

Phase 1 Cultural Heritage Impact Assessment:

**THE PLANNED DEVELOPMENT OF A BORROW PIT ON THE FARM EK KRAAL 199 IN THE KAROO
HOOGLAND LOCAL MUNICIPALITY OF NORTHERN CAPE PROVINCE**

Prepared for:

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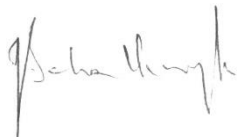
Specialist competency:

Johan A van Schalkwyk, D Litt et Phil, heritage consultant, has been working in the field of heritage management for more than 40 years. Originally based at the National Museum of Cultural History, Pretoria, he has actively done research in the fields of anthropology, archaeology, museology, tourism and impact assessment. This work was done in Limpopo Province, Gauteng, Mpumalanga, North West Province, Eastern Cape Province, Northern Cape Province, Botswana, Zimbabwe, Malawi, Lesotho and Swaziland. Based on this work, he has curated various exhibitions at different museums and has published more than 70 papers, most in scientifically accredited journals. During this period, he has done more than 2000 Phase 1 and Phase 2 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.

Declaration:

I, J A van Schalkwyk, declare that:

- I am suitably qualified and accredited to act as independent specialist in this application.
- I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services, for which a fair numeration is charged.
- The work was conducted in an objective manner and any circumstances that might have compromised this have been reported.



J A van Schalkwyk
Heritage Consultant
June 2018



EXECUTIVE SUMMARY

**Phase 1 Cultural Heritage Impact Assessment:
THE PLANNED DEVELOPMENT OF A BORROW PIT ON THE FARM EK KRAAL 199 IN THE KAROO
HOOGLAND LOCAL MUNICIPALITY OF NORTHERN CAPE PROVINCE**

Concor Infrastructure proposes the development of a borrow pit on the farm Ek Kraal 199 in the Karoo Hoogland Local Municipality of Northern Cape Province. This material is to be used in the construction of a number of wind farms that is to be developed in the region.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *Chameleon Environmental Consultants* to conduct a cultural heritage assessment to determine if the proposed development of the borrow pit would have an impact on any sites, features or objects of cultural heritage significance.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

The cultural landscape qualities of the larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial element (Stone Age) component. The second component is farming landscape dating to the colonial period and is linked to the rural landscape as well as an urban (small towns) landscape.

Authors of previous studies done in the area (inclusive of scoping reports and full HIAs) are all of the opinion that the number of sites identified were not as high as originally anticipated. They argue that this may be related to the fact that the development, specifically of wind turbines, are located on less favourable occupation areas up on the higher ridges. In contrast, most identified sites are located in valleys near water and away from the wind.

Identified sites

- No sites, features or objects of cultural heritage significance were found in either of the two study areas.

Impact assessment and proposed mitigation measures

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

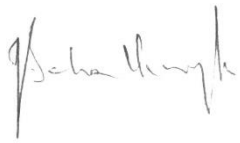
- As no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development.

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the measures proposed below.

Conditions for inclusion in the environmental authorisation:

- Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk
Heritage Consultant
June 2018

TECHNICAL SUMMARY

Project description	
Description	Development of a borrow pit for use in the construction of wind farms
Project name	Concor Borrow Pits

Applicant
Concor Infrastructure

Environmental assessors
Dr J Bothma
Chameleon Environmental Consultants

Property details						
Province	Northern Cape Province					
Magisterial district	Karoo Hoogland					
District municipality	Karoo Hoogland					
Topo-cadastral map	3220DC					
Farm name	Ek Kraal 199					
Closest town	Sutherland					
Coordinates	Centre point (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	-32,88041	20,54257			

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	No
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been consolidated within past five years	No
Rezoning of site exceeding 10 000 sq m	No
Any other development category, public open space, squares, parks, recreation grounds	No

Land use	
Previous land use	Farming
Current land use	Farming

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY.....	II
TECHNICAL SUMMARY	IV
GLOSSARY OF TERMS AND ABBREVIATIONS	VI
1. INTRODUCTION	1
2. LEGISLATIVE FRAMEWORK.....	2
3. HERITAGE RESOURCES.....	3
4. STUDY APPROACH AND METHODOLOGY	4
5. PROJECT DESCRIPTION	8
6. DESCRIPTION OF THE AFFECTED ENVIRONMENT.....	10
7. SURVEY RESULTS	13
8. RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATINGS	14
9. MANAGEMENT AND MITIGATION MEASURES.....	15
10. CONCLUSIONS AND RECOMMENDATIONS	17
11. REFERENCES	19
12. ADDENDUM.....	20
1. Indemnity and terms of use of this report.....	20
2. Assessing the significance of heritage resources and potential impacts	21
3. Mitigation measures	24
4. Relocation of graves.....	26
5. Inventory of identified cultural heritage sites.....	27
6. Additional images	28
7. Curriculum vitae	29

LIST OF FIGURES

	Page
Figure 1. Heritage screening: known heritage sites and features in the larger region – Ek Kraal.....	6
Figure 2. Map indicating the track logs of the field survey: Ek Kraal.	7
Figure 3. Location of the study area in regional context.....	9
Figure 4. Layout of the proposed development – Ek Kraal.	10
Figure 5. Overview of the study area – Ek Kraal.....	11
Figure 6. Military map compiled by the Intelligence Division (1901) – arrow points to Ek Kraal	12
Figure 7. Location of heritage sites in the study area: Ek Kraal.....	14
Figure 8. Ek Kraal Deed of Transfer	28

GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Bioturbation: The burrowing by small mammals, insects and termites that disturb archaeological deposits.

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 in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

Debitage: Stone chips discarded during the manufacture of stone tools.

Factory site: A specialised archaeological site where a specific set of technological activities has taken place – usually used to describe a place where stone tools were made.

Historic Period: Since the arrival of the white settlers - c. AD 1830 - in this part of the country.

Holocene: The most recent time period, which commenced c. 10 000 years ago.

Iron Age (also referred to as **Early Farming Communities**): Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they 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 1830

Midden: The accumulated debris resulting from human occupation of a site.

Mitigation, means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

National Estate: The collective heritage assets of the Nation.

Pleistocene: Geological time period of 3 000 000 to 20 000 years ago.

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.

Early Stone Age	2 500 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Later Stone Age	30 000 - until c. AD 200

Tradition: As used in archaeology, it is a seriated sequence of artefact assemblages, particularly ceramics.

