all three other criteria are rated low.
	Medium	Intensity is medium and at least two of the other criteria are rated medium.

Criteria	Rating Scales	Notes
	High	Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration.  Intensity is rated high, with all the other criteria being rated medium or higher.
Probability (the likelihood of the impact occurring)	Low	It is highly unlikely or less than 50 % likely that an impact will occur.
	Medium	It is between 50 and 70 % certain that the impact will occur.
	High	It is more than 75 % certain that the impact will occur, or it is definite that the impact will occur.
Significance (all impacts including potential cumulative impacts)	Low	Low consequence and low probability.  Low consequence and medium probability.  Low consequence and high probability.
	Medium	Medium consequence and low probability.  Medium consequence and medium probability.  Medium consequence and high probability.  High consequence and low probability.
	High	High consequence and medium probability.  High consequence and high probability.

### 3.3 Oral history

Where possible, people from local communities would be interviewed to obtain information relating to the surveyed area.

### 3.4 Report

The results of the desktop research and field survey are compiled in this report. The identified heritage resources and anticipated direct, indirect, and cumulative impacts that the development of the proposed project may have on the identified heritage resources will be presented objectively. Alternatives, should any significant sites be impacted adversely by the proposed project, are offered. All effort will be made to ensure that all studies, assessments, and results comply with the relevant legislation and the code of ethics and guidelines of the Association of South African Professional Archaeologists (ASAPA). The report aims to assist the developer in managing the documented heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

## 4. PROJECT OVERVIEW

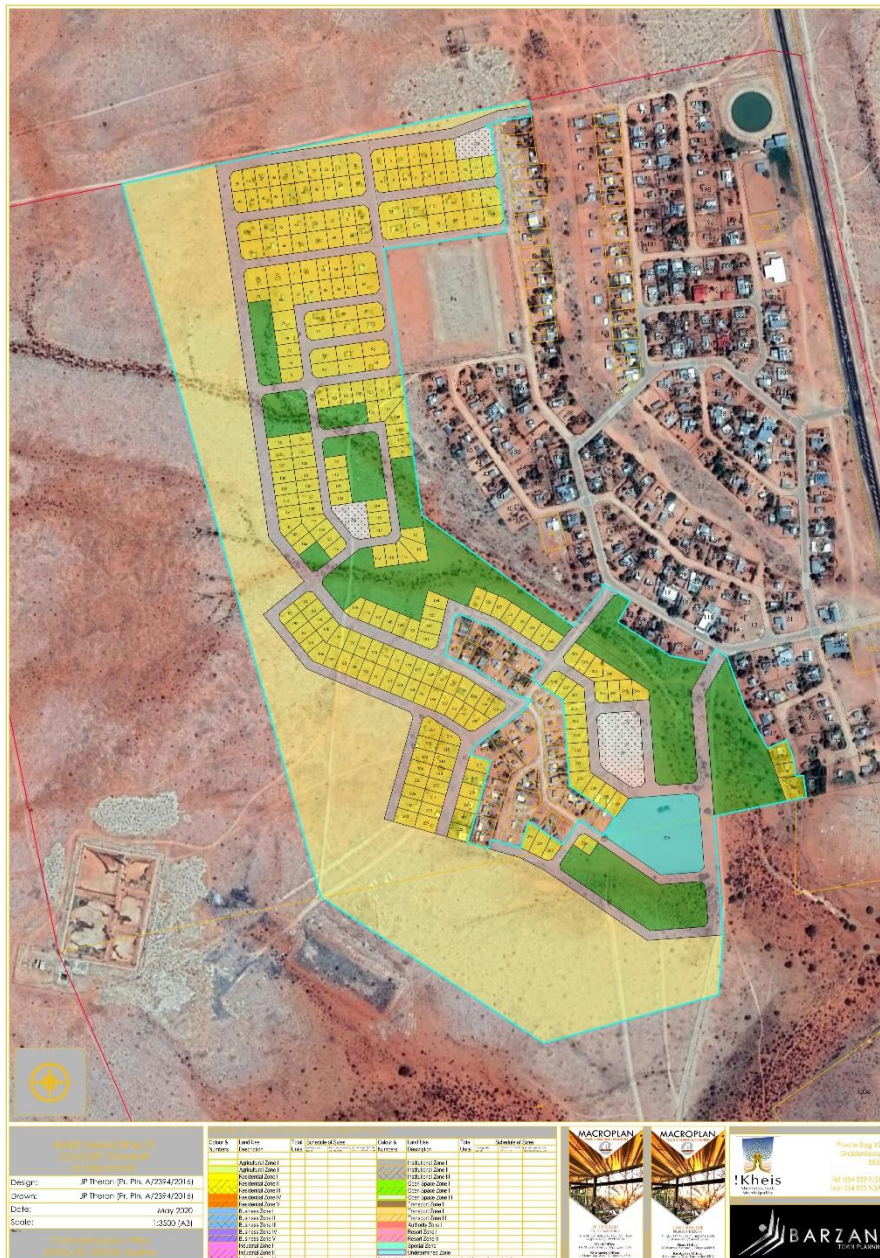
UBIQUE Heritage Consultants were appointed by EnviroAfrica cc as independent heritage specialists in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA), to conduct a cultural heritage assessment to determine the impact of the proposed development of Topline township, on Erven 1, 16, 87, Saalskop (Topline) and Plot 2777, Boegoeberg Settlement, Farm Boegoebergnedersetting RE/48 in the !Kheis Local Municipality, on any sites, features, or objects of cultural heritage significance.

The project entails the expansion of the Topline community. A total of 248 new erven will be created. The project includes the formalisation of the existing informal houses located around the town. The size of the study area is 36 ha. The community of Topline is located on the western bank of the Orange River, next to the N10, approximately 22 km northwest of Groblershoop.

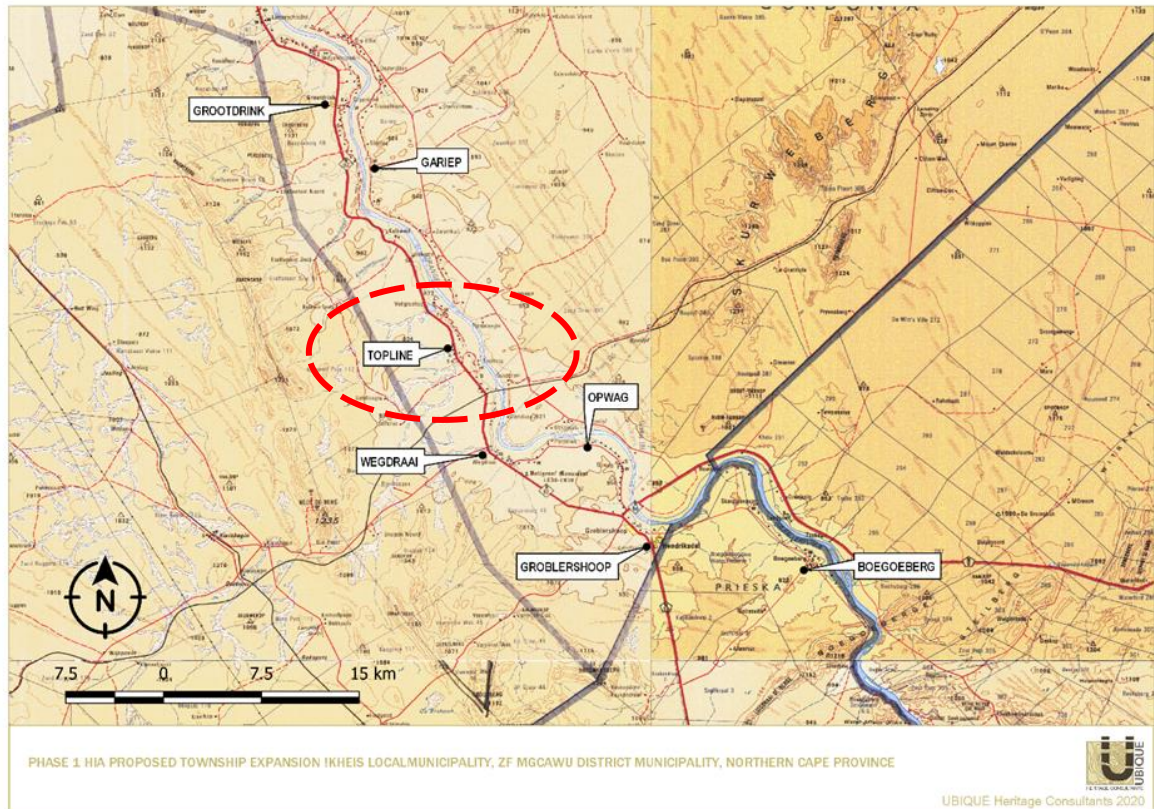
### 4.1 Technical information

Project description	
Project name	!KHEIS LOCAL MUNICIPALITY TOWNSHIP EXPANSION: TOPLINE
Description	The expansion and upgrade of housing and infrastructure at Topline township in the !Kheis Local Municipality and within the ZF Mgcawu District Municipality in the Northern Cape Province. Reference: NC/21/2018/PP
Developer	
!Kheis Local Municipality in cooperation with the Barzani group and Macroplan Regional and Town Planners	
Contact information	Topline Community !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.
Development type	Housing (Township expansion)
Landowner	
!Kheis Local Municipality	
Contact information	054-332 3642 or 054- 833 9500
Consultants	
Environmental	EnviroAfrica cc.
Heritage and archaeological	UBIQUE Heritage Consultants
Paleontological	Banzai Environmental
Property details	
Province	Northern Cape
District municipality	ZF Mgcawu
Local municipality	!Kheis
Topo-cadastral map	1:50 000 2821DD
Farm name	Erf 1, Saalskop (Topline) Plot 2777, Boegoeberg Settlement Erf 16, Saalskop (Topline) Erf 87, Saalskop (Topline) Farm Boegoebergnedersetting RE/48
Closest town	Groblershoop
GPS Co-ordinates	28°45'12.03"S; 21°50'17.13"E, 28°45'26.20"S; 21°50'33.54"E, 28°45'17.45"S; 21°50'27.72"E, 28°45'1.34"S; 21°50'21.54"E
Property size	

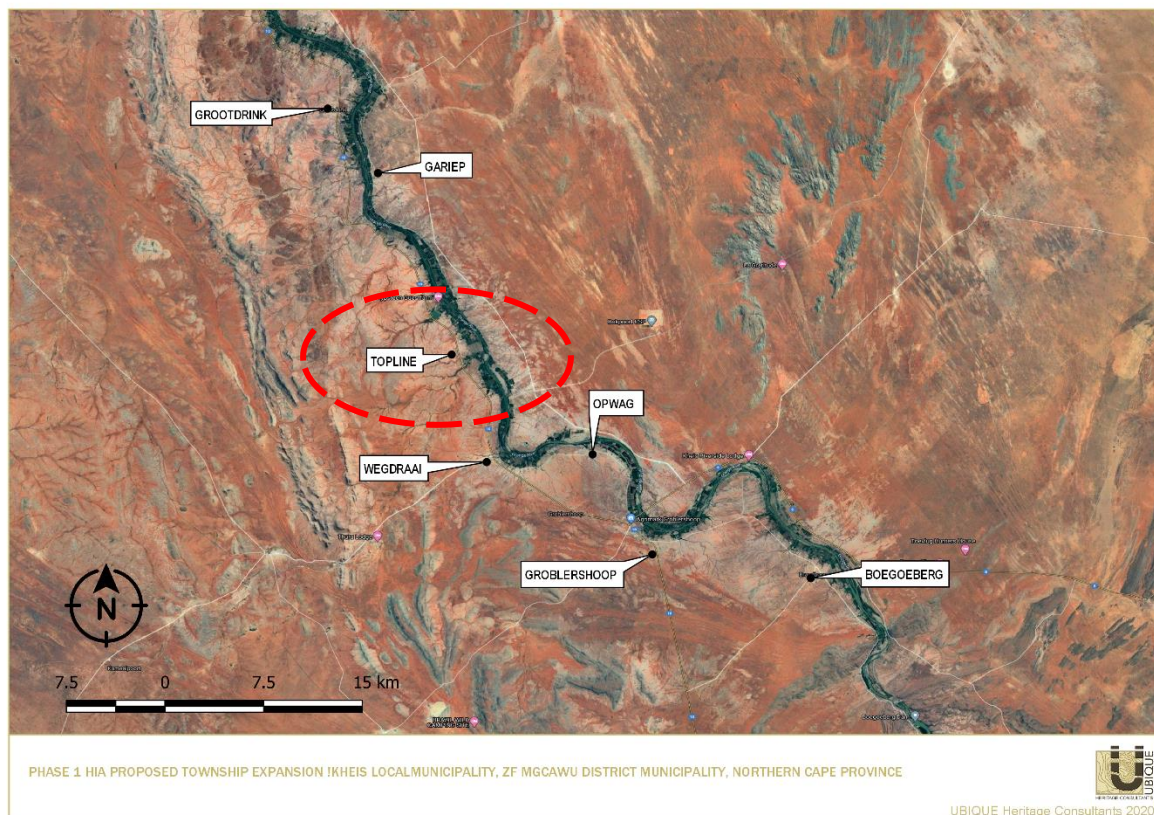
Development footprint size	36 ha
Land use	
Previous	Agriculture
Current	Agriculture and limited informal houses
Rezoning required	Yes
Sub-division of land	Yes
Development criteria in terms of Section 38(1) NHRA	Yes/No
Construction of a road, wall, power line, pipeline, canal or other linear forms of development or barrier exceeding 300m in length.	Yes
Construction of bridge or similar structure exceeding 50m in length.	No
Construction exceeding 5000m <sup>2</sup> .	Yes
Development involving three or more existing erven or subdivisions.	Yes
Development involving three or more erven or divisions that have been consolidated within the past five years.	Yes
Rezoning of site exceeding 10 000m <sup>2</sup> .	Yes
Any other development category, public open space, squares, parks, recreation grounds.	No



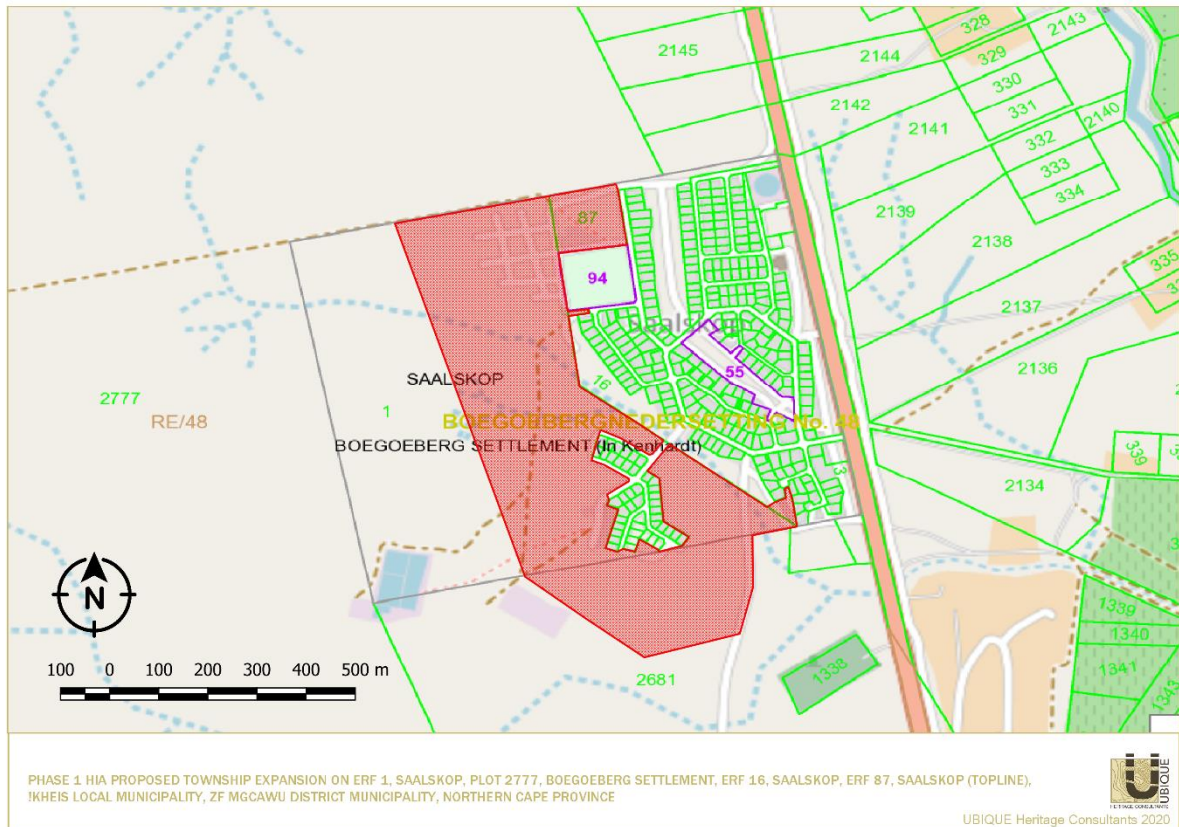
**Figure 1** Proposed township expansion at Saalskop (Topline), !Kheis Local Municipality. Image provided by Macroplan.