ACRONYMS and ABBREVIATIONS

ASAPA	Association of Southern African Professional Archaeologists
BCE	Before the Common Era (the year 0)

BP	Before Present (calculated from 1950 when radio-carbon dating was established)
CE	Common Era (the year 0)
ESA	Early Stone Age
EIA	Early Iron Age
HIA	Heritage Impact Assessment
I & AP's	Interested and Affected Parties
LIA	Late Iron Age
LSA	Later Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

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1. INTRODUCTION

1.1 Background

Chameleon Environmental Consultants was contracted by *Concor Infrastructure* as independent environmental consultant to undertake the Scoping and EIA process for the planned development of a borrow pit on the farm Ek Kraal 199 in the Karoo Hoogland Local Municipality of Northern Cape Province. The material from this and other borrow pits is to be used in the construction of a number of wind farms that is to be developed in the region.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *Chameleon Environmental Consultants* to conduct a cultural heritage assessment to determine if the proposed development of the borrow pit would have an impact on any sites, features or objects of cultural heritage significance.

This report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and is intended for submission to the South African Heritage Resources Agency (SAHRA).

1.2 Terms and references

The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.

The result of this investigation is a heritage impact assessment report indicating the presence/absence of heritage resources and how to manage them in 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, on condition of successful implementation of proposed mitigation measures.

1.2.1 Scope of work

The aim of this study is to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development of the borrow is to take place. This included:

- Conducting a desk-top investigation of the area;
- A visit to the proposed development site.

The objectives were to:

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

1.2.2 Assumptions and Limitations

The investigation has been influenced by the following factors:

- It is assumed that the description of the proposed project, provided by the client, is accurate.
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities.
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that it does not have to be repeated as part of the heritage impact assessment.
- The unpredictability of buried archaeological remains.
- This report does not consider the palaeontological potential of the site.

2. LEGISLATIVE FRAMEWORK

2.1 Background

Heritage Impact Assessments are governed by national legislation and standards and International Best Practise. These include:

- South African Legislation
 - National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA);
 - Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA);
 - National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA); and
 - National Water Act, 1998 (Act No. 36 of 1998) (NWA).
- Standards and Regulations
 - South African Heritage Resources Agency (SAHRA) Minimum Standards;
 - Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics;
 - Anthropological Association of Southern Africa Constitution and Code of Ethics.
- International Best Practise and Guidelines
 - ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
 - The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

2.2 Heritage Impact Assessment Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, Section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. The National Heritage Resources Act (Act No. 25 of 1999, Section 38) provides guidelines for Cultural Resources Management and prospective developments:

“38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) the construction of a bridge or similar structure exceeding 50m in length;*
- (c) any development or other activity which will change the character of a site:*
 - (i) exceeding 5 000 m² in extent; or*
 - (ii) involving three or more existing erven or subdivisions thereof; or*
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or*
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”*

And:

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

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

3. HERITAGE RESOURCES

3.1 The National Estate

The National Heritage Resources Act (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
 - ancestral graves;
 - royal graves and graves of traditional leaders;
 - graves of victims of conflict;

- graves of individuals designated by the Minister by notice in the Gazette;
- historical graves and cemeteries; and
- other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
 - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - objects to which oral traditions are attached or which are associated with living heritage;
 - ethnographic art and objects;
 - military objects;
 - objects of decorative or fine art;
 - objects of scientific or technological interest; and
 - books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, 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;
- 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
- sites of significance relating to the history of slavery in South Africa.

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site. This allowed some form of control over the application of similar values for similar identified sites – see Section 2 of the Addendum below.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers all facets of cultural heritage located in the study area as presented in Section 5 below and illustrated in Figure 5.

4.2 Methodology

4.2.1 Desktop review

4.2.1.1 Survey of the literature

A survey of the relevant literature, published as well as unpublished, was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted – see list of references in Section 11.

- Information on events, sites and features in the larger region were obtained from these sources.

4.2.1.2 Data bases

The *Heritage Atlas Database*, various SAHRA databases, the *Environmental Potential Atlas*, the *Chief Surveyor General* and the *National Archives of South Africa* were consulted.

- Database surveys produced a number of heritage sites located in the larger region of the proposed development.

4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Features such as areas with a lack of vegetation, possible buildings, hills and pans, were identified and marked for investigation during the field survey.

4.2.1.4 Interpretation

The results of the above investigation are summarised in Table 1 & Fig. 1 & 2 below – see list of references in Section 11 – and can be summarised as follows:

Authors of previous studies done in the area (inclusive of scoping reports and full HIAs – see list of reference in Section 11) are all of the opinion that the number of sites identified were not as high as originally anticipated. They argue that this may be related to the fact that the development, specifically of wind turbines, are located on less favourable occupation areas up on the higher ridges. In contrast, most identified sites are located in valleys near water and away from the wind.

The types of sites that have been identified can be categorised as follows:

- Stone Age tools, dating to the MSA and LSA occur as low-density scatters on the banks of the streams and rivers and on some outcrops and caves in the larger region;
- Rock art occur in small caves or shelters in a limited number of cases in the larger region;
- Historic structures, inclusive of buildings, monuments and bridges, occur mostly in an urban environment (Laingsburg and Matjiesfontein), although they also occur on farms or alongside infrastructure facilities such as roads and railway lines;
- Formal burial sites occur in urban settings, with a number of informal ones occurring sporadically throughout the country side;
- Sites dating to the Second South African War (1899-1902) occur sporadically in the larger region, most significantly in the region of the railway line.

*Based on the above assessment, the probability of cultural heritage sites, features and objects occurring in the study areas, i.e. borrow pit areas, is deemed to be **very low**.*

Table 1: Pre-Feasibility Assessment

Category	Period	Presence	Reference
Early hominin	Pliocene – Lower Pleistocene		
	Early hominin	None	
Stone Age	Lower Pleistocene – Holocene		
	Early Stone Age	None	Webley & Halkett (2017)
	Middle Stone Age	Low	Webley & Halkett (2017)
	Later Stone Age	Low	Webley & Halkett (2017)
	Rock Art	Low	Webley & Halkett (2017)
Iron Age	Holocene		
	Early Iron Age	None	
	Middle Iron Age	None	
	Late Iron Age	None	
Colonial period	Holocene		
	Early history	Low	Hart & Kendrick (2014); Hart & Webley (2013); Webley (2016); Webley & Halkett (2017)
	Recent history	Low	Hart & Kendrick (2014); Webley (2016); Webley & Halkett (2017)
	Industrial heritage	Low	Heritage Database

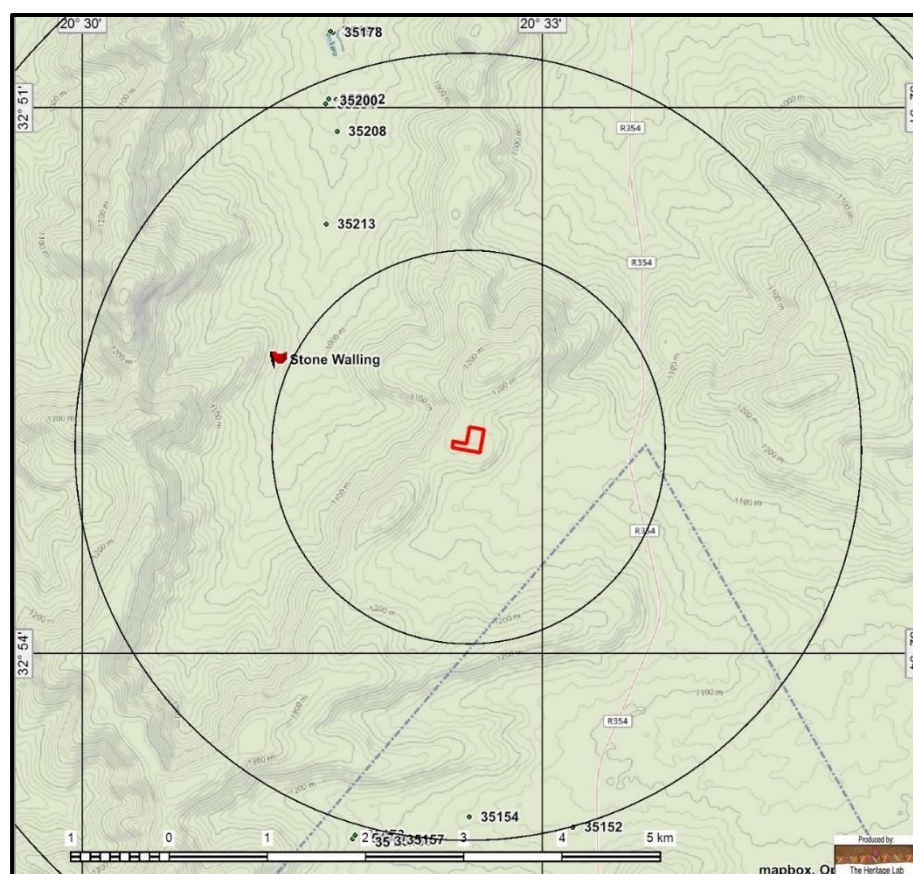


Figure 1. Heritage screening: known heritage sites and features in the larger region – Ek Kraal. (SAHRA sites = green dots) (Circles spaced at 2km apart; Base map = ExpertGPS)

4.2.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by the by means of maps and .kml files indicating the development area. This was loaded onto an ASUS digital device and used in Google Earth during the field survey to access the areas. During the field survey, the heritage specialist was accompanied by Mr Hannes van den Berge, land surveyor for *Concor Infrastructure*, who pointed out the proposed development areas.

- The survey was conducted on 6 June 2018. The site was surveyed by intensive pedestrian investigation – see Fig. 2 below for the track logs.

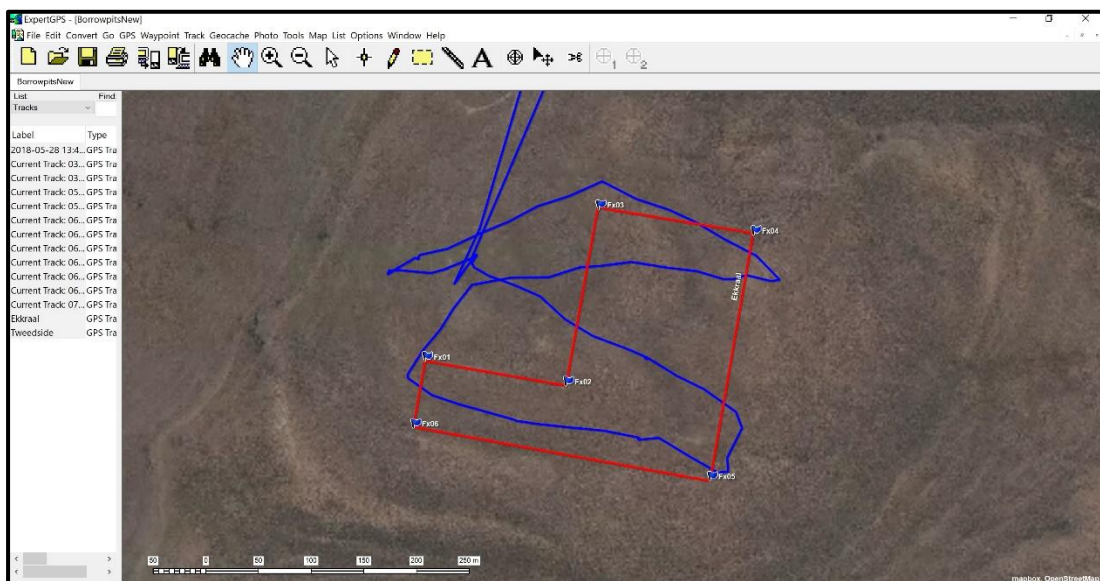


Figure 2. Map indicating the track logs of the field survey: Ek Kraal.
(Study area = red; tracklog = blue)

4.2.3 Interviews

Mr Douglas Callado, owner of the farm Ek Kraal.

4.2.4 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System* (GPS) and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

The track log and identified sites were recorded by means of a Garmin Oregon 550 handheld GPS device. Photographic recording was done by means of a Canon EOS 550D digital camera.

Map datum used: Hartebeeshoek 94 (WGS84).

4.3 Public participation

4.3.1 Ek Kraal

The following was extracted from: Chameleon Environmental - *Basic Assessment Report and Environmental Management Programme Report* (2018).