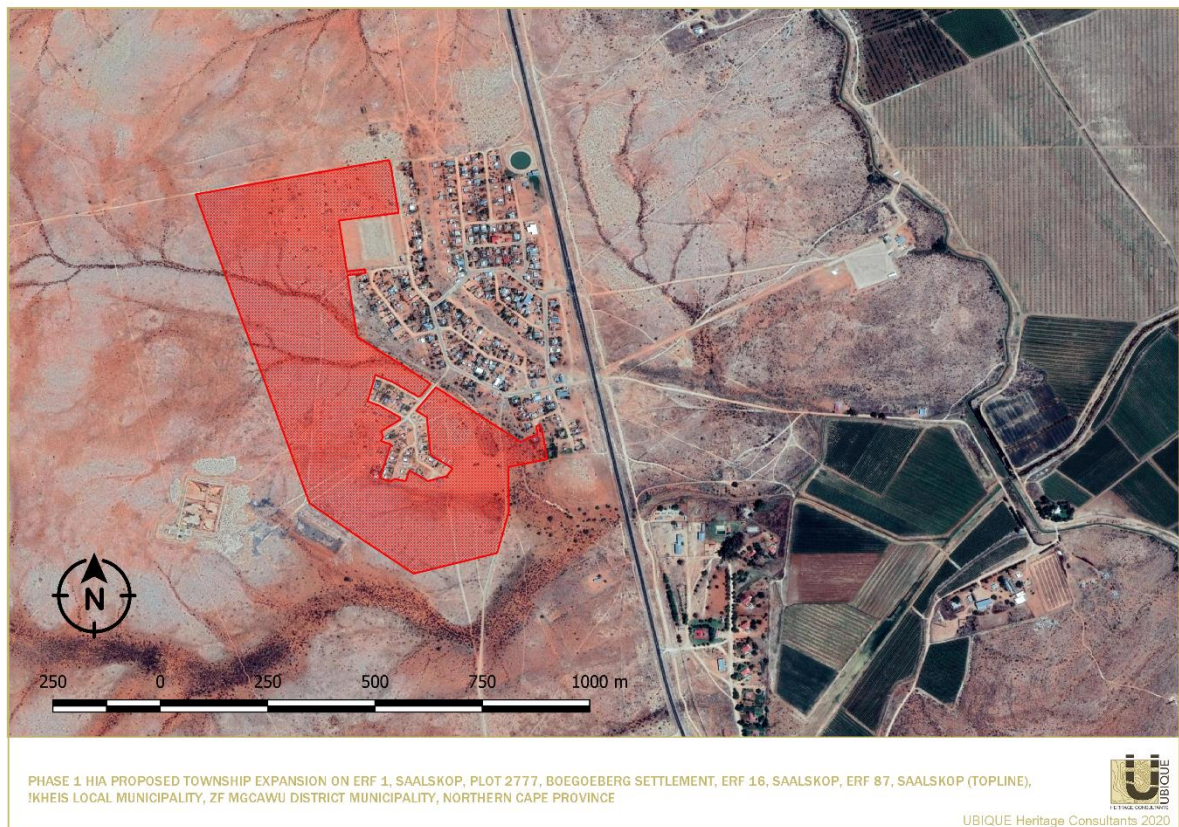
**Figure 2** Regional locality of the development footprint, Topline, !Kheis Local Municipality indicated on 1: 250 000 WGS2820-2920.



**Figure 3** Regional locality of the development footprint, Topline, !Kheis Local Municipality indicated on Google Earth Satellite imagery.



**Figure 4** Locality of the development footprint, Topline, !Kheis Local Municipality indicated on Chief Surveyor-General ArcGIS Web Map (source <https://csg.esri-southafrica.com/>)



**Figure 5** Locality of the development footprint Topline !Kheis Local Municipality indicated on Google Earth Satellite imagery.

## 4.2 Description of the affected environment

The development area falls within Bushmanland Arid Grassland. It is characterised by extensive to irregular plains on a slightly sloping plateau. The white grass (*Stipagrostis* species) dominated grassland gives this vegetation type the character of semidesert 'steppe'. In places, low shrubs of *Salsola* change the vegetation structure. Vegetation identified in the development footprint includes camel thorn trees (*Acacia erioloba*), blackthorn trees (*Acacia mellifera*), silky bushman grass (*Stipagrostis uniplumis*), three thorn/driedoring (*Rhigozum trichotomum*), skaapbossie (*Aizoon schellenbergii*), shepherd tree (*Boscia albitrunca*), suurgras (*Enneapogon desvauxii*), tall bushman grass (*Stipagrostis hirtigluma*), silky bushman grass (*Stipagrostis uniplumis*), kortbeen boesmangras (*Stipagrostis obtuse*), pencil milkbush (*Euphorbia lignose*) and aloe (*Aloe argenticuada*). The soils of the area are mostly red-yellow freely drained apedal soils (Mucina & Rutherford 2006). There are deposits of banded ironstone formation (BIF), calcrete, quartz and quartzite on the surface.

The study area consists of flat open vacant fields with a few trees scattered throughout the footprint. The entire terrain slightly slopes towards the east, in the direction of the existing settlement and the N10. The development footprint is bounded in the north, south, and west by vacant land, and in the east, by the N10. There are several dry riverine running from west to east, and one prominent dry riverine flows from northwest to southeast through the footprint. Some of the dry riverine eroded into large furrows, especially in the central-east and south-eastern parts of the footprint. Several areas have minor damage due to water erosion. Anthropogenic disturbances are prevalent throughout the footprint, such as dumping sites for garbage, rubble, stone, and soil. Evidence of construction earthmoving machinery is visible in certain areas. Informal housing exists on parts of the development footprint.

**Figure 6** Views of the affected development area.





## 5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

### 5.1 Region

The Northern Cape is rich in archaeological sites and landscapes that reflect the complex South African heritage from the Stone Age to Colonial history.

#### 5.1.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996). In South Africa, the Stone Age can be divided into three periods. It is, however, important to note that dates are relative and only provide a broad framework for interpretation. The division of the Stone Age, according to Lombard et al. (2012) is as follows:

Earlier Stone Age:	>2 000 000 - >200 000 years ago
Middle Stone Age:	<300 000 - >20 000 years ago
Later Stone Age:	<40 000 - until the historical period.

In short, the Stone Age refers to humans that mainly utilised stone as their technological marker. Each of the sub-divisions represents a group of industries where the assemblages share attributes or common traditions (Lombard et al. 2012). The ESA is characterised by flakes produced from pebbles, cobbles, and percussive tools, as well as objects created later during this period such as large hand axes, cleavers and other bifacial tools (Klein 2000). The MSA is associated with small flakes, blades, and points. The aforementioned are commonly inferred to have been made and utilised for hunting activities and had numerous functions (Wurz 2013). Lastly, the LSA is characterised by microlithic stone tools, scrapers, and flakes (Binneman 1995; Lombard et al. 2012). The LSA is also associated with rock art. Numerous LSA rock art sites, mainly in the form of rock engravings and paintings have been identified in the Northern Cape (Beaumont 2008; Kruger 2018; Morris 1988). These sites are commonly found on slopes, hilltops, rocky outcrops and occasionally in riverbeds (Kruger 2018). Banded ironstone occurs on several sites throughout the Northern Cape and appears to have been a favoured raw material for making stone tools due to its superior flaking qualities (Morris 2012). Prominent sites that exemplify these periods in the Nama-Karoo Biome are Rooidam and Bundu Farm (Earlier Stone Age and Middle Stone Age), and Biesje Poort 2, Bokvasmaak 3, Melkboom 1, Vlermuigat, and Jagtpan 7 (Later Stone Age) (Lombard et al. 2012).

Within the region, Stone Age sites and complexes have been, and are still being investigated in some detail. For instance, in the Kathu landscape, the longest preserved lithostratigraphic and archaeological sequence of human occupation has been documented and excavated. Evidence of 500 000-year-old hafted stone points, ancient specularite working (and mining), and associated Ceramic Later Stone Age material have been recorded on the eastern side of Postmasburg and Doornfontein. Older transitional ESA/MSA Fauresmith sites at Lyly Feld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley have been recorded (Beaumont 2004; Beaumont 2013; Beaumont & Morris 1990; Beaumont & Vogel 2006; Morris 2005; Morris & Beaumont 2004; Porat et al. 2010; Thackeray et al. 1983; Walker et al. 2014; Wilkins et al. 2012).

Beaumont et al. (1995) commented that thousands of square kilometres of Bushmanland are covered by low-density lithic scatters. It is therefore not surprising that Stone Age sites and lithic scatters were identified by CRM practitioners between the Garona substation and the Gariep/Orange River in numerous surveys conducted during the recent years. Scatters of MSA material have been recorded close to Griekwastad, Hotazel, Postmasburg and Kenhardt, Pofadder, Marydale, and in the Upington district (Dreyer 2006, 2012, 2014; Pelsner & Lombard 2013; PGS Heritage 2009, 2010; Webley 2013). MSA and LSA tools, as well as rock engravings, were also found at Putsonderwater, Beeshoek and Bruce (Morris 2005; Snyman 2000; Van Vollenhoven 2012b; Van Vollenhoven 2014).

Archaeological surveys have shown that rocky outcrops, hills, drainage lines, riverbanks and confluences, are prime localities for archaeological finds (Lombard 2011). Sites can likewise be found close to local sources of highly prized raw materials such as previously mentioned banded iron formations (BIF), as well as jasperite and specularite (Morris 2012; Kruger 2015; 2018). If any such features occur in the study area, Stone Age manifestations can be anticipated.

### 5.1.2 Iron Age

The Iron Age (IA) is characterised by the use of metal (Coertze & Coertze 1996: 346). There is some controversy about the periods within the IA. Van der Ryst & Meyer (1999) have suggested that there are two phases within the IA, namely:

- Early Iron Age (EIA) 200 – 1000 AD
- Late Iron Age (LIA) 1000 – 1850 AD

However, Huffman (2007) suggests instead that there are three periods within the Iron Age; these periods are:

- Early Iron Age (EIA) 250 – 900 AD
- Middle Iron Age (MIA) 900 – 1300 AD
- Late Iron Age (LIA) 1300 – 1840 A.D

Thomas Huffman believes that a Middle Iron Age should be included within this period. His dates have been widely accepted in the IA field of archaeology.

The South African Iron Age consists of farming communities who had domesticated animals, cultivated plants, manufactured, and made use of ceramics and beads, smelted iron for weapons and manufactured tools (Hall 1987). Iron Age people were often mixed farmers/agropastoralists. These agropastoralists generally chose to live in areas with sufficient water for domestic use along with arable soil that could be cultivated with an iron hoe. Most Iron Age (IA) settlements were permanent settlements, consisting of features such as houses, raised grain bins, storage pits and animal kraals/byres this is in contrast to the temporary camps of pastoralists and hunter-gatherers (Huffman 2007). It is evident in the archaeological record that IA groups had migrated with their material culture (Huffman 2002).

The majority of the IA groups in southern Africa preferred to occupy the central and eastern parts of southern African from about 200 AD. The San and Khoi remained in the western and southern parts (Huffman 2007; Van Vollenhoven 2014). IA sites are scarce, but not unheard-of in the Northern Cape. IA sites have predominantly been recorded in the northeastern part of the province. Kruger (2018) suggested that environmental factors delegated the spread of IA farming westwards during the 17<sup>th</sup> century. Settlement in the Northern Cape was constrained mainly to the areas east of the Langeberg Mountains. The Later Iron Age (LIA) was accompanied by extensive stone walled settlements, such as the Thlaping capital Dithakong, approximately 40 km north of Kuruman (De Jong 2010). The Sotho-Tswana and Nguni speaking societies, who are the descendants of the LIA mixed farming communities, moved into a region already sparsely inhabited by LSA Khoisan groups. De Jong (2010) commented that LIA communities eventually assimilated many LSA Khoisan groups, and only a few had managed to survive independently. Some of the surviving groups included the Koranna and the Griqua. This period of contact has often been referred to as the Ceramic LSA. It is represented by sites such as the earlier mentioned Blinkklipkop specularite mine near Postmasburg and Kathu Pan (De Jong 2010). LIA people briefly utilised the area close to the Orange River in the Northern Cape, mining copper, and there is even evidence of an IA presence as far as the Upington area in the 18<sup>th</sup> century (Kruger 2018; Van Vollenhoven 2014).

### 5.1.3 Historical period

The historical period within the region coincides with the incursion of white traders, hunters, explorers, and missionaries into the interior of South Africa. Buildings and structures associated with the early missionaries, travellers, and traders such as PJ Truter's and William Somerville (arriving in 1801), Donovan, Burchell and Campbell, James Read (arriving around 1870) William Sanderson, John Ryan and John Ludwig's (De Jong 2010; Snyman 2000) arrival during the 19<sup>th</sup> century, and the settlement of the first white farmers and towns, are still evident in the Northern Cape. Numerous heritage reports that provide a synthesis of the incursions of travellers, missionaries and the early European settlers have been captured on the SAHRIS database.

San hunter-gatherer groups utilised the landscape for thousands of years, and Khoi herders moved into South Africa with their cattle and sheep approximately 2000 years ago. With the arrival of the Dutch settlers in the Cape in the mid-17<sup>th</sup> century, clashes between the Europeans and Khoi tribes in the Cape Peninsula resulted in the Goringhaiqua and Goraxouqua migrating north towards the Gariep/Orange River in 1680. These tribes became collectively known as the Korannas, living as small tribal entities in separate areas (Penn 2005).

Because of its distance from the Cape Colony, this arid part of South Africa's interior was generally not colonised until relatively recent. According to history, the remote northern reaches of the Cape Colony were home to cattle rushers, gunrunners, river pirates and various manner of outlaws. Distribution of land to colonial farmers only occurred from the 1880s onwards when Government-owned land was surveyed, divided into farms, and transferred to farmers. More permanent large-scale settlement however only started in the late 1920s, and the first farmsteads were possibly built during this period. The region remained sparsely populated until the advent of the 20<sup>th</sup> century (De Jong 2010, Penn 2005).