The following approach was followed in undertaking the public participation process:

a. Identification of and Consultation with I&APs

The first step in the public participation process was to identify the key I&APs.

b. Advertising

In accordance with the EIA Regulations, 2014, as amended an advertisement was placed requesting I&APs to register their interest in the project. An advertisement was placed in the **The Burger of 2 March 2018**.

c. Site Notice

Site notifications in English in A2 format requesting comments or objections were placed on site on 20 February 2018.

d. Notification Letter and Background Information Document

Notification letters about the project and a Background Information Document were sent out to the particular Ward Councillor and Government Departments that would be relevant to this project. The affected landowner, Mr D J Caldo (sic) signed a landowner notification form. He has no objection to the proposed development.

e. Comments and Response Report

A comments and response report was drafted that included all the issues raised by the Interested and/or Affected Parties as well as the responses to the issues raised.

f. Local Authority Involvement

A letter was forwarded to the Karoo Hoogland Local Municipality.

g. Review of Draft Basic Assessment Report

The Draft Basic Assessment Report was made available to the public for review and comment, within an allocated 30-day period. A copy of the report was available to I&APs at the following venue:

a. Laingsburg Library

Address: Van Riebeeck str 2, Laingsburg, 6900, Tel: 023 551-1019

- *Issues raised by Interested and Affected Parties*

No issues pertaining to heritage sites and features were raised by interested and affected parties.

5. PROJECT DESCRIPTION

5.1 Site location

The proposed Ek Kraal borrow pit is located approximately 40 km north of the hamlet of Matjiesfontein and west of the R354 towards Sutherland in the Karoo Hoogland Local Municipality of Northern Cape Province (Fig. 3). For more information, see the Technical Summary on p. iv above.

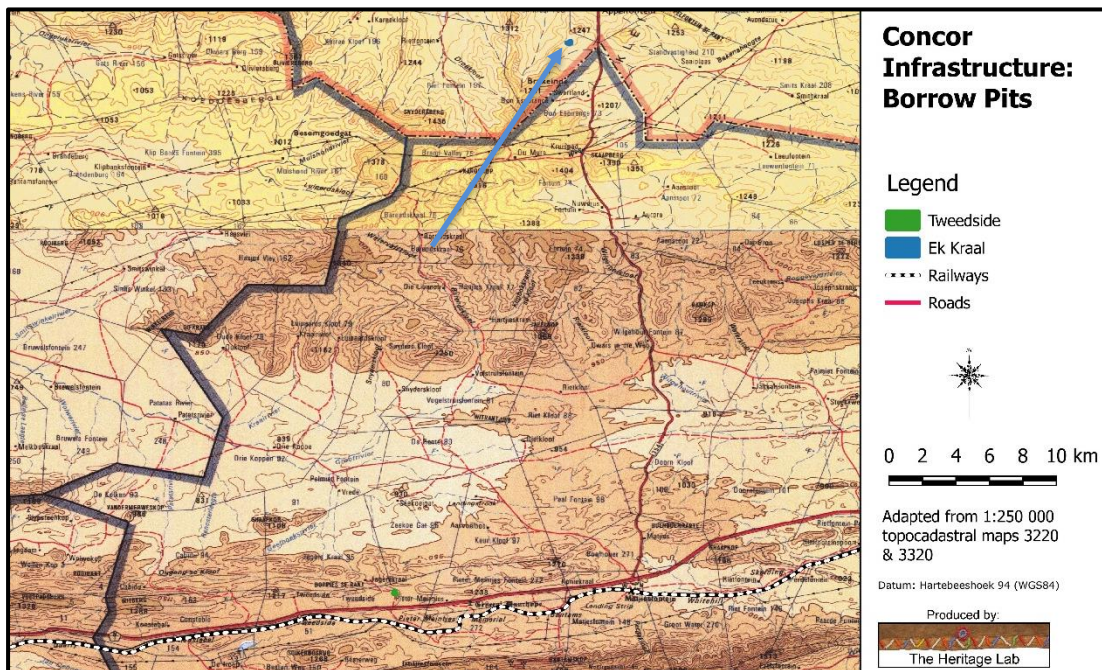


Figure 3. Location of the study area in regional context.

5.2 Development proposal

5.2.1 Ek Kraal

Concor Infrastructure intends to open a new gravel quarry approximately 40 km north of Matjiesfontein within the boundaries of the Karoo Hoogland Local Municipality and the Namakwa District Municipality. The quarry is located on Portion 1 of Farm Ek Kraal Nr 199 RD. The land belongs to Mr Douglas Joseph Caldo (sic).

The actual area to be mined will be 1.5 ha in extent but the entire fenced area including the stockpiles will be approximately 4.42 ha in extent.

An amount of approximately 80 000m³ will be mined from the quarry for the Wind Farms Development. This quantity might increase as additional work in the area is secured. The depth of the quarry should not exceed 20m in depth.

Opencast mining will take place as it is a quarry to be mined. The following mining components will be found on site:

- Temporary toilets,
- Generator and fuel storage,
- Stockpiles: Subsoil, overburden, spoil, topsoil,
- Crusher,
- Screening plant,
- Gravel stockpiles,
- Weigh bridge,
- Temporary offices.

The gravel material mined will be stockpiled within the quarry and hauled to the wind farm close to the quarry.