The region has been the backdrop to various incidents of conflict. Numerous factors such as population growth, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade, and the emergence of the Griquas, and penetration of the Koranna and early white communities from the south-west resulted in a period of instability in the Northern Cape. With the introduction of loan farms, in the second half of the 18<sup>th</sup> century, an influx of newcomers such as trekboers, European game hunters and livestock thieves contributed to the volatility and sociocultural stress and transformation in the region (Mlilo 2019).

The *Difaqane/Mfecane*, which began in the late-18<sup>th</sup> century, affected the Northern Cape Province around 1820, which was much later than the rest of southern Africa (De Jong 2010; Mlilo 2019). During this time, there was an incursion of displaced refugees associated with the Fokeng, Tlokwa, Hlakwana and Phuting groups into the northeast (De Jong 2010). The arrival of large numbers of Great Trek Boers from the Cape Colony to the borders of Bechuanaland and Griqualand West in 1836 caused friction with many Tswana groups and the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Koranna and Griqua communities and the British government became involved. The Koranna wars took place during 1879-1880.

According to Breutz (1953, 1954), and Van Warmelo (1935), several Batswana tribes, including the different Thlaping and Thlaro sections as well as other smaller groups, take their 18<sup>th</sup> and 19<sup>th</sup>-century roots back to the area around Groblershoop, Olifantshoek, the Langeberg (Majeng) and Korannaberg ranges in the western part of the region. After Britain annexed Bechuanaland in 1885, the land of the indigenous inhabitants was limited to a few reserves. After the failed Tswana revolt in 1895, the British continued to divide the Tswana land up, and grant it to settling colonial farmers.

The Northern Cape was critical in the Anglo-Boer War (1899-1902), and significant battles took place within 120 km of Kimberley, including the battle of Magersfontein. Boer guerrilla forces roamed the entire Northern Cape region and skirmishes between Boer and Brits were regular occurrences. Furthermore, many graves in the region tell the story of battles fought during the 1914 Rebellion (Hopkins 1978).

## 5.2 Local

During 1778, Swedish-born traveller and explorer Hendrik Wikar reached the middle and lower reaches of the Orange River after a long land journey that started in Cape Town. As a deserter from the service of the Dutch East India Company, Wikar spent several years within the area and compiled a report of his experiences in exchange for a pardon (Ross 1975). He documented his encounters with Khoisan communities who called themselves the *Einiqua*, or *River People*. The *Einiqua* were divided into three “kraals”: the *Namnykoa* near the Augrabies Falls, the *Kaukoa* on islands west of Keimoes, and the *Aukokoa* of Kanoneiland and other islands to the east. Their kraals consisted of a considerable amount of sheep and cattle, and they collected plants, hunted game, and cultivated dagga but no other crops, according to Wikar (Ross 1975). Amongst the

pastoralist communities living on the islands were the *Anoe eis* people whom Wikar characterised as “Bushmen”. They possessed no domesticated stock, subsisted by fishing, game-trapping, hunting and the gathering of plant foods (Morris & Beaumont 1991). Colonel Robert Jacob Gordon who visited the area in 1779, however, remarked that they were actually *Einiqua* (i.e. Khoi) who had “lost their cattle as a result of an argument with the *Namneiqua* village (Morris & Beaumont 1991). The San and Khoekhoe hunter-gatherers in the region had reached a form of stability by the early 18<sup>th</sup> century (Mlilo 2019). The area west of the Langeberg and east of Upington was occupied by IA groups such as the BaTlaping. Their influence had reached as far down the river as Upington (Morris 1992).

By the 18<sup>th</sup> century, the *Basters* had focused on the Orange River (and Namaqualand) as destinations of sanctuary from colonial rule and social oppression present in the Cape Colony (Mlilo 2019; Van der Walt 2015). The term “Baster” characterises a group of people of mixed percentage (white and Khoekhoe or slave and Khoekhoe) who possessed property and who was culturally European. In 1882, the first 81 farms north of the Gariep/Orange River between Groblershoop and the Augrabies Falls were allocated almost exclusively to *Basters* (Morris 1992). During the late 19<sup>th</sup> century, more white people started moving to the Gordonia area, and by the turn of the century, some 13 Afrikaner families had settled at Keimoes (De Beer 1992; Van der Walt 2015). The aftermath of the scorched earth policy of the South African War (Anglo-Boer War), resulted in many farmers moving to new areas, in search of greener pastures, and settlement next to the Gariep/Orange River provided ample irrigation for one’s crops.

Since the 1880s, the irrigation of the Orange River played a central role in the economic advancement of the area around Upington (Legassick 1996). The development of the canal systems was integral in irrigating extensive vineyards and orchards and the expansion of substantial agricultural enterprises within the area (Engelbrecht & Fivaz 2018). Dutch Reformed Church missionary Reverend C.H.W. Schröder and Special Magistrate for the Northern Border John H. Scott, are credited with formalising and extending the irrigation system. However, when Schröder first came to Upington in July 1883, there were already people in the area of Keimoes that used irrigation and planted fields. Moolman (1946) and Legassick (1996) mentions how the *Baster* farmers diverted river water to their gardens, albeit crudely. The *Basters’* irrigation scheme has been attributed to the ingenuity of Abraham September. Legassick (1996) commented that “the small, white-painted, stone house where Abraham September lived when he undertook this work survives to this day, though the house and the land upon which it stands have long passed from the hands of the September family”.

The early Portuguese sailors referred to the Gariep/Orange River as the St Anthonio, and Simon van der Stel marked it as the Vigi Magna on maps from 1685. The elephant hunter Jacobus Coetzee called it the “*de Groote Rivier*” (the Great River) in 1760 and land-surveyor Carel Brink noted in 1761 that the river is known to the local island inhabitants as the Tyen Gariep (*Our River*). The missionary Campell also spoke of the Gariep, Gareeb, and Garib, as the name the Korannas used. On the evening of 17 August 1779, Robert Gordon took his rowboat out to the middle of the river, raised and toasted the Netherland’s flag, and proclaimed the river in the name of the Prince van Oranje. Maps from this date forward name the river as the Orange River (Oranjeriver), but colloquially it is still known as the Gariep or Grootrivier. !Kheis Municipality is named in recognition

of the first permanent residents of the area. !Kheis is a Khoi name meaning "a place where you live", or "a home".

De Jong (2010) classifies the cultural landscape along the Gariep/Orange River as predominantly historic farmland. In the Lower Orange River environment, farms display heritage features that typically occur in the district, such as their large size, irrigation furrows and pipelines, fences, tracks, farmsteads, and irrigated fields. Farmsteads are clustered close to rivers and primary roads (De Jong 2010). According to De Jong (2010), this class of landscape is of relatively low heritage sensitivity because it can absorb adverse effects of new development through some mitigation.

### 5.3 Topline (Saalskop), Wegdraai, Opwag, Groblershoop, Boegoeberg (Brandboom)

Various HIA and AIA reports have been conducted in and around the vicinity of Groblershoop, Boegoeberg, Opwag, Topline and Wegdraai study areas. These include, but are not limited to, the farms situated around the study areas. These farms include Buchuberg 263, Farm 292, Farm 387 Sanddraai 391, Bokpoort 390 and Kleinbegin 115.

#### 5.3.1 Stone Age

The distribution of archaeological sites in the area has been characterised by Morris (2012) as stone artefacts along the Orange River; stone artefacts situated on the calcrete plain east of the Orange River; stone artefact scatters between dunes. Scatters of stone artefacts in and around the Groblershoop- Boegoeberg area have been reported by Beaumont (2008), Engelbrecht & Fivaz (2019) Dreyer (2006, 2012, 2013, 2015), Morris (2006, 2007, 2012, 2014), Orton & Webley (2013), Van der Walt (2012); Van Ryneveld (2007), Van Schalkwyk (2011, 2020), Van Vollenhoven (2014), and Webley (2013). The lithics that have in the area have been attributed to the ESA, MSA, and the LSA. Raw materials include chalcedony, jasperlite, quartzite and banded ironstone formation (BIF), as well as meta-quartzite. These scatters of lithics generally have little to no context. Predominantly heritage reports describe the recorded stone artefacts in the area to be of poor preservation and with limited heritage significance.

During his survey on the Farms Sanddraai and Bokpoort, situated in the vicinity of Saalskop (Topline) and Wegdraai, Morris (2012) reported MSA materials scattered amongst the calcrete surface deposits at the edges of borrow pits along the Loop 16 on the Sishen-Saldanha railway line. Dreyer's (2012) survey documents a single scatter of worked chalcedony, BIF, quartz and meta-quartz artefacts near a calcrete outcrop, with a substantial collection of flakes on the slopes along the River at Sanddraai.

Engelbrecht & Fivaz (2019) documented several MSA and LSA scatters on Farm 387, Portion 18, Groblershoop. Apart from low-density MSA and LSA artefact scatters, they documented moderate to high densities of MSA/LSA open lithic scatters with flakes, scrapers, cores, microliths and

incidences of local ceramics. Two sites recorded next to the Orange/Gariep River are probable hunter/herder sites, while five sites located on the dunes are believed to be knapping sites (Engelbrecht & Fivaz 2019). On the Farm 292 located near Groblershoop, Beaumont (2008) found low densities of Stone Age artefacts. On a section of Farm 387 Webley (2013) recorded background scatters of MSA artefacts of quartzite and BIF cobbles throughout the study area.

The majority of the artefacts across the landscape are randomly scattered. Nevertheless, it has been found that dense scatters of artefacts appear on and around small koppies. Several MSA and LSA stone artefact scatters have been identified on the eastern margins of the Orange River, Groblershoop (Webley 2013). The informally flaked hornfels cobbles and quartz flakes recorded along the shore may indicate the presence of LSA occupations (Webley 2013). The LSA scatters on the eastern shore, are believed to be of medium significance as they can potentially inform us "on hunter-gatherer and pastoralist settlement patterns along the River" (Webley 2013).

In Orton & Webley's (2013) report for the proposed Boegoeberg Hydropower station approximately 14.6 - 24 km south/southeast from the Brandboom/Boegoeberg study area, they mention several exciting finds. They found a small ephemeral archaeological Later Stone Age site on the sandy floodplain just downstream of the Boegoeberg Dam/Weir. This site consisted of a scatter of rocks that may likely have been used to anchor a hut, in association with two artefacts and one fragment of OES (Orton & Webley 2013). Orton & Webley (2013) recorded a cluster of stone walls on the south side of the river and the mountain slope close to the power line crossing point. The presence of pre-colonial stonewalling in the Groblershoop and Boegoeberg study areas is rare. This archaeological site is approximately 17 km from the Brandboom/Boegoeberg study area. The features included straight walls, semi-circles, L-shapes and small mounds of rocks. Very little associated archaeological material was discovered on the surface. They note in the report that these stone walls are typical of pre-colonial walling from the Karoo and some may have been hunting blinds. They also documented scatters of MSA stone artefacts above the cliff at Boegoeberg Weir/Dam, and a few LSA grindstones and other isolated artefacts in the area.

### 5.3.2 Historical period

It was around 1870 that the first Colonial farmers had settled in the Groblershoop area (Orton & Webley 2013). The town of Groblershoop originally developed on the farm Uitdraai (Engelbrecht & Fivaz 2019). Military topographic maps from 1908 and 1913 show a sparsely populated area, with numerous tracks across the sandy plains. There were halts situated at Zaalskop, Wegdraai, Uitdraai, Winstead and a hotel at Dabep. Access to water at Wegdraai was via a steep and narrow approach, at Uitdraai, there were a large well and tank situated underneath the house and a store where a supply of forage could be obtained. A weir was constructed across the Orange River at Buchberg, with a turbine historic water turbine driven by solid-oak gears in the Orange River on the Farm Winstead. This historic water turbine was built in 1913 (Engelbrecht & Fivaz 2019). All along the eastern shore of the Orange River, locations of "native huts and kraals" are indicated.

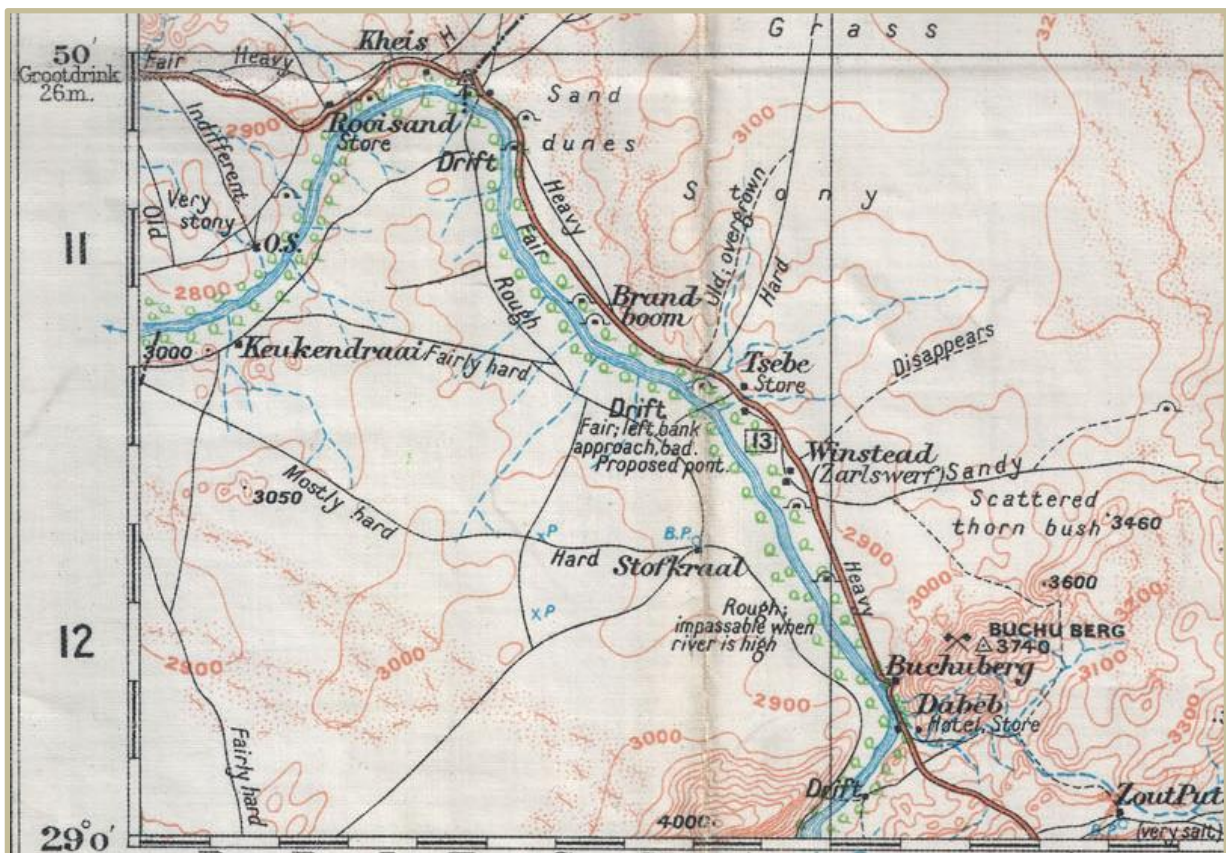
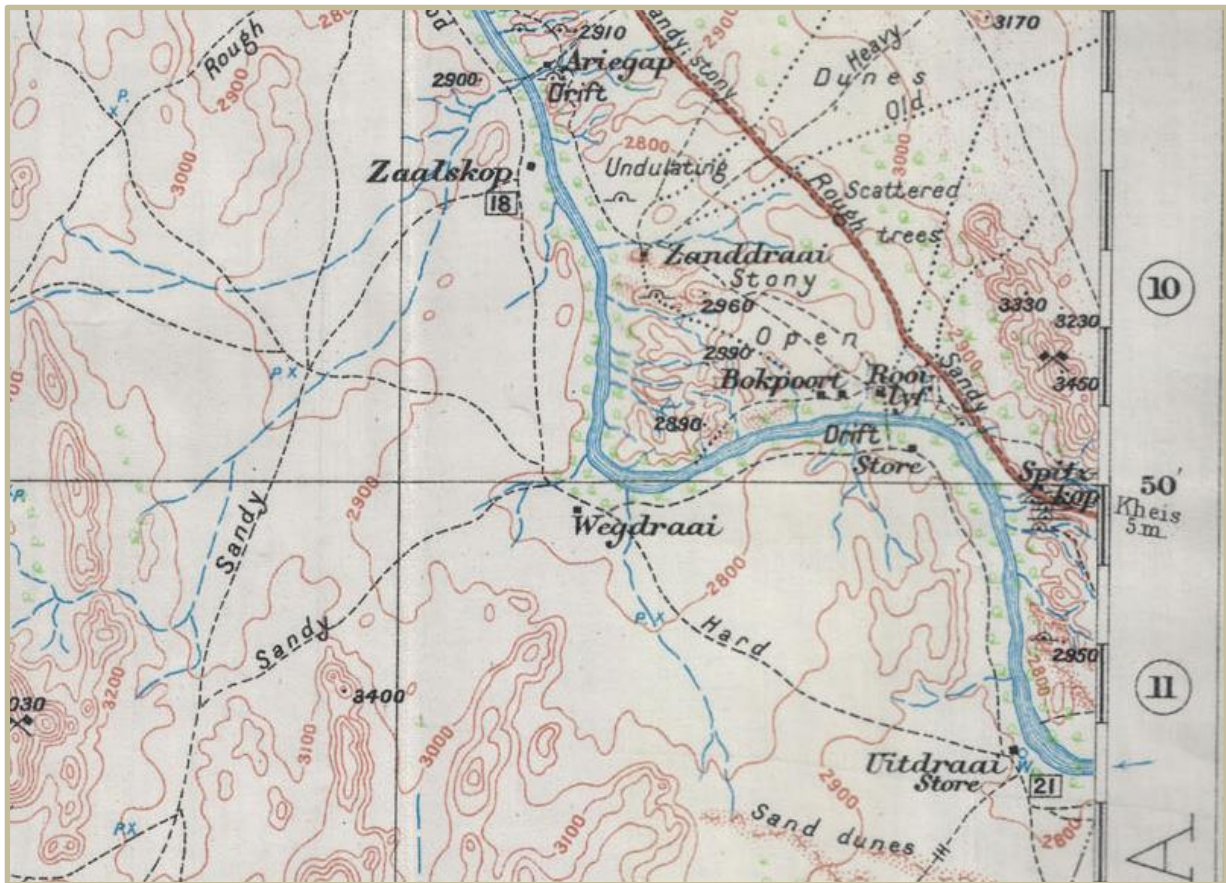