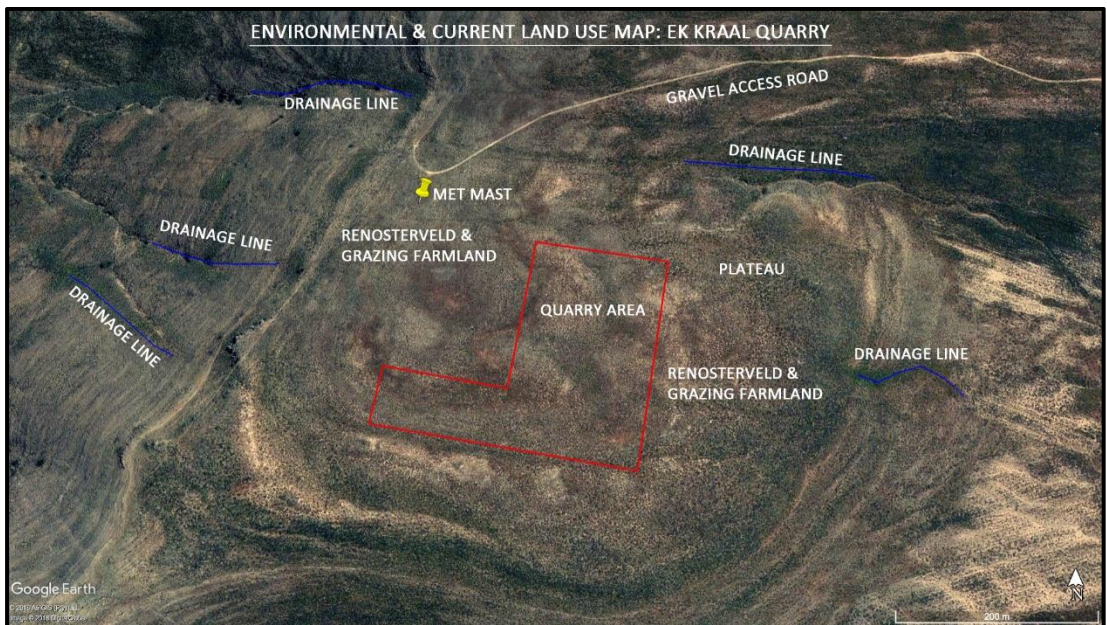
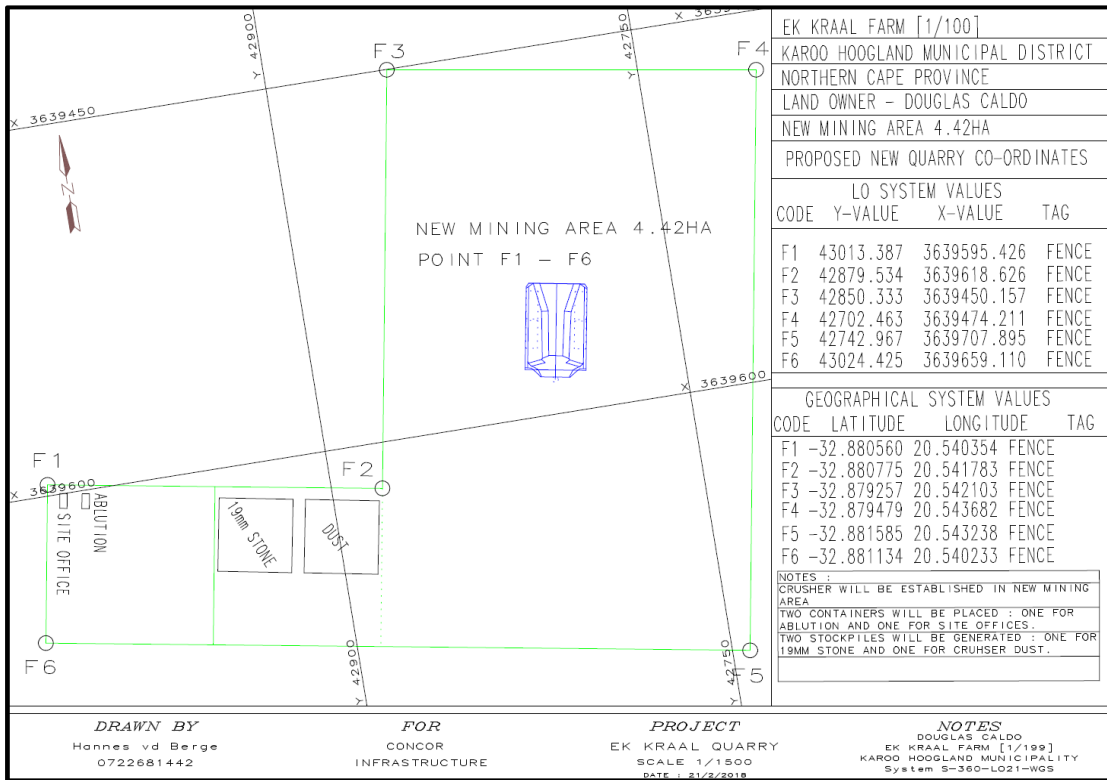


Figure 4. Layout of the proposed development – Ek Kraal.
 (Map supplied by Chameleon Environmental Consultants)

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

6.1 Natural Landscape

Ek Kraal

The topography of the region is highlands with slopes and broad ridges of low mountains and escarpments, with occasional valleys and ravines. The landscape is dominated by tall to very short renosterbos shrubland and large suites of dominantly non-succulent Karoo shrubs. The study site is situated on top of a plateau with an average height above sea level of 1 181m, with an approximate maximum and minimum of 1 185m and 1 175m asl, respectively. The general downward slope of the study area is from northwest to southeast. The geology is made up of mudstone. The entire area is underlain by rocks of the Karoo Supergroup.

The study site is situated within the ‘bioregion’ of the Renosterveld (Karoo Renosterveld) and the veldtype unit of Central Mountain Shale Renosterveld (Mucina & Rutherford 2006).

The farm Ek Kraal was first registered according to Deed of Transfer No. 861 of 1871 (see Fig. 8 in Section 6 of Addendum).

Currently, the area is used as grazing for sheep. A very rough “jeep” track leads to the site. Recently, a telecommunications mast was erected on the site. The borrow pit is therefore designed to miss this feature.

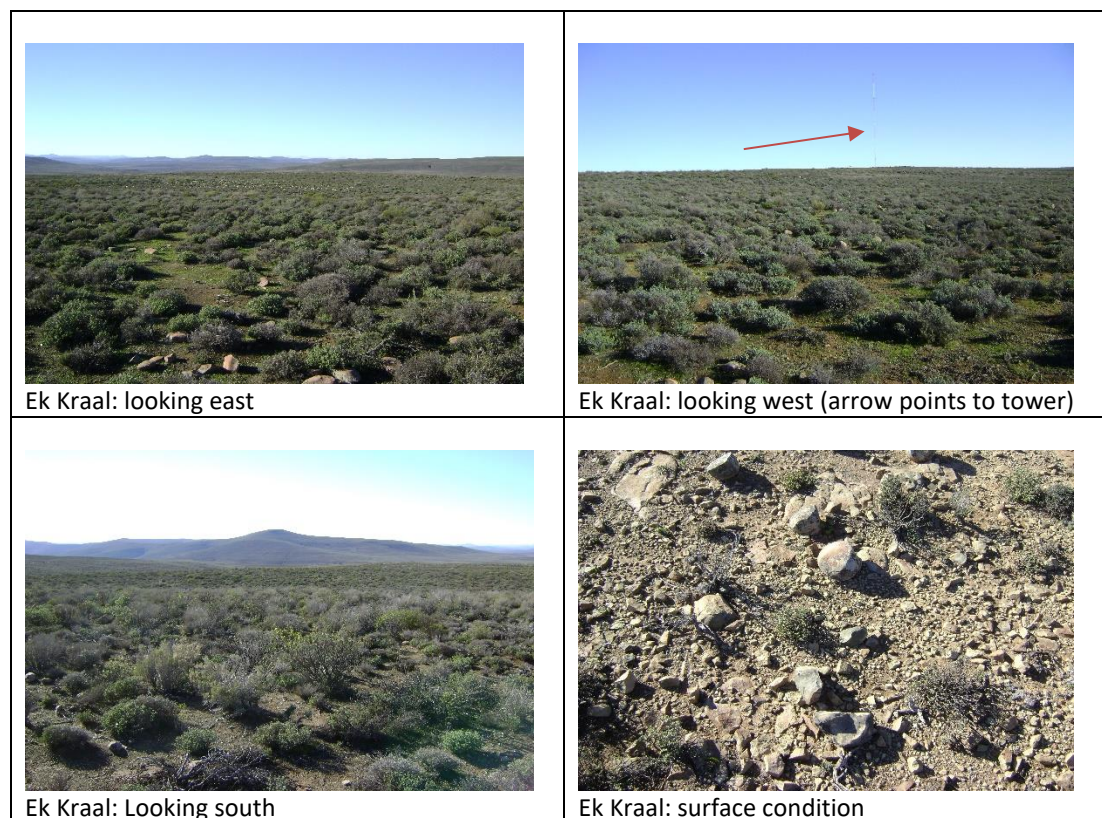


Figure 5. Overview of the study area – Ek Kraal

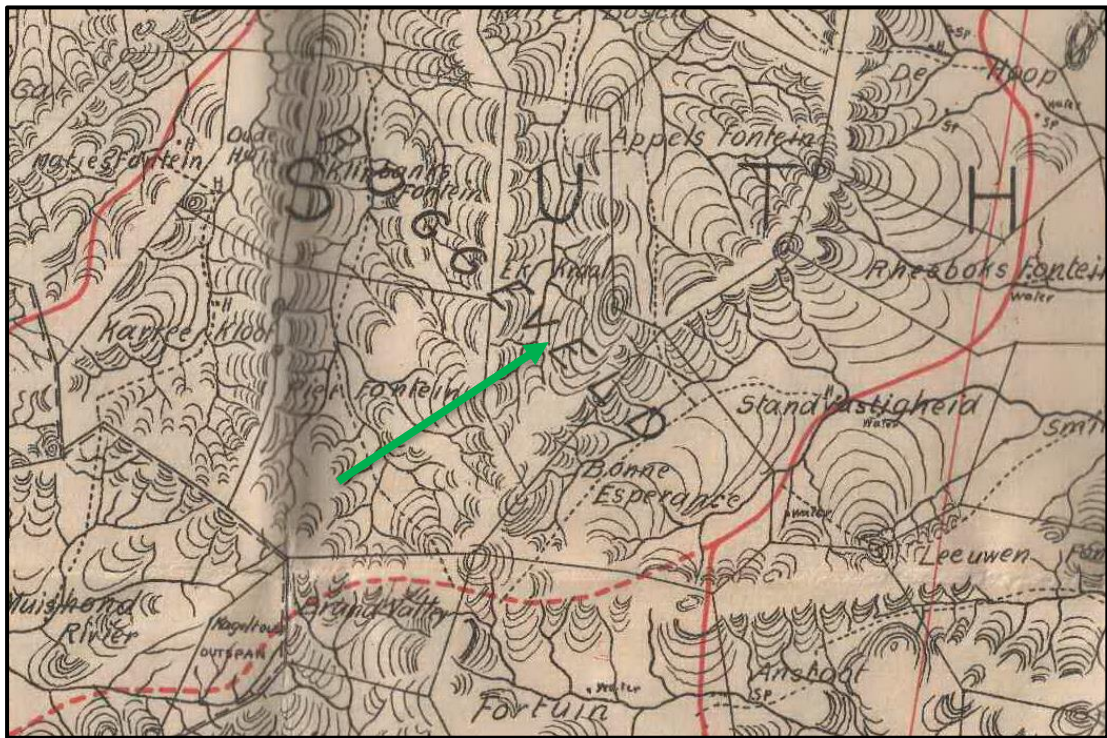


Figure 6. Military map compiled by the Intelligence Division (1901) – arrow points to Ek Kraal (The roads, indicated in red on the map, actually did not exist and were only proposed possible routes)

6.2 Cultural Landscape

The aim of this section is to present an overview of the history of the larger region in order to eventually determine the significance of heritage sites identified in the study area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity.

The cultural landscape qualities of the larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial element (Stone Age) component. The second component is farming landscape dating to the colonial period and is linked to the rural landscape as well as an urban (small towns) landscape.

- The following description is largely based on the work of Halkett & Webley (2011), Hart & Kendrick (2014), Hart & Webley (2013), Webley (2016) and Webley & Halkett (2017).

Halkett & Webley (2011) comments that Pre-colonial heritage seems to concentrate in the valley bottoms close to watercourses and springs, leaving the high ridges, where there are no rock shelters and where water sources are scarce, devoid of human habitation.

In summary, the archaeology in the region includes artefact scatters dating from all phases of the Stone Age: Early Stone Age (ESA), Middle Stone Age (MSA) and Later Stone Age (LSA). The most common raw materials are hornfels, quartzite, chert, but also quartz and shale. On the upper plateau incidental artefacts were scarce.

Rock art (paintings) are known to exist close to the road between Matjiesfontein and Sutherland, as well as south of the N1 to the east of Matjiesfontein in the Rietfontein Nature Reserve.

Early farmers, colloquially referred to as Trekboere, settled in the area from about 1750 onwards. However, it was only during the latter part of the 19th century that the farms became more formal, being surveyed professionally, and permanently occupied (see Figs. 8). As a result, the built fabric date mostly from this period, are localised and present as farmsteads containing a wide variety of structures dating to different periods in time.

Mr Callado, owner of the farm Ek Kraal, explained the use of some of the stone walled structures occurring in the larger landscape – these are distinct from the earlier Khoekhoen. These are usually located in the valleys where it is warmer and away from the wind. During the early summer, i.e. end July through to the beginning of September, the sheep, especially ewe's, are kept here when it is time to lamb. This affords some protection against jackal and caracal that prey on the young lambs. As soon as the lambs are strong enough, the sheep are moved to higher ground where it is cooler in the summer months.

Although a road existed along the alignment of what is now the N1 road, it was only in 1935 with the development of the National Road Scheme, that it, as well as other roads in the country, were identified as potential National Routes. The road was originally referred to as the R9. By 1938, the section of this route between Touwsrivier and Laingsburg, although an existing bituminous road, was not yet upgraded to "National Status," whereas the section from Laingsburg to Beaufort West was completed to National Status by 1946. However, by 1971, the whole of the current N1, still referred to as the R9, was upgraded to National Status (Floor 1985).