Figure 7 Detail of 1913 Topographical map of Upington, and detail of 1914 topographical map of Langeberg, available at <https://digitalcollections.lib.uct.ac.za/>

Groblershoop developed as a result of the development of the Boegoeberg Dam and water channels in 1929 (Van Schalkwyk 2019; 2020). The town was initially known as Sternham, with the first house dating to 1912. In 1935, the town was renamed to Groblershoop, after a former Minister of Agriculture: Mr PGW Grobler. Mr Grobler assisted in the development of the Boegoeberg Dam and the irrigation project in 1929. He had played a substantial role in this development and creating employment for the poor-white community and boosting progress in the region (Engelbrecht & Fivaz 2019). The idea for the construction of the weir and irrigation canal was first considered in 1872. Proposals for the project was rejected in 1896, and again in 1907, for being too expensive (Orton & Webley 2013). After about 20 years of preparatory work, the construction of the Boegoeberg Dam began in May 1929. The dam was completed in 1932, and the canal in 1934. Even children as young as nine years old were employed to work on the construction of the dam and irrigation canals. It is believed that about 50 people (39 being children) died during the construction of the project (Orton & Webley 2013). The Boegoeberg Dam itself is a significant heritage structure (Orton & Webley 2013).

Minimal artefacts and structures dating to the historical/colonial period have been recorded on sites in the vicinity of the Groblershoop and Brandboom/Boegoeberg study areas or on the farms surrounding Topline (Saalskop), Wegdraai, and Opwag. Nevertheless, AIA and HIA reports state that it is not uncommon to find colonial-era builds/artefacts in the area. Morris (2012) noted colonial-era traces such as the agricultural modification of the riverbank, a railway bridge, and a stone structure, close to the Orange River, on the farms of Sanddraai 391 and Bokpoort 390. During Webley's (2013) survey for the proposed construction of the Eskom Groblershoop Substation and the Garona-Groblershoop 132 kV powerline, she found a stone reservoir (25m x 25m) lined with plaster, with a gutter made of stone running around the margins to collect water. She notes that there were various rusted farm implements nearby (Webley 2013). Orton & Webley (2013) have noted that there are a few farm buildings in the area, such as a house dating to the late-19<sup>th</sup> or early-20<sup>th</sup> century, considered to be of high heritage significance. Another structure, built with traditional materials like sun-dried bricks, mud and mortar, plastered in modern cement in 1956 (date inscribed by the entrance steps) was documented.

### 5.2.3 Graves and Burials

During the construction of the Boegoeberg Dam, severe gastroenteritis and malaria resulted in the deaths of many children. Most of the headstones in the cemetery at the dam mark children's graves (<https://graves-at-eggse.org>). Orton & Webley (2013) recorded an informal graveyard alongside the access road to Zeekoebaart. An isolated grave about one metre off the edge of the road, as well as two isolated graves in the sandy floodplain just downstream of the weir was also documented (Orton & Webley 2013). Several graves dating to the Second Anglo Boer War (1899-1902), belonging to the Dragoon mounted infantry unit, are present in the area (Van Vollenhoven 2014). Seven graves dating to the 1914 Rebellion have been recorded about 25 km from Groblershoop on the road to Griquastad (Webley 2013).

In 1956 Senator A. S. Brink of Keimoes had donated archaeological objects to the South African Museum in Cape Town. Rudner (1971) wrote that the majority of the objects were found in 1934

on the former farm Grootdrink, between Upington and Prieska, during the construction of an irrigation canal from the Boegoeberg Dam. On the southern bank of the river, the flooding of the canal exposed old burials. The human remains were buried in a squatting (crouching) position with their arms folded in front of the legs. Along with the graves, several ostrich eggshell (OES) flasks, one filled with powdered specularite iron, OES beads and bored stone (one of them heart-shaped), several pots and other objects were discovered (Rudner 1971).

#### 5.2.4 Oral history

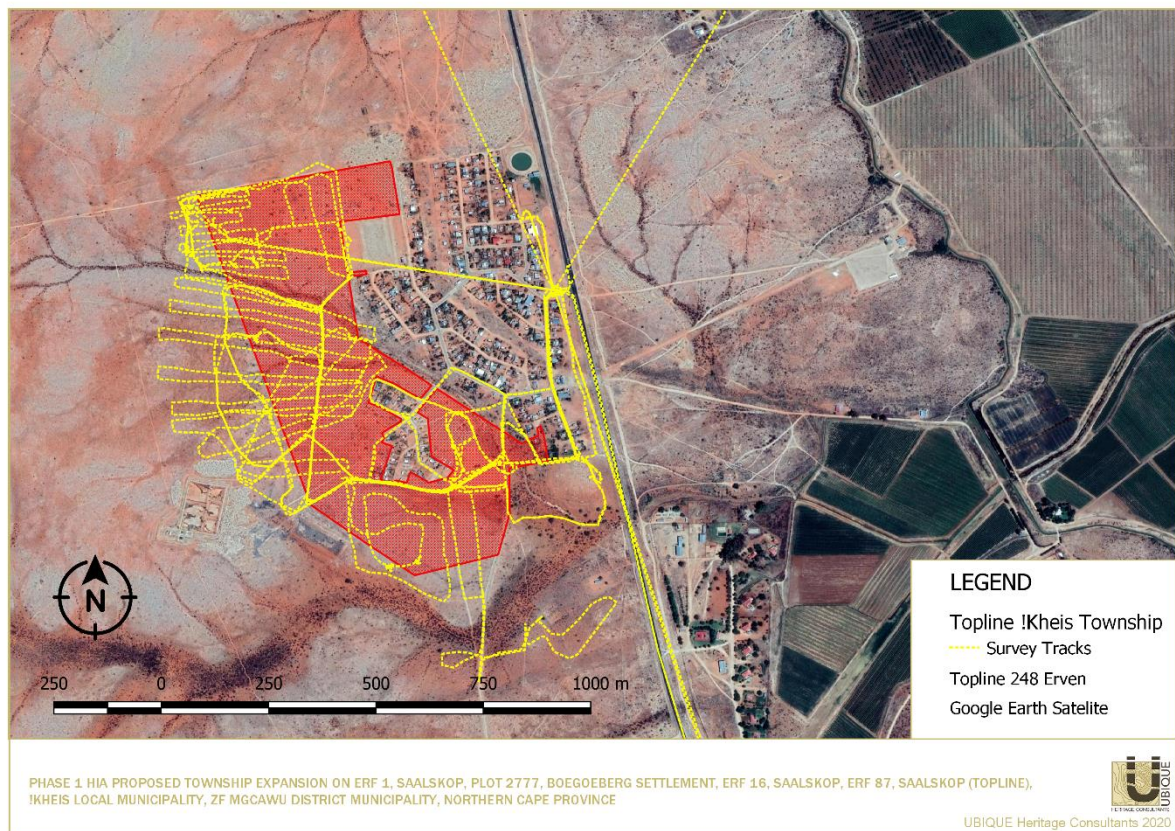
No interviews with locals were conducted regarding the history of the area.

## 6. IDENTIFIED RESOURCES AND HERITAGE ASSESSMENT

### 6.1 Surveyed area

The area surveyed for the impact assessment was dictated by the Google Earth map of the development footprints provided by the client.

The pedestrian survey was conducted in predominantly 40-50 m transects. Areas that have been severely disturbed were surveyed in wider transects or only scoped. The survey extended beyond the development footprints to take into consideration the full impact of the development by investigating probable areas on the landscape adjacent to the development footprints that may contain heritage.



**Figure 8** Survey tracks across the development footprint.

## 6.2 Identified heritage resources

### HERITAGE RESOURCES RECORDING

#### Stone Age Resources Identified

Point ID & Site Name	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
WP 022 TPL002 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 07.5" S 21° 50' 10.0" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 023 TPL003 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 07.7" S 21° 50' 12.1" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 024 TPL004 Boegoeberg Settlement RE/48/2681	Type lithic/s	ESA/ MSA	28° 45' 33.3" S 21° 50' 23.2" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 025 TPL005 Boegoeberg Settlement RE/48/2681	Type lithic/s	ESA/ MSA	28° 45' 33.0" S 21° 50' 25.7" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 026 TPL006 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 05.3" S 21° 50' 09.6" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 027 TPL007 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 04.1" S 21° 50' 08.2" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 028 TPL008 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 02.4" S 21° 50' 06.2" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 029 TPL009 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 06.0" S 21° 50' 05.9" E	Field Rating IV C
	Raw material			Low significance
	N in m².			No mitigation
	Context			
	Additional			
WP 030 TPL010 Boegoeberg Settlement RE/48/1	Type lithic/s	ESA/ MSA	28° 45' 21.4" S 21° 50' 10.3" E	Field Rating IV C
	Raw material			Low significance
	N in m².			
	Context			

	Additional				No mitigation
WP 031 TPL011 Boegoeberg Settlement RE/48/1	Type lithic/s	Core, chunks and scrapers	ESA/ MSA	28° 45' 13.8" S 21° 50' 12.0" E	Field Rating IV C
	Raw material	BIF			Low significance
	N in m².	7/100m²			No mitigation
	Context	Scatter. No context			
	Additional				
WP 032 TPL012 Boegoeberg Settlement RE/48/1	Type lithic/s	Cores, chunks, scraper and flake	ESA/ MSA	28° 45' 16.8" S 21° 50' 08.5" E	Field Rating IV C
	Raw material	BIF			Low significance
	N in m².	6/200m²			No mitigation
	Context	Scatter. No context			
	Additional				

## Graves Identified

Point ID & Site Name	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
WP 021 TPL001 Boegoeberg Settlement RE/48	Grave markers	1960's to current	28° 45' 25.7" S 21° 50' 40.6" E	Field Rating of Local Grade IIIB High/medium significance
	Inscription			Mitigation Required: fencing
	Graves' Orientation			
	Dimensions/ Extent			
	Additional			

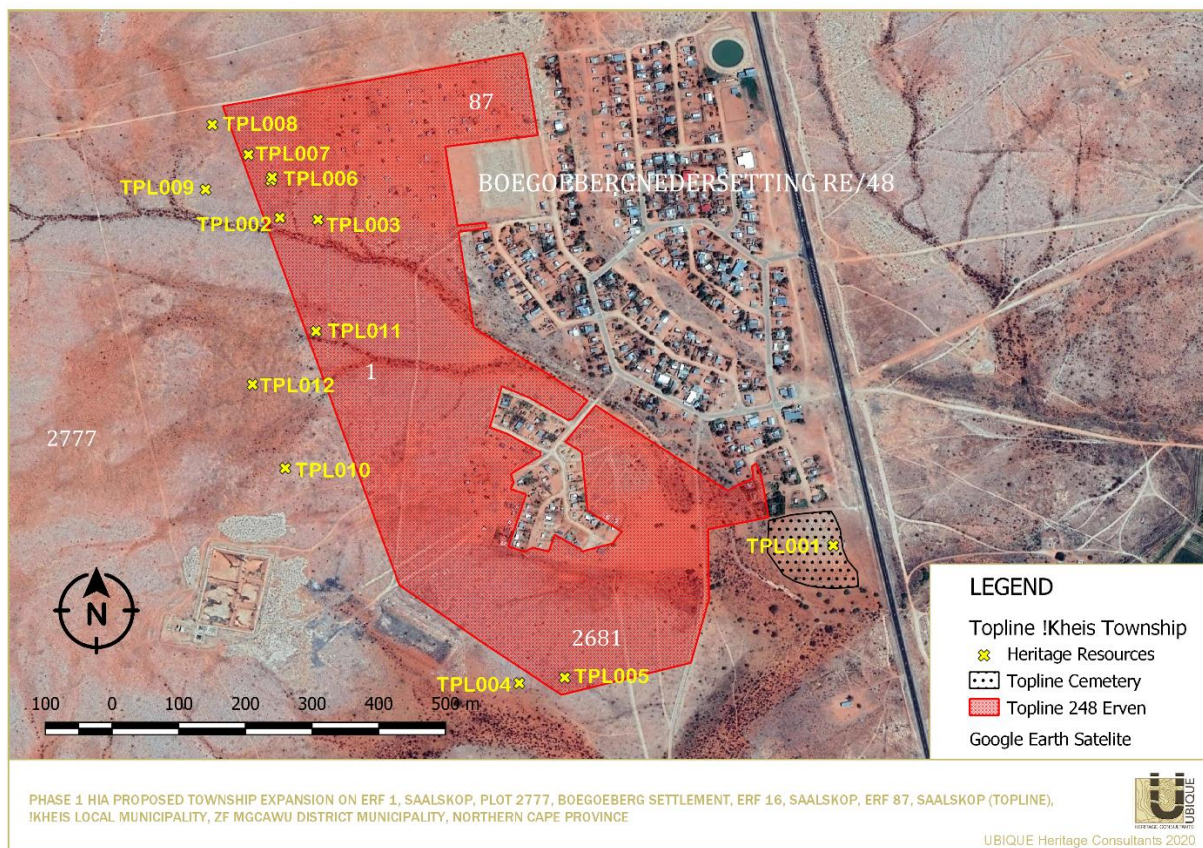


Figure 9 Distribution of identified heritage resources across Topline township, Farm Boegoebergnedersetting No. 48.