7. SURVEY RESULTS

During the physical survey, the following sites, features and objects of cultural significance were identified in the study area – see **Section 5** of the **Addendum** for a more detailed discussion of each of the identified sites, features or objects:

7.1 Stone Age

- No sites, features or objects of cultural significance dating to the Stone Age were identified in either of the study areas.

7.2 Iron Age

- No sites, features or objects of cultural significance dating to the Iron Age were identified in either of the study areas.

7.3 Historic period

- No sites, features or objects of cultural significance dating to the historic period were identified in either of the study areas.

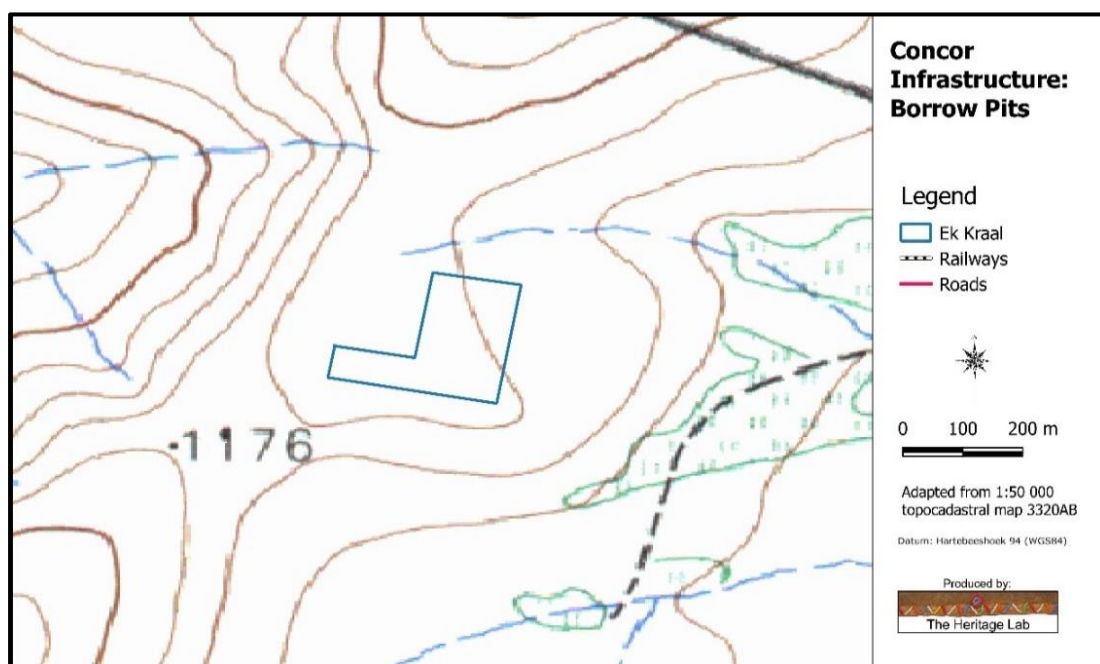


Figure 7. Location of heritage sites in the study area: Ek Kraal
(Please note that as no heritage sites were found, nothing is indicated on the map)

8. RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATINGS

8.1 Impact assessment

Heritage impacts are categorised as:

- Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries;
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment;
- Cumulative impacts that are combinations of the above.

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development and its significance is calculated and presented below:

- The impact on identified sites is calculated as follows:

Table 2: Calculation of the impact on the identified heritage features

Nature: Destruction of heritage sites due to development (i.e. quarrying activities)		
	Without mitigation	With mitigation
Extent	Site	Site
Duration	Permanent	Permanent
Magnitude	Minor	Minor
Probability	Low	Low
Significance	Low (8)	Low (8)
Status (positive or negative)	Negative	Neutral
Reversibility	Non-reversible	Non-reversible

Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated	Yes	
Mitigation: Avoidance of site		
Cumulative impact: Loss of one of a limited number of similar features in the larger landscape.		

8.2 Cumulative assessment

At present it is impossible to give an indication of what the cumulative impact of the proposed development would be. Borrow pits and quarries are continuously opened and accessed for the maintenance of roads, railways and, in this particular case, the establishment of wind farms as well. It is estimated that at least 13 wind farms are planned for in the larger region (Webley & Halkett 2017). It is unsure what their requirements would be in terms of material.

Two factors should be kept in mind when the cumulative impact of borrow pits and quarries are considered:

- The footprints of the sites are usually very small, in most cases less than 5ha, of which only a small portion is opened at any given point in time;
- Many of the borrow pits and quarries are very old but are still used from time to time. The implication is that new ones that are established are fewer in number, therefore lowering the potential cumulative impact.

9. MANAGEMENT AND MITIGATION MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Sources of risk were considered with regards to development activities defined in Section 2(viii) of the NHRA that may be triggered and are summarised in Table 3A and 3B below. These issues formed the basis of the impact assessment described. The potential risks are discussed according to the various phases of the project below.

9.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;

- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

9.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Table 3A: Construction Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	The identified risk is damage or changes to resources that are generally protected in terms of Sections 27, 28, 31, 32, 34, 35, 36 and 37 of the NHRA that may occur in the proposed project area.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	Mitigation: Action/control	Responsibility	Timeframe
1. Removal of Vegetation 2. Construction of required infrastructure, e.g. access roads, water pipelines	See discussion in Section 9.1 above	Environmental Control Officer	During construction only
Monitoring	See discussion in Section 9.2 above		

Table 3B: Operation Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	It is unlikely that the negative impacts identified for pre-mitigation will occur if the recommendations are followed.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	Mitigation: Action/control	Responsibility	Timeframe
1. Removal of Vegetation 2. Construction of required infrastructure,	See discussion in Section 9.1 above	Environmental Control Officer	During construction only

e.g. access roads, water pipelines			
Monitoring	See discussion in Section 9.2 above		

9.3 Mitigation measures

Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development.

- For the current study, the following mitigation measures are proposed (see Section 4 of the Addendum for a discussion of all mitigation measures):
 - As no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development.

10. CONCLUSIONS AND RECOMMENDATIONS

Concor Infrastructure proposes the development of a borrow pit on the farm Ek Kraal 199 in the Karoo Hoogland Local Municipality of Northern Cape Province. This material is to be used in the construction of a number of wind farms that is to be developed in the region.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

The cultural landscape qualities of the larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial element (Stone Age) component. The second component is farming landscape dating to the colonial period and is linked to the rural landscape as well as an urban (small towns) landscape.