## 6.3 Discussion

### 6.3.1 Archaeological features

A total of eleven occurrences of background scatter lithic material was found across the surveyed area. Nine low-density scatters were recorded across Erf 1 (TPL002-003, TPL006- 012), and two incidences of lithic material were recorded in the southern section of the development footprint (TPL004 & TPL005). The lithic assemblages consist predominantly of informal tools such as knapping debitage like chunks, chips and flakes, with cores, and a few scrapers. The raw material, banded ironstone formation (BIF), is readily available throughout the area. The identified archaeological sample is small, of low significance, and therefore of little scientific value. The cultural material may either be a representation of the transition between ESA and MSA, or a mere mixture of ESA and MSA artefacts. A potential Fauresmith bifacial hand axe, a lithic indicative of the transition between the Earlier and Middle Stone Ages, was recorded at TPL007 (Lotter *et al.* 2016; Underhill 2011; Dr Van der Ryst pers. comm 2020). The found lithic material shows various degrees of weathering and are without substantial archaeological context or matrix, and are therefore deemed of minor scientific importance, and not conservation worthy (NCW).

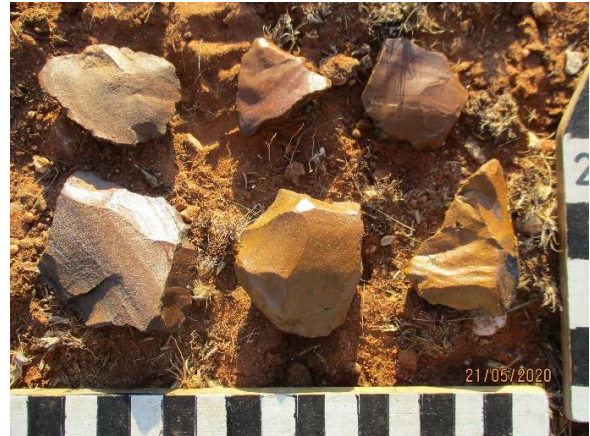
**These sites are given a ‘General’ Protection C (Field Rating IV C). This means these sites have been sufficiently recorded (in Phase 1). It requires no further action.**

### 6.3.2 Graves

The formal Topline cemetery is situated to the southeast of the development footprint. No other graves were found within the study area.

**These sites are given a ‘Local Grade IIIB’ rating. This means the graves should be included in the heritage register and may be mitigated (high/ medium significance).**







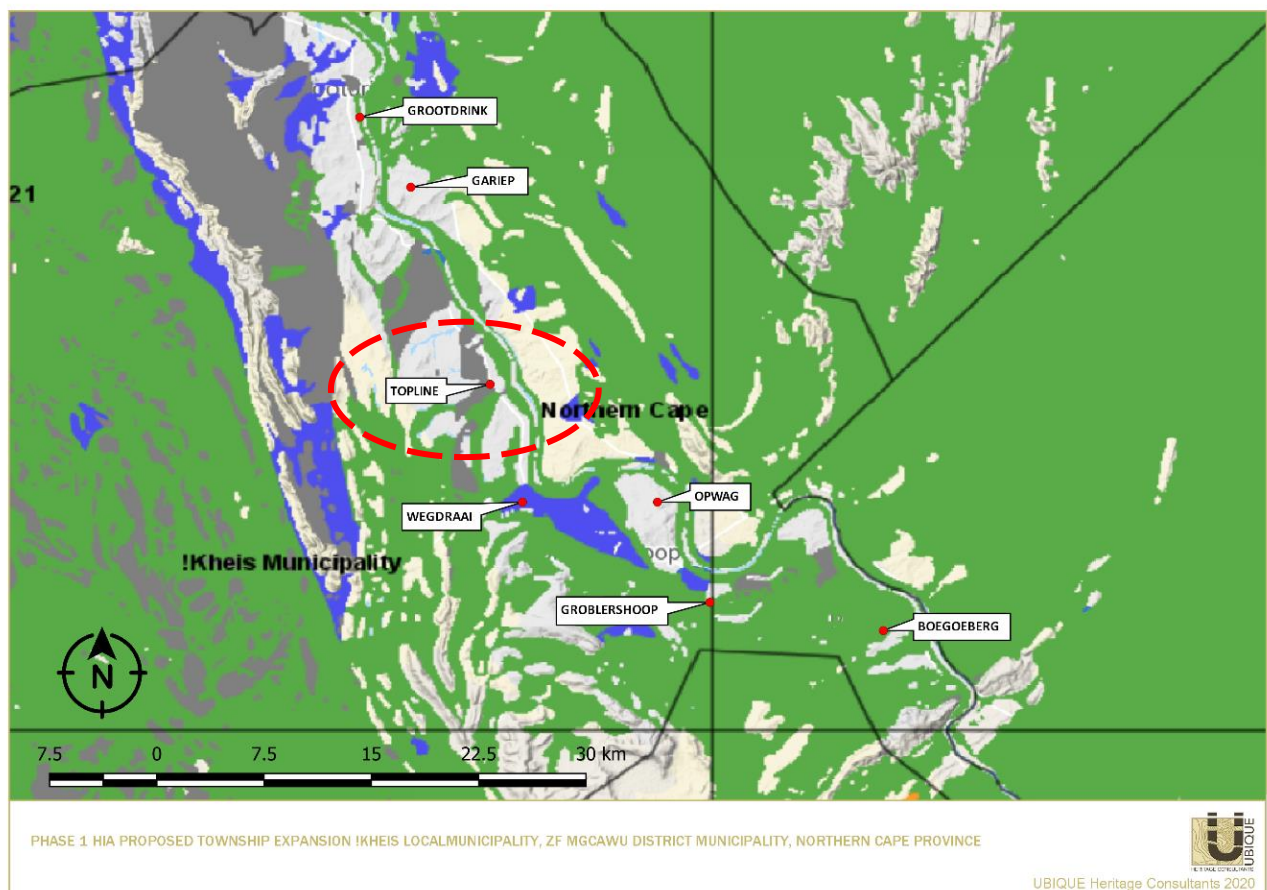
**Figure 10** Photographic selection of archaeological material recorded.



**Figure 11** Selection of photographs of the Topline town cemetery.

### 6.3.3 Palaeontological resources

The Topline (Saalskop) study area is underlain by sediments of Kalkwerf Gneiss which in places intrude into the Groblershoop Formation (Brulpan Group). Underlying these rocks are Precambrian Transvaal Supergroup deposits. According to the SAHRIS PalaeoMap, the Palaeontological Sensitivity of the Kalkwerf Gneiss is insignificant as these rocks are igneous in origin or too highly metamorphosed (Almond & Pether 2008) to contain fossils. The cherts, dolomites and iron formations of the underlying Transvaal Supergroup are too deep to affect the proposed development. The Kalkwerf Gneiss consists of biotite, epidote, garnet, strained quartz, perthite augen with some granophyric intergrowth muscovite. The proposed development is not fossiliferous and will not lead to detrimental impacts on palaeontological resources (Butler 2020). Elize Butler from Banzai Environmental, therefore, recommends an exemption from further palaeontological studies for this project (see Appendix 1).



**Figure 12** SAHRIS PalaeoSensitivity Map, indicating Moderate (green), Low (blue), Insignificant/Zero (grey), and Unknown (clear) palaeontological significance in the study area (<https://sahris.sahra.org.za/map/palaeo>).

## 7. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

Description	Development Impact		Mitigation	Field rating/ Significance
Archaeological				
1. The eleven occurrences of ESA/MSA surface scatters across the development footprint.	Nature	Negative	No mitigation required.	Field Rating IV C Low significance
	Extent	Low		
	Duration	High		
	Intensity	High		
	Potential of impact on irreplaceable resource	High		
	Consequence	High		
	Probability of impact	High		
	Significance	High		
Graves				
2. The formal Topline cemetery.	Nature	Neutral	No mitigation required.	Field Rating of Local Grade IIIB  (high significance)
	Extent	Low		
	Duration	Low		
	Intensity	High		
	Potential of impact on irreplaceable resource	Low		
	Consequence	Low		
	Probability of impact	Low		
	Significance	Low		
Paleontological				
3. The Palaeontological Sensitivity of the Groblershoop Formation (Brulpan Group) and the Kalkwerf Gneiss is insignificant, and the underlying Precambrian Transvaal Supergroup deposits are moderate.	Nature	Neutral	No mitigation required.	N/A
	Extent	Low		
	Duration	High		
	Intensity	Low		
	Potential of impact on irreplaceable resource	Low		
	Consequence	Low		
	Probability of impact	Low		
	Significance	Low		

The impact of the development will have a negative impact on the identified heritage resources on Erf 1, and Plot 2681, Topline township, Boegoebergnedersetting RE/48. The lithic material is without any substantial archaeological context and deemed not conservation worthy. The negative impact is, therefore, negligible. The burial ground is well outside the development footprint and should not be affected by the proposed project. The probability of the development impacting on palaeontological heritage during the construction phase is regarded as minimal to zero, and the significance of the impact occurring, low.

## 8. RECOMMENDATIONS

Based on the assessment of the potential impact of the development on the identified heritage, the following recommendations are made, taking into consideration any existing or potential sustainable social and economic benefits:

1. No significant heritage sites or features were identified within the surveyed sections of Topline township, on Erven 1, 16, 87, Saalskop (Topline) and Plot 2777, Boegoeberg Settlement (Kenhardt), Farm Boegoebergnedersetting RE/48. The Early/Middle Stone Age cultural material identified is not conservation worthy. No further mitigation is recommended with regards to these resources. Therefore, from a heritage point of view, we recommend that the proposed development can continue.
2. The Topline cemetery is situated well outside the development footprint. This site is graded as IIIB and is of High Local Significance. No further mitigation is recommended with regards to these resources. No graves were identified within the development footprint.
3. Due to the zero to low palaeontological significance of the area, no further palaeontological heritage studies, ground-truthing and/or specialist mitigation are required. It is considered that the development of the proposed development is deemed appropriate and feasible and will not lead to detrimental impacts on the palaeontological resources of the area. It is therefore recommended that the project be exempt from a full Paleontological Impact Assessment (Butler 2020).
4. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or costs incurred as a result of such oversights.

## 9. CONCLUSION

This HIA has identified no significant heritage resources that will be impacted negatively by the proposed development. The proposed expansion of the Toplevel township, on Erven 1, 16, 87, Saalskop (Toplevel) and Plot 2777, Boegoeberg Settlement (Kenhardt), Farm Boegoebergnederstelling RE/48 in the !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape, may continue.

## 10. BIBLIOGRAPHY

- ACRM 2016b. Archaeological Impact Assessment Proposed cultivation of vineyards on the Farm Bethesda 238/38 & 335/38 Louisevale, Upington Northern Cape. Unpublished report: Rondebosch.
- ACRM. 2016a. Archaeological Impact Assessment Proposed industrial development on Erf 755 Olyvenhoutsdrift, near Upington Northern Cape. Unpublished report. Rondebosch.
- Almond, J.E. & Pether, J. 2008. Palaeontological heritage of the Northern Cape. Interim SAHRA technical report, 124 pp. Natura Viva cc: Cape Town.
- Beaumont, P. 2004. Kathu Pan and Kathu Townlands/ Uitkoms. In Morris, D. and Beaumont, P. *Archaeology in the Northern Cape: some key sites*: 50-53. McGregor Museum: Kimberley.
- Beaumont, P. 2006. *Phase 1 Heritage Impact Assessment report on a Planned Extension of the Karos Township, Siyanda District Municipality, Northern Cape Province*. Unpublished report. McGregor Museum: Kimberley.
- Beaumont, P. 2007. *Phase 1 Heritage Impact Assessment Report on the Farm Eureka 200 near Kimberley, Frances Baard District Municipality, Northern Cape Province*. Unpublished report. McGregor Museum: Kimberley.
- Beaumont, P.B. & Morris, D. 1990. *Guide to archaeological sites in the Northern Cape*. McGregor Museum: Kimberley.
- Beaumont, P.B. & Vogel, J.C. 2006. On a timescale for the past million years of human history in central South Africa. *South African Journal of Science* 102: 217-228.
- Beaumont, P.B. 2006a. Phase 1 Heritage Impact Assessment Report on a Planned Residential Development Flanking Dakota Drive in Upington, //Khara Hais Municipality, Northern Cape Province. McGregor Museum: Kimberley.
- Beaumont, P.B. 2006b. Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Louisvleweg Township, //Khara Hais Municipality, Northern Cape Province. McGregor Museum: Kimberley.
- Beaumont, P.B. 2006c. Phase 1 Heritage Impact Assessment Report on a Planned Extension Flanking Rondonstraat, //Khara Hais Municipality, Northern Cape Province. An unpublished report. McGregor Museum: Kimberley.
- Beaumont, P.B. 2008. *Phase I Archaeological Impact Assessment Report on a Portion of the Farm 292 near Groblershoop, Karoo district Municipality, Northern Cape*. Unpublished report. Upington.
- Beaumont, P.B. 2013. Phase 2 Archaeological Permit Mitigation Report on a 0.7ha Portion of the farm Bestwood 549, situated on the eastern outskirts of Kathu, John Taolo Gaetsewe District Municipality, Northern Cape Province. Unpublished report. Dennesig.
- Beaumont, P.B., Smith, A.B. & Vogel, J.C. 1995. Before the Einiqua: the archaeology of the frontier zone. In Smith, A.B. (Ed.). *Einiqualand: Studies of the Orange River frontier*. University of Cape Town Press: Cape Town.
- Binneman, J. F. 1995. *Symbolic construction of communities during the Holocene Later Stone Age in the South-Eastern Cape*. Unpublished PhD thesis. Johannesburg: University of the Witwatersrand.
- Breutz, P.L. 1953. The tribes of the Rustenburg and Pilanesberg districts. Department of Native Affairs, *Ethnological Publications* No.28. Government Printer: Pretoria.
- Breutz, P.L. 1954. The tribes of Marico District. Department of Native Affairs, *Ethnological Publications* No. 30. Government Printer: Pretoria.

- Breutz, P.L. 1963. The tribes of the districts of Kuruman and Postmasburg. Department of Native Affairs, *Ethnological Publications* No. 49. Government Printer: Pretoria.
- Butler, E. 2020. Palaeontological Exemption Letter For The Proposed Topline Township Expansion, !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Unpublished report. Banzai Environmental: Bloemfontein.
- Coertze, P.J. & Coertze, R.D. 1996. *Verklarende vak woordeboek vir Antropologie en Argeologie*. R.D. Coertze: Pretoria.
- De Bruyn, C. 2019. *Heritage Impact Assessment for the proposed mining rights on the farm Waterkloof 95 located between Griekwastad and Groblershoop in The Pixley Ka Seme District Municipality within the Northern Cape Province*. Unpublished report. NGT. Johannesburg, Northcliff.
- De Jong, R.C. & Van Schalkwyk, J. 2010. Archaeological impact survey report for The Land Use Change On Sections Of The Farm Vaalkoppies 40, Gordonia District, Northern Cape Province. Unpublished report. Cultmatrix: Pretoria.
- De Jong, R.C. 2010. *Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay registration division, Northern Cape*. Unpublished report. Cultmatrix: Pretoria.
- Deacon, H.J. & Deacon, J. 1999. *Human Beginnings in South Africa: Uncovering the secrets of the Stone Age*. David Phillips Publishers: Cape Town.
- Deacon, H.J. & Deacon, J. 1999. *Human Beginnings in South Africa: Uncovering the secrets of the Stone Age*. David Phillips Publishers: Cape Town.
- Dreyer, C. 2015. *First Phase Archaeological & Heritage Assessment Of The Proposed Bokpoort li 300mw Combined 2 X 75 Pv & 150 Mw Csp Tower Solar Development On The Remainder Of The Farm Bokpoort 390, Groblershoop, Northern Cape Province*. Unpublished report.
- Dreyer, J. 2006. First phase archaeological and cultural heritage assessment of the proposed Concentrated Solar Thermal Plant (CSP) at the farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape. Unpublished EIA report. Bohlweki Consultants: Johannesburg.
- Dreyer, J. 2006. *First phase archaeological and cultural heritage assessment of the proposed Concentrated Solar Thermal Plant (CSP) at the farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape*. Unpublished EIA report. Bohlweki Consultants: Johannesburg.
- Dreyer, J. 2006. *First phase archaeological and cultural heritage assessment of the proposed Concentrated Solar Thermal Plant (CSP) at the farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape*. Unpublished EIA report. Bohlweki Consultants: Johannesburg.
- Dreyer, J. 2008. *First phase archaeological and cultural heritage assessment of the proposed residential developments at a portion of the remainder of the farm Bestwood 459RD, Kathu, Northern Cape*. Unpublished report. EIA Report for Cultmatrix cc (Heritage Consultants) Pretoria and Rock Environmental Consulting, Pretoria.
- Dreyer, J. 2008. *First phase archaeological and cultural heritage assessment of the proposed Bourke Project, ballast site and crushing plant at Bruce Mine, Dingleton, near Kathu, Northern Cape*. Unpublished report. EIA Report for MILNEX 189 cc, Schweizer Reneke.
- Dreyer, J. 2012. *First phase archaeological and cultural heritage assessment of the proposed water pipeline from Sanddraai 391 to Bokpoort 390, Groblershoop, Northern Cape*. Unpublished EIA Report. SSI Engineers & Environmental 14 Consultants: Sandhurst.
- Dreyer, J. 2012. *First phase archaeological and cultural heritage assessment of the proposed water pipeline from Sanddraai 391 to Bokpoort 390, Groblershoop, Northern Cape*. Unpublished EIA Report. SSI Engineers & Environmental 14 Consultants: Sandhurst.

- Dreyer, J. 2013 (Revised). *First phase archaeological & heritage assessment of the proposed Garona – Ferrum transmission line, Northern Cape*. Unpublished report. EIA Report for Envirolution Consultants, Johannesburg.
- Dreyer, J. 2013. 2013. *First Phase Archaeological and Heritage Assessment of the housing developments at Melkstroom 563, Upington, Northern Cape*. Report prepared for MDA Environmental Consultants: Bloemfontein.
- Dreyer, J. 2014. *First phase archaeological & heritage assessment of the proposed Ferrum (Kathu) – Nieuwehoop (Kenhardt) 400kV transmission line, Northern Cape*. Unpublished report. EIA Report for Envirolution Consulting, Mondeor, Johannesburg.
- Dreyer, J. 2014. *First phase archaeological & heritage investigation of the proposed mine prospecting at the remaining extent of the farm Inglesby 580 near Olifantshoek*, Unpublished report.
- Dreyer, J. 2014. *First phase archaeological & heritage investigation of the proposed PV energy developments at the farm Sanddraai 391 near Groblershoop, Northern Cape Province*. Unpublished report. EIA Report for Royal Haskoning DHV, Woodmead, Gallo Manor.
- Eldredge, E.A. 1987. Drought, famine and disease in nineteenth-century Lesotho. *African Economic History*, (16): 61-93.
- Engelbrecht, J. & Fivaz, H. 2019. *Phase 1 HIA report Farm 387 portion 18 Groblershoop Northern Cape. Version 2*. Unpublished report. UBIQUE Heritage Consultants. Roodepoort.
- Gaigher, S. 2012. *Heritage Impact Assessment Report, EIA Phase, Proposed establishment of the Karoshhoek Valley Solar Park components on Sites 1.1, 1.3, 1.4, 2, 3, 4 & 5 on sites located south and east of Upington, Northern Cape Province*. Unpublished report. G&A Heritage. Limpopo.
- Hall, M. 1987. *The changing past: farmers, kings and traders in southern Africa. 200-1860*. Cape Town: David Philip.
- Huffman, T. 2002. Regionality in the Iron Age: the case of the Sotho-Tswana. *Southern African Humanities*, 14: 1–22.
- Huffman, T. 2007. *Handbook to the Iron Age*. Pietermaritzburg: University of Kwazulu-Natal Press
- Kaplan, J. 2008. *Phase 1 Archaeological Impact Assessment proposed construction of a Water Treatment Plant and Supply Pipeline from Keimoes to Kenhardt, Northern Cape Province*. Unpublished report. Agency for Cultural Resource Management: Riebeek West.
- Kaplan, J. 2012. *Archaeological Impact Assessment, the proposed Keren Energy Keimoes Solar Farm on Erf 666 Keimoes, Northern Cape Province*. Unpublished report. Agency for Cultural Resource Management: Rondebosch.
- Kaplan, J. 2013. *Archaeological Impact Assessment, the proposed upgrading of the Louisvale Road Waste Water Treatment Works in Louisvale, Upington, Northern Cape Province*. Unpublished report. Agency for Cultural Resource Management: Rondebosch.
- Kaplan, J. 2013a. *Archaeological Impact Assessment the proposed upgrading of the KWV Upington Effluent Management Facility, Northern Cape Province*. Report prepared for EnviroAfrica cc. ACRM: Cape Town.
- Kaplan, J. 2013b. *Archaeological Impact Assessment proposed upgrading of the Louisevale Road Waste Water Treatment Facility in Upington, Northern Cape Province*. Report prepared for EnviroAfrica. ACRM: Rondebosch.
- Kaplan, J. 2015. *Heritage Impact Assessment, proposed high-speed test track on Portion 6 of No. 419 Steenkampspan near Upington*. Report prepared for Mercedes Benz South Africa. ACRM: Cape Town.
- Kaplan, J. 2016. *Archaeological Impact Assessment proposed cultivation of pecan nut trees including associated infrastructure on the Farm Bethesda 238.38 and 335/38 Louisvale, near Upington, Northern Cape Province*. Report prepared for Pieter Badenhorst Professional Services. ACRM: Cape Town.

- Klein, R. G. 2000. The Earlier Stone Age of Southern Africa. *The South African Archaeological Bulletin*, 27(172): 107-122.
- Korsman, S.A. & Meyer, A. 1999. Die Steentydperk en rotskuns. In: Bergh, J.S. (red.). *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. J.L. van Schaik: Pretoria.
- Kruger, N. 2015. *Archaeological Impact Assessment (AIA) of a Demarcated surface portion on the Farm Avondale 410 for the proposed Avondale 1 Photovoltaic Power Plant & 132kV Power Lines development, //Khara Hais Local Municipality, ZF Mgcau District Municipality, Northern Cape Province*. Unpublished report. Pretoria.
- Kruger, N. 2016. *Archaeological Impact Assessment (Aia) Of Areas Demarcated For The Nceda Special Economic Zone (Sez) Development Project, Upington, Northern Cape Province*. Faerie Glen: Pretoria.
- Kruger, N. 2018. *Archaeological Impact Assessment (AIA) for the Biesieputs Prospecting Project on a portion of the farm Biesieputs 67 in the ZF Mgcau District Municipality, Northern Cape Province*. Unpublished report. Pretoria.
- Legassick, M. 1996. The Will of Abraham and Elizabeth September: The Struggle for Land in Gordonia, 1898-1995. *The Journal of African History*, 37 (3): 371-418.
- Lombard, M. & Parsons, I. 2008. Blade and bladelet function and variability in risk management during the last 2000 Years in the Northern Cape. *South African Archaeological Bulletin* 63: 18-27.
- Lombard, M. 2011. Howieson's Poort. *McGraw Hill Year Book of Science & Technology*. Article ID: YB120253; Sequence Number 14.
- Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age sequence updated. *South African Archaeological Bulletin* 67: 123-144.
- Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age sequence updated. *South African Archaeological Bulletin* 67: 123-144.
- Lotter, M.G., Gibbon, R.J., Kuman, K., Leader, G.M., Forssman, T., & Granger, D.E. 2016. A Geoarchaeological Study of the Middle and Upper Pleistocene Levels at Canteen Kopje, Northern Cape Province, South Africa. *Geoarchaeology: An International Journal* 00 (2016) 1-20.
- Mitchell, P. 2002. *The archaeology of Southern Africa*. Cambridge: Cambridge University Press.
- Mitchell, P. 2002. *The archaeology of Southern Africa*. Cambridge: Cambridge University Press.
- Miilo, T. 2019. *Phase 1 Archaeological Impact Assessment Report for Prospecting right application for various minerals (NC12177PR and NC12215PR) in ZF Mgcau Magisterial District in Kai.! Garib Local Municipality Northern Cape Province*. Unpublished report. Integrated Specialists Services (PTY) LTD: Midrand.
- Morris, A. 1995. The Einiqua: an analysis of the Kakamas skeletons. In: Smith A.B. (ed.) *Einiqualand: studies of the Orange River frontier*: 110-164.
- Morris, D. & Beaumont, P. 2004. *Archaeology in the Northern Cape: Some key sites*. SA3 Post-Conference Excursion, 8-10 April 2004. McGregor Museum: Kimberley.
- Morris, D. & Beaumont, P. 2004. *Archaeology in the Northern Cape: Some key sites*. SA3 Post-Conference Excursion, 8-10 April 2004. McGregor Museum: Kimberley.
- Morris, D. & Beaumont, P.B. 1991. !Nawabdanas: archaeological sites at Renosterkop, Kakamas District, Northern Cape. *South African Archaeological Bulletin* 46:115-124.
- Morris, D. 1988. Engraved in Place and Time: A Review of Variability in the Rock Art of the Northern Cape and Karoo. *The South African Archaeological Bulletin*, 43(148): 109-120.

- Morris, D. 2005. Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevél, west of Postmasburg, Northern Cape. Unpublished report. McGregor Museum: Kimberley.
- Morris, D. 2010. Upington Solar Thermal Plant: Archaeology: Specialist input for the Environmental Impact Assessment Phase and Environmental Management Plan for the proposed Upington Solar Thermal Plant, Northern Cape Province. Report prepared for Savannah Environmental. McGregor Museum: Kimberley.
- Morris, D. 2012. *Archaeological Impact Assessment, Phase I: 15km Water Pipeline across farms Sanddraai 391 and Bokpoort 390 near Groblershoop, Northern Cape*. Unpublished Report. McGregor Museum: Kimberley.
- Morris, D. 2013. Proposed development of the Upington Solar Thermal Plants Two and Three within Portion 3 of the Farm McTaggart's Camp 435, west of Upington, Northern Cape: Scoping phase heritage input. Report prepared for Savannah Environmental. McGregor Museum: Kimberley.
- Morris, D. 2013. *RE Capital 3 Solar Development on the property Dyason's Klip west of Upington, Northern Cape: Scoping phase Heritage Input*. Unpublished report. McGregor Museum: Kimberley.
- Morris, D. 2013. *RE Capital 3 Solar Development on the property Dyason's Klip west of Upington, Northern Cape: Archaeological Impact Assessment – proposed 'central' development footprint*. Unpublished report. McGregor Museum: Kimberley.
- Morris, D. 2014. Proposed development of the Upington Solar Thermal Plant Three within Portion 3 of the Farm McTaggart's Camp 435 west of Upington, Northern Cape. Archaeological Impact Assessment. Savannah Environmental. McGregor Museum: Kimberley.
- Morris, D. 2014. *Proposed Kheis Solar Park Phases 1-3 on Portions 7 and 9 of the Farm Namakwari 656, east of Grootdrink in Northern Cape: Heritage Impact Assessment*. Unpublished report. McGregor Museum: Kimberley.
- Morris, D. 2014. *Proposed Kheis Solar Park Phase 1-3 on Portions 7 and 9 of the Farm Namakwari 656, east of Grootdrink in Northern Cape: Heritage Impact Assessment*. Unpublished report. McGregor Museum: Kimberley.
- Morris, D. 2018. *Heritage Impact Assessment at the site of proposed irrigation development on the farm Openwater near Upington, Northern Cape*. Unpublished report. McGregor Museum, Kimberley.
- Morris, D. 2018. Heritage Impact Assessment of proposed sand mining in the bed of a spruit on Olywenhoutsdrift-Suid, near Louisvale, Northern Cape. McGregor Museum: Kimberley.
- Morris, D. 2018. *Heritage Impact Assessment of proposed sand mining in the bed of the Donkerhoekspruit on Jannelsepan, near Louisvale, Northern Cape*. Unpublished report. McGregor Museum: Kimberley.
- Mucina, L. & Rutherford, M.C. (eds) 2006. *The vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. SANBI: Pretoria.
- Nilssen, P. 2012. Phase 1a Archaeological Impact Assessment, the proposed building and operation of a bulk water supply line near Upington on Remaining Extent of the Farm Vaalkoppies No. 40 //Khara Hais Municipality. Report prepared for Irme Van Zyl Environmental Consultants. Klein Brak River.
- Orton, J. & Webley, L. 2013. Heritage Impact Assessment for a proposed Hydro-Electric facility near Riemvasmaak, Northern Cape. Unpublished report. ACO Associates cc: St James.
- Orton, J. & Webley, L. 2013. *Heritage Impact Assessment for the Proposed Namies Wind Energy Facility near Aggeneys, Northern Cape*. Unpublished report. ACO Associates cc: Cape Town.
- Orton, J. 2015. *Final Archaeological Survey for the proposed Aggeneys Solar Energy facility, Namakwaland Magisterial District, Northern Cape*. Unpublished Report. ASHA Consulting: Cape Town.
- Orton, J. 2015. Heritage Impact Assessment For The Proposed Cultivation Of New Lands At Upington, Gordonia Magisterial District, Northern Cape. Muizenberg: ASHA Consulting (Pty) Ltd.

- Orton, J. 2015. *Heritage Impact Assessment for the Proposed Cultivation of New Lands at Klein Pella, Namakwaland Magisterial District, Western Cape*. Unpublished report. ASHA Consulting: Cape Town.
- Orton, J. & Webley, L. 2013. *Heritage Impact Assessment for the Proposed Boegoeberg Hydropower Station near Groblershoop, Northern Cape*. Unpublished report. ACO Associates cc: Cape Town.
- Pelser, A.J. & Lombard, M. 2013. A report on the archaeological investigation of Stone Age finds on the Paling 434, Hay Magisterial District, near Postmasburg in the Northern Cape Province. Unpublished EIA Report. Kia Batla Holdings: Craighall.
- Pelser, A.J. 2012. *A report on a Heritage Impact Assessment (HIA) for the Proposed Photo-Voltaic Solar Power Generation Plant on Konkoonies 91, Pofadder District, Northern Cape*. Unpublished report. Archaetnos, Groenkloof.
- Penn, N. 2005. *The Forgotten Frontier: Colonist and Khoisan on the Cape's Northern Frontier in the 18th Century*. Athens. Ohio University Press and Double Storey Books: Ohio and Cape Town.
- PGS Heritage. 2010b. Heritage Impact Assessment for the Proposed Lehating Mining (Pty) Ltd underground manganese mine on Portions of the Farm Lehating 714, approximately 20km northwest of Hotazel, Northern Cape Province. Pretoria.
- Porat, N., Chazan, M., Grun, Aubert, R., Eisenmann, V. & Horwitz, L. 2010. New radiometric ages for the Fauresmith industry from Kathu Pan, southern Africa: Implications for the Earlier to Middle Stone Age transition. *Journal of Archaeological Science* 37: 269-283.
- Ross, R. 1975. The!Kora Wars on the Orange River, 1830-1880. *The Journal of African History*, 16 (4): 561-576.
- Rossouw, L. 2013. *Phase 1 Heritage Impact Assessment of a proposed new road at Blaauwskop near Uppington, NC Province*. Unpublished report. Langenhovenpark.
- Rudner, J. 1971. Ostrich Egg-Shell Flasks and Soapstone Objects from the Gordonia District, North-Western Cape. *The South African Archaeological Bulletin*, 26 (103/104): 139-142.
- Snyman, P.H.R. 2000. *Changing tides. The story of ASSMANG*. The Associated Manganese Mines of South Africa Limited: Johannesburg.
- Thackeray, A.I., Thackeray, J.F. & Beaumont, P.B. 1983. Excavations at the Blinkklipkop specularite mine near Postmasburg, Northern Cape, *South African Archaeological Bulletin* 38:17-25.
- Underhill, D. 2011. The Study of the Fauresmith: A Review. *South African Archaeological Bulletin* 66 (193): 15-26.
- Van der Ryst, M.M. & Meyer, A. 1999. *Die Ystertydperk. Bergh, J.S. (red.). Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. Pretoria: J.L. van Schaik.
- Van der Walt, J. & Lombard, M. 2018. Kite-like structures in the Nama Karoo of South Africa. *Antiquity* (92) 363,e3: 1-6
- Van der Walt, J. 2015. *Heritage Scoping Report for the Additional CSP facilities associated with Authorise CSP sites (1.3, 1.4, 4 & 5), Northern Cape Province*. Unpublished report. Modimolle.
- Van der Walt, J. 2016 revised. *Archaeological Scoping Report for the Ilanga CSP 9 Facility and associated infrastructure within the Karoshoek Solar Valley Development near Uppington Northern Cape Province*. Unpublished report. Modimolle.
- Van der Walt, J. 2016. *Archaeological Impact Assessment report for Proposed establishment of the Ilanga CSP 9 facility, near Uppington, Northern Cape Province*. Unpublished report. Modimolle.
- Van Ryneveld, K. 2007. *Archaeological Impact Assessment Phase 1: Portion of the farm Bokspuits 118, Groblershoop district, Northern Cape South Africa*. Unpublished report.

- Van Ryneveld, K. 2017. *Phase 1 Archaeological & Cultural Heritage Impact Assessment Koa Valley Prospecting Right Application (without Bulk Sampling), Portions of the Farms Haramoep 53, Oonab-Noord 609, Amam 46 and Nooisabes 51, near Springbok / Aggeneys, Namakwa District Municipality, Northern Cape*. Unpublished report. ArchaeoMaps: Eastern Cape.
- Van Ryneveld, K. 2017. *Phase 1 Archaeological & Cultural Heritage Impact Assessment Prospecting Right Application (without Bulk Sampling), farm Aroams 57 Portion 1, near Aggeneys, Namakwa District Municipality, Northern Cape*. Unpublished report. ArchaeoMaps: Eastern Cape.
- Van Schalkwyk, J. 2013. *Cultural Heritage Impact Assessment for the proposed township development on a section of the farm Neilers Draft 34, Lennertsville, Kai !Garib Municipality, Northern Cape Province*. Unpublished report. Pretoria.
- Van Schalkwyk, J. 2014b. *Cultural Heritage Impact Assessment for the proposed township development, Louisevaleweg, Upington, //Khara Hais Municipality, Northern Cape*. Report prepared for MEG Environmental Consultants. J Van Schalkwyk Heritage Consultant. Pretoria.
- Van Schalkwyk, J. 2014c. *Cultural heritage impact assessment for The Proposed Township Development, Dakotaweg, Upington, //Khara Hais Municipality, Northern Cape Province*
- Van Schalkwyk, J. A. 2019. *Phase 1 Cultural Heritage Impact Assessment: Prospecting right application with bulk sampling on various portions of the Farms Zonderhuis 402, Onder Plaats 401 and Namakwari 656, Siyanda District Municipality, Northern Cape Province*. Unpublished report. Pretoria.
- Van Schalkwyk, J. A. 2020. *Phase 1 Cultural Heritage Impact Assessment: The Proposed Bokpoort II PV Solar Power Facilities on the farm Bokpoort 390 near Groblershoop, !Kheis Local Municipality, Northern Cape Province*. Unpublished report. Pretoria.
- Van Schalkwyk, J.A. 2010a. *Archaeological impact survey report for the land-use change on sections of the farm Vaalkoppies 40, Gordonia district, Northern Cape Province*. Unpublished report 2010/JvS/069.
- Van Schalkwyk, J. 2014a. *Cultural Heritage Impact Assessment for the proposed Township Development, Paballelo, Upington, //Khara Hais Municipality, Northern Cape*. Report prepared for MEG Environmental Consultants. J Van Schalkwyk Heritage Consultant. Pretoria
- Van Vollenhoven 2012a. *A report on a cultural heritage baseline study for the proposed exploration activities at the Jacomynspan Project, Northern Cape Province*. Unpublished report. Archaeos: Groenkloof.
- Van Vollenhoven, A.C. 2012b. *A report on a heritage impact assessment for the proposed SASOL CSP and CPV Project near Upington in the Northern Cape Province*. Unpublished report. Archaeos: Groenkloof.
- Van Vollenhoven, A.C. 2014a. *A report on a cultural heritage impact assessment for the proposed exploration activities at the Jacomynspan Project, Northern Cape Province*. Unpublished report. Archaeos: Groenkloof.
- Van Vollenhoven, AC 2014. *A report on a basic heritage assessment for the proposed Eskom Fibre-Groblershoop 132 Kv power line, Northern Cape Province*. Unpublished report. Archaeos: Groenkloof.
- Van Warmelo, N.J. 1935. *A Preliminary Survey of the Bantu Tribes of South Africa*. Department of Native Affairs, *Ethnological Publications* Vol. V. Government Printer: Pretoria.
- Walker, S.J.H., Chazan, M. & Morris, D. 2013. *Kathu Pan: Location and Significance* – A report requested by SAHRA, Cape Town.
- Webley, L & Halkett, D. 2012. *Heritage Impact Assessment: Proposed Kenhardt Photo-Voltaic Solar Power Plant On Remainder Of The Farm Klein Zwart Bast 188, Northern Cape Province*. Unpublished report.
- Webley, L. & Halkett, D. 2014. *Archaeological Impact Assessment: Proposed construction of RE Capital 11 Solar Development on the remainder of the farm Dyason's Klip 454, Northern Cape*. Unpublished report. ACO Associates cc: Cape Town.

- Webley, L. 2013. *Heritage impact assessment for proposed construction of the ESKOM Groblershoop Substation and the Garona-Groblershoop 132 kV powerline, Groblershoop, Northern Cape*. Unpublished report. ACO Associates cc: St James.
- Wilkins, J. 2010. Style, symboling, and interaction in Middle Stone Age societies. *Explorations in Anthropology* 10(1):102–125.
- Wurz, S., 2013. Technological trends in the Middle Stone Age of South Africa between MIS 7 and MIS 3. *Current Anthropology*, 54(S8): S305-S319.

## ACTS

- National Environmental Management Act, 1998 (Act 107 of 1998).
- National Heritage Resources Act, 1999 (Act 25 of 1999).
- SAHRA. 1999. *Government Gazette 1999*. National Heritage Resources Act No. 25 of 1999.
- SAHRA. 2007. *SG 2.2 SAHRA APM Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports*.
- SAHRA. 2008. *Site Management Plans: Guidelines for the Development of Plans for the Management of Heritage Sites or Places*. (see specifically Section 7). ([www.sahra.org.za](http://www.sahra.org.za)).

## WEB

- <http://www.sahra.org.za/sahris>
- <https://www.sahistory.org.za/article/kora>
- <https://csg.esri-southafrica.com/portal/apps/webappviewer>

# APPENDIX A

PALAEONTOLOGICAL EXEMPTION LETTER FOR THE PROPOSED TOPLINE TOWNSHIP EXPANSION, !KHEIS LOCAL MUNICIPALITY, ZF MGCAWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE



**PALAEONTOLOGICAL EXEMPTION LETTER FOR THE PROPOSED TOPLINE TOWNSHIP  
EXPANSION, !KHEIS LOCAL MUNICIPALITY, ZF MGCAWU DISTRICT MUNICIPALITY,  
NORTHERN CAPE PROVINCE**

Reference: NC/21/2018/PP  
(Topline 248) / BH0069

**Issue Date:** 13 June 2020  
**Client:** UBIQUE Heritage Consultants

## **Declaration of Independence**

I, Elize Butler, declare that –

General declaration:

- I act as the independent palaeontological specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting palaeontological impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have no, 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;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected a palaeontological specialist in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

**Disclosure of Vested Interest**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

**PALAEONTOLOGICAL CONSULTANT:**

Banzai Environmental (Pty) Ltd

**CONTACT PERSON:**

Elize Butler

Tel: +27 844478759

Email: elizebutler002@gmail.com

**SIGNATURE:**

A handwritten signature in black ink, appearing to read 'Elize Butler', with a stylized 'B' and 'B'.

## **EXECUTIVE SUMMARY**

Banzai Environmental was commissioned by UBIQUE Heritage Consultants to write a Palaeontological Exemption Letter for the proposed Topline Township Expansion in !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.

The proposed development is underlain by sediments of Kalkwerf Gneiss which in places intrude the Groblershoop Formation (Brulpan Group). Underlying these rocks are rocks of the Precambrian Transvaal Supergroup. According to the PalaeoMap of South African Heritage Resources Information System, the Palaeontological Sensitivity of the Kalkwerf Gneiss is insignificant as these rocks are igneous in origin or too highly metamorphosed (Almond & Pether 2008) to contain fossils. The cherts, dolomites and iron formations of the underlying Transvaal Supergroup are too deep to affect the proposed development. The Kalkwerf Gneiss consists of biotite, epidote, garnet, strained quartz, perthite augen with some granophyric intergrowths muscovite.

**This is a recommended exemption from further Palaeontological studies as the proposed development is unfossiliferous and will not lead to detrimental impacts on the palaeontological resources.**

## TABLE OF CONTENT

<b>1</b>	<b>INTRODUCTION .....</b>	<b>6</b>
<b>2</b>	<b>QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR.....</b>	<b>9</b>
<b>3</b>	<b>LEGISLATION.....</b>	<b>9</b>
3.1	National Heritage Resources Act (25 of 1999)	9
<b>4</b>	<b>GEOLOGICAL AND PALAEOLOGICAL HISTORY .....</b>	<b>10</b>
<b>5</b>	<b>GEOGRAPHICAL LOCATION OF THE SITE .....</b>	<b>12</b>
<b>6</b>	<b>FINDINGS AND RECOMMENDATIONS .....</b>	<b>12</b>
<b>7</b>	<b>REFERENCES .....</b>	<b>13</b>

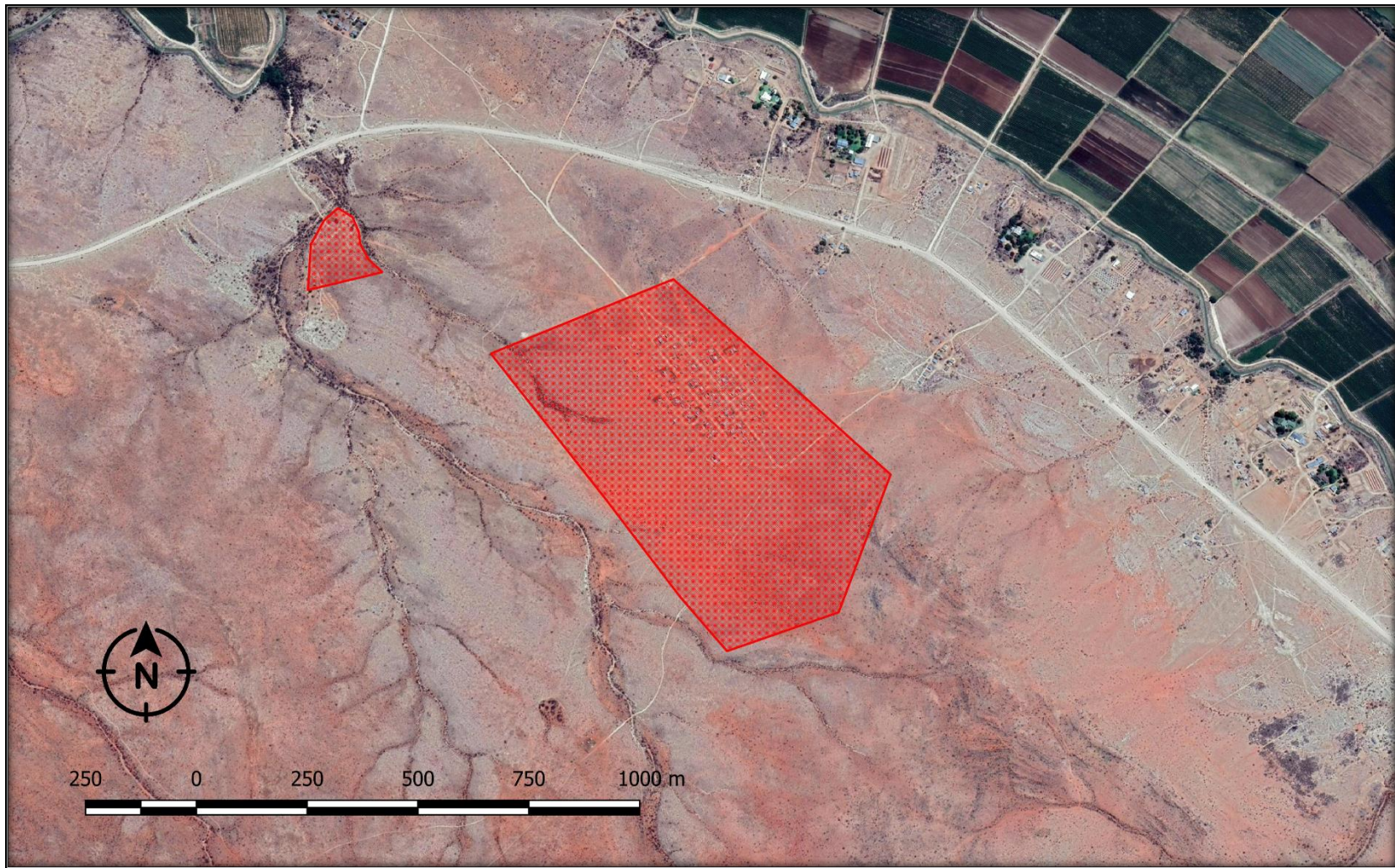
## LIST OF FIGURES

<b>Figure 1:</b>	<i>Google Earth Image of the proposed Toplevel Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Toplevel) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Map modified from Ubique Consultants. ...</i>	<b>7</b>
<b>Figure 2:</b>	<i>Topographical map indicating the locality of the proposed Toplevel Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Toplevel) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Map modified from Ubique Consultants. ....</i>	<b>8</b>
<b>Figure 3:</b>	<i>Extract of the 1:250 000 2820 Upington geological map indicating the surface geology of the proposed Toplevel Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Toplevel) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.....</i>	<b>11</b>

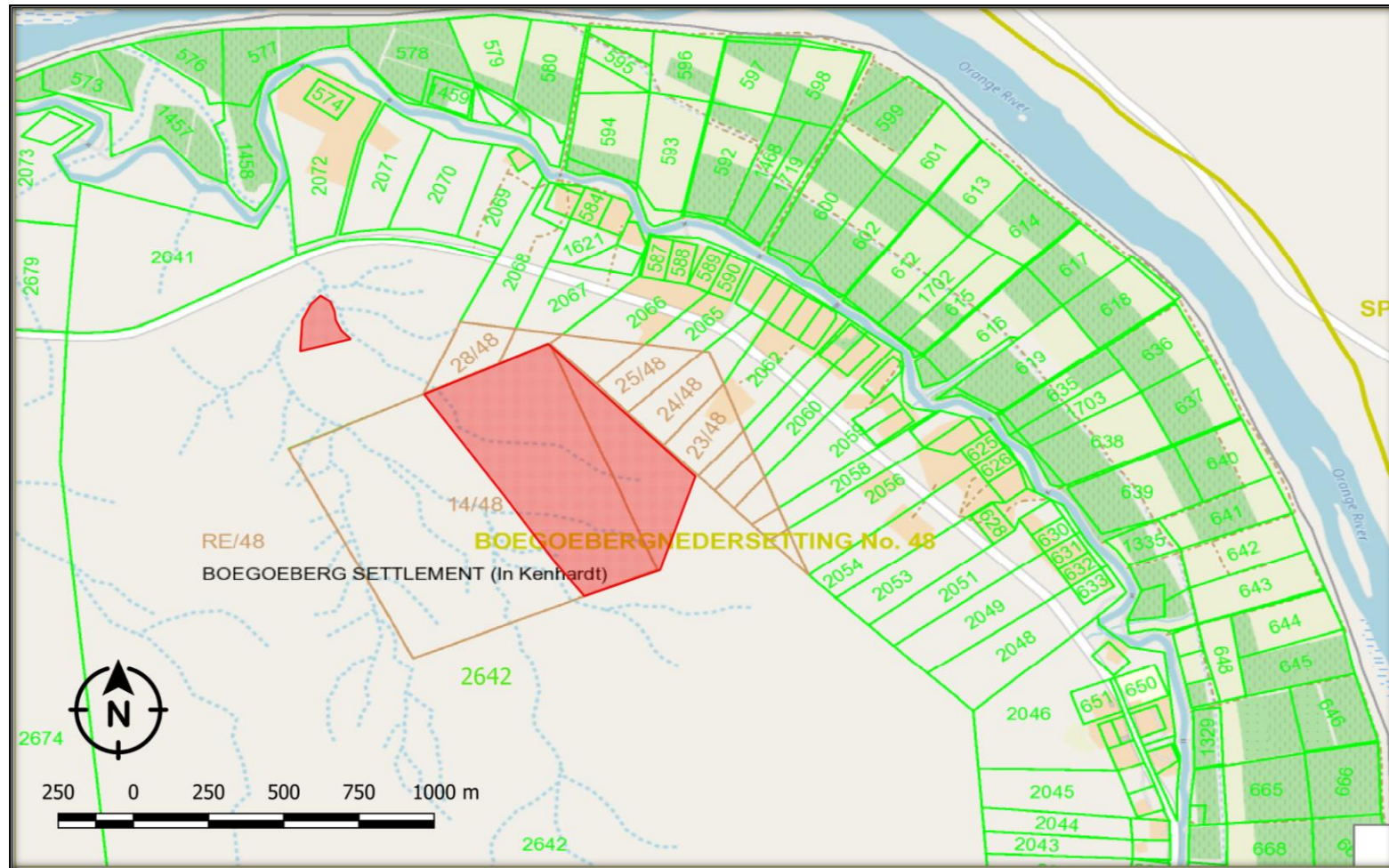
- **INTRODUCTION**

The Barzani Group appointed Macroplan Town and Regional Planners to proceed with the completion of the Town Planning process for the proposed Topline Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Topline) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province (Figure 1-2). UBIQUE Heritage Consultants was appointed to conduct the Heritage Impact Assessment while Banzai Environmental was in turn appointed to conduct the Palaeontological Exemption Letter.

The proposed Topline Township Expansion comprises of the creation of new erven, as well as the formalisation of the existing informal houses that are located around the town. The Topline Township Expansion will accommodate 248 erven on 36 Ha. This project will fill an urgent need for residential erven in the sub-economic market.



**Figure 13:** Google Earth Image of the proposed Topline Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Topline) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Map modified from Ubique Consultants.



**Figure 14:** Topographical map indicating the locality of the proposed Topline Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Topline) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province. Map modified from Ubique Consultants.

- **QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR**

The author (Elize Butler) has an MSc in Palaeontology from the University of the Free State, Bloemfontein, South Africa. She has been working in Palaeontology for more than twenty-four years. She has extensive experience in locating, collecting and curating fossils, including exploration field trips in search of new localities in the Karoo Basin. She has been a member of the Palaeontological Society of South Africa for 12 years. She has been conducting PIAs since 2014.

- **LEGISLATION**

- **National Heritage Resources Act (25 of 1999)**

Cultural Heritage in South Africa, includes all heritage resources, is protected by the National Heritage Resources Act (Act 25 of 1999) (NHRA). Heritage resources as defined in Section 3 of the Act include **“all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens”**.

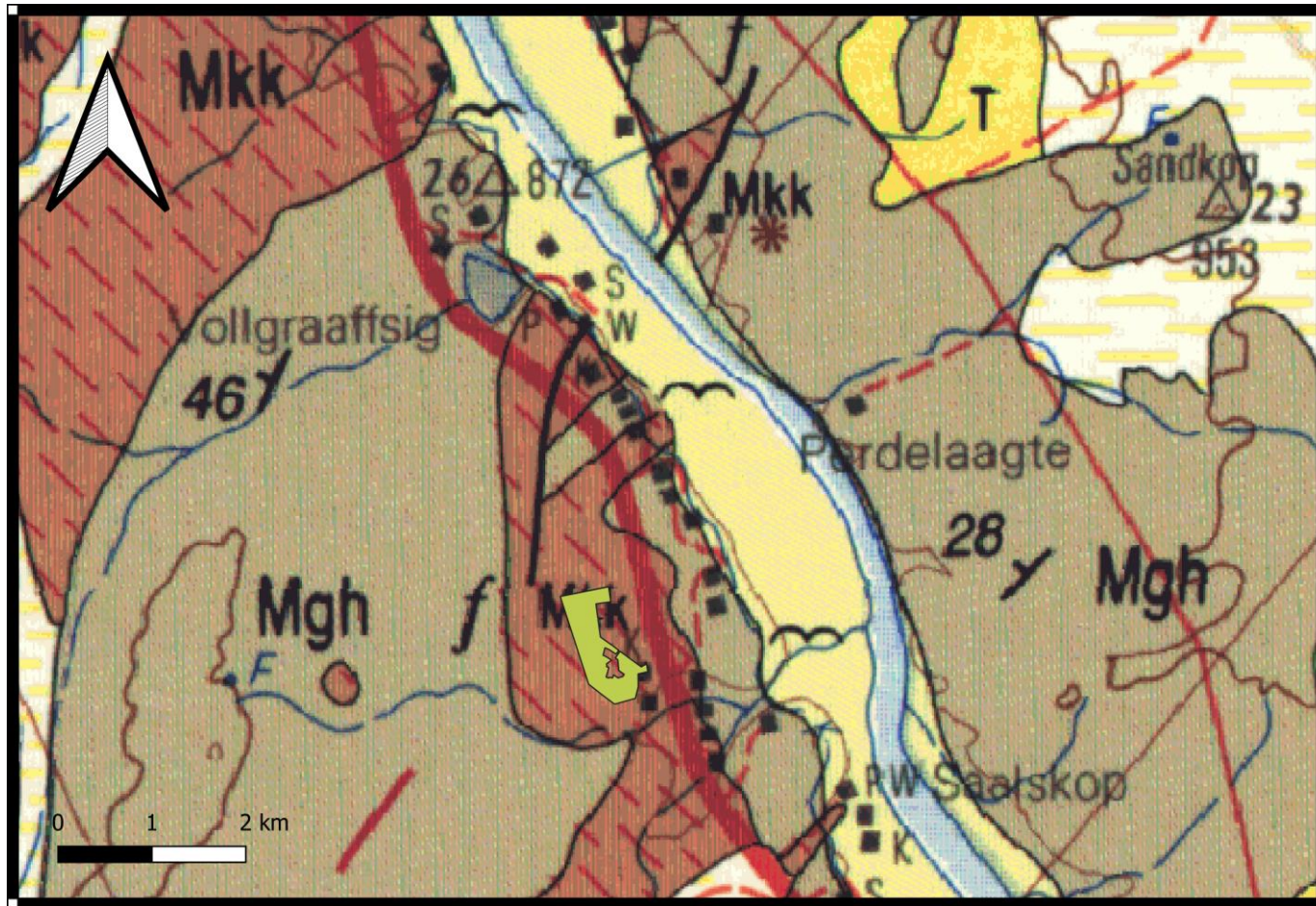
Palaeontological heritage is unique and non-renewable and is protected by the NHRA. Palaeontological resources may not be unearthed, moved, broken or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA.

This Palaeontological Desktop Assessment forms part of the Heritage Impact Assessment (HIA) and adhere to the conditions of the Act. According to **Section 38 (1)**, an HIA is required to assess any potential impacts to palaeontological heritage within the development footprint where:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- the construction of a bridge or similar structure exceeding 50 m in length;
- any development or other activity which will change the character of a site—**  
**(exceeding 5 000 m<sup>2</sup> in extent; or**
  - involving three or more existing erven or subdivisions thereof; or
  - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
  - the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent;
  - or any other category of development provided for in regulations by SAHRA or a Provincial heritage resources authority.

- **GEOLOGICAL AND PALAEONTOLOGICAL HISTORY**

The proposed Topline Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Topline) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province is depicted on the 1:250 000 2820 Upington Geological Map (Council of Geoscience, Pretoria). The proposed development is underlain by sediments of Kalkwerf Gneiss (Mkk) which in places intrude the Groblershoop Formation (Brulpan Group). Underlying these rocks are rocks of the Precambrian Transvaal Supergroup. According to the PalaeoMap of South African Heritage Resources Information System, the Palaeontological Sensitivity of the Kalkwerf Gneiss is insignificant as these rocks are igneous in origin or too highly metamorphosed (Almond & Pether 2008) to contain fossils. The cherts, dolomites and iron formations of the underlying Transvaal Supergroup are too deep to affect the proposed development. The Kalkwerf Gneiss consists of biotite, epidote, garnet, strained quartz, perthite augen with some granophyric intergrowths muscovite.



**Figure 15:** Extract of the 1:250 000 2820 Upington geological map indicating the surface geology of the proposed Topline Township Expansion on Erf 1, Saalskop, Plot 2777, Boegoeberg Settlement, Erf 16, Saalskop, Erf 87, Saalskop (Topline) !Kheis Local Municipality, ZF Mgcawu District Municipality, Northern Cape Province.

**Legend to Map and short explanation.**

Mgh – Groblershoop Formation, Brulpan Group- Quartz-muscovite schist, quartzite, quartz-amphibole schist.

Mkk- Kalkwerf Gneiss

T-Tertiary

• **GEOGRAPHICAL LOCATION OF THE SITE**

The Topline Township Expansion is located about 25 km northwest (western side of the Orange River) of Groblershoop, !Kheis Local Municipality, ZF Mgcawu District Municipality. The town, Topline, is situated along the N10 road between Grootdrink, in a northerly direction and Wegdraai, in a southerly direction.

No.	Town	Total Size of the study area	Total Erven	Property Descriptions	Title Deed Numbers	Coordinates	Ownership
6	Topline	36ha	248	Erf 1, Saalskop (Topline)	T11369/1994	28°45'12.03"S; 21°50'17.13"E	!Kheis Local Municipality
				Plot 2777, Boegoeberg Settlement	T81655/2002	28°45'26.20"S; 21°50'33.54"E	!Kheis Local Municipality
				Erf 16, Saalskop (Topline)	T15487/2001	28°45'17.45"S; 21°50'27.72"E	!Kheis Local Municipality
				Erf 87, Saalskop (Topline)	T22879/1999	28°45'1.34"S; 21°50'21.54"E	!Kheis Local Municipality

• **FINDINGS AND RECOMMENDATIONS**

The proposed development is underlain by sediments of Kalkwerf Gneiss which in places intrude the Groblershoop Formation (Brulpan Group). Underlying these rocks are rocks of the Precambrian Transvaal Supergroup. According to the PalaeoMap of South African Heritage Resources Information System the Palaeontological Sensitivity of the Kalkwerf Gneiss is insignificant as these rocks are igneous in origin or too highly metamorphosed (Almond & Pether 2008) to contain fossils. The cherts, dolomites and iron formations of the underlying Transvaal Supergroup are too deep to affect the proposed development. The Kalkwerf Gneiss consists of biotite, epidote, garnet, strained quartz, perthite augen with some granophyric intergrowths muscovite.

**This is a recommended exemption from further Palaeontological studies as the proposed development is unfossiliferous and will not lead to detrimental impacts on the palaeontological resources.**

- **REFERENCES**

ALMOND, J.E. and PETHER, J. 2009. SAHRA Palaeotechnical Report: Palaeontological Heritage of the Northern Cape Province. South African Heritage Resources Agency, Pp 1-143.

ALMOND, J., PETHER, J, and GROENEWALD, G. 2013. South African National Fossil Sensitivity Map. SAHRA and Council for Geosciences.

CORNELL, D.H., THOMAS, R.J., MOEN, H.F. G., REID, D.L., MOOR, J.M., and GIBSON, R.L. 2006. The Namaqua-Natal Province. In: Johnson, M.R., Anhaeusser, C.R. & Thomas, R.J. (Eds.) The geology of South Africa, pp. 325-279. Geological Society of South Africa, Marshalltown.

KENT, L. E., 1980. Part 1: Lithostratigraphy of the Republic of South Africa, South West Africa/Namibia and the Republics of Bophuthatswana, Transkei, and Venda. SACS, Council for Geosciences, Pp 535-574.

MACRAE, C. 1999. Life etched in stone. Fossils of South Africa. 305 pp. The Geological Society of South Africa, Johannesburg.

MOEN, H.F.G. 1979. Geological Map 2722 of Kuruman 1:250 000. South African Committee for Stratigraphy, Council for Geoscience, Pretoria.

SG 2.2 SAHRA APMHOB Guidelines, 2012. Minimum standards for palaeontological components of Heritage Impact Assessment Reports, Pp 1-15.

VISSER, D.J.L. (ed) 1984. Geological Map of South Africa 1:100 000. South African Committee for Stratigraphy, Council for Geoscience, Pretoria.

VISSER, D.J.L. (ed) 1989. *Toeligting: Geologiese kaart (1:100 000). Die Geologie van die Republieke van Suid Afrika, Transkei, Bophuthatswana, Venda, Ciskei en die Koningkryke van Lesotho en Swaziland.* South African Committee for Stratigraphy. Council for Geoscience, Pretoria, Pp 494.