Authors of previous studies done in the area (inclusive of scoping reports and full HIAs) are all of the opinion that the number of sites identified were not as high as originally anticipated. They argue that this may be related to the fact that the development, specifically of wind turbines, are located on less favourable occupation areas up on the higher ridges. In contrast, most identified sites are located in valleys near water and away from the wind.

Identified sites

- No sites, features or objects of cultural heritage significance were found in either of the two study areas.

Impact assessment and proposed mitigation measures

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

- As no sites, features or objects of cultural significance are known to exist in the development area, there would be no impact as a result of the proposed development.

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the measures proposed below.

Conditions for inclusion in the environmental authorisation:

- Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

11. REFERENCES

11.1 Data bases

Chief Surveyor General.
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Atlas Database, Pretoria.
SAHRA Archaeology and Palaeontology Report Mapping Project (2009).
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11.2 Literature

Booth, C. 2012. *A Phase 1 Archaeological Impact Assessment for the proposed Hidden Valley Wind Energy facility, near Sutherland, Northern Cape Province*. Unpublished report.

Burman, J. 1984. *Early Railways at the Cape*. Cape Town: Human & Rousseau.

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Hart, T. & Webley, L. 2013. *Heritage Impact Assessment: Revised Report on Phase 1 of the Roggeveld Wind Farm*. ACO Associates cc, Cape Town: Unpublished report.

Muncina, L. & Rutherford, M.C. 2006. *The Vegetation Map of South Africa, Lesotho and Swaziland*. Pretoria: SANBI.

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Webley, L. & Halkett, D. 2017. *Heritage Impact Assessment: Proposed Construction of the 132kV Powerline for the Esizayo Wind Energy Facility near Laingsburg in the Western Cape*. ACO Associates cc, Cape Town: Unpublished report.

11.3 Maps and aerial photographs

1: 50 000 Topocadastral maps
Google Earth

12. ADDENDUM

1. Indemnity and terms of use of this report

The findings, results, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and the author reserve the right to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

Although all possible care is taken to identify all 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 study. The author of this report will not be held liable for such oversights or for costs incurred as a result of such oversights.

Although the author exercises due care and diligence in rendering services and preparing documents, he accepts no liability and the client, by receiving this document, indemnifies the author against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the author and by the use of the information contained in this document.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

2. Assessing the significance of heritage resources and potential impacts

A system for site grading was established by the NHRA and further developed by the South African Heritage Resources Agency (SAHRA 2007) and has been approved by ASAPA for use in southern Africa and was utilised during this assessment.

2.1 Significance of the identified heritage resources

According to the NHRA, Section 2(vi) the **significance** of a heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. SITE EVALUATION				
1.1 Historic value				
Is it important in the community, or pattern of history				
Does it have strong or special association with the life or work of a person, group or organisation of importance in history				
Does it have significance relating to the history of slavery				
1.2 Aesthetic value				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
1.3 Scientific value				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage				
Is it important in demonstrating a high degree of creative or technical achievement at a particular period				
1.4 Social value				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
1.5 Rarity				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
1.6 Representivity				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects				
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class				
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.				
2. Sphere of Significance		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
3. Field Register Rating				
1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA			
2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.			
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.			

4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site	
5.	Generally protected Grade 4A: High/medium significance - Should be mitigated before destruction	
6.	Generally protected Grade 4B: Medium significance - Should be recorded before destruction	
7.	Generally protected Grade 4C: Low significance - Requires no further recording before destruction	

2.2 Significance of the anticipated impact on heritage resources

All impacts identified during the HIA stage of the study will be classified in terms of their significance. Issues would be assessed in terms of the following criteria:

Nature of the impact

A description of what causes the effect, what will be affected and how it will be affected.

Extent

The physical **extent**, wherein it is indicated whether:

- 1 - The impact will be limited to the site;
- 2 - The impact will be limited to the local area;
- 3 - The impact will be limited to the region;
- 4 - The impact will be national; or
- 5 - The impact will be international.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- 1 - Of a very short duration (0–1 years);
- 2 - Of a short duration (2-5 years);
- 3 - Medium-term (5–15 years);
- 4 - Long term (where the impact will persist possibly beyond the operational life of the activity); or
- 5 - Permanent (where the impact will persist indefinitely).

Magnitude (Intensity)

The magnitude of impact, quantified on a scale from 0-10, where a score is assigned:

- 0 - Small and will have no effect;
- 2 - Minor and will not result in an impact;
- 4 - Low and will cause a slight impact;
- 6 - Moderate and will result in processes continuing but in a modified way;
- 8 - High, (processes are altered to the extent that they temporarily cease); or
- 10 - Very high and results in complete destruction of patterns and permanent cessation of processes.

Probability

This describes the likelihood of the impact actually occurring and is estimated on a scale where:

- 1 - Very improbable (probably will not happen);
- 2 - Improbable (some possibility, but low likelihood);
- 3 - Probable (distinct possibility);
- 4 - Highly probable (most likely); or
- 5 - Definite (impact will occur regardless of any prevention measures).

Significance

The significance is determined through a synthesis of the characteristics described above (refer to the formula below) and can be assessed as low, medium or high:

$S = (E+D+M) \times P$; where
 S = Significance weighting
 E = Extent
 D = Duration
 M = Magnitude
 P = Probability

Significance of impact		
Points	Significant Weighting	Discussion
< 30 points	Low	Where this impact would not have a direct influence on the decision to develop in the area.
31-60 points	Medium	Where the impact could influence the decision to develop in the area unless it is effectively mitigated.
> 60 points	High	Where the impact must have an influence on the decision process to develop in the area.

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Status

- The status, which is described as either positive, negative or neutral.

Reversibility

- The degree to which the impact can be reversed.

Mitigation

- The degree to which the impact can be mitigated.

Nature:		
	Without mitigation	With mitigation
Construction Phase		
Probability		
Duration		
Extent		
Magnitude		
Significance		
Status (positive or negative)		
Operational Phase		
Probability		
Duration		
Extent		
Magnitude		
Significance		
Status (positive or negative)		
Reversibility		
Irreplaceable loss of resources?		
Can impacts be mitigated		

3. Mitigation measures

- *Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.*

Impacts can be managed through one or a combination of the following mitigation measures:

- Avoidance
- Investigation (archaeological)
- Rehabilitation
- Interpretation
- Memorialisation
- Enhancement (positive impacts)

For the current study, the following mitigation measures are proposed, to be implemented only if any of the identified sites or features are to be impacted on by the proposed development activities:

- (1) Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. The site should be retained *in situ* and a buffer zone should be created around it, either temporary (by means of danger tape) or permanently (wire fence or built wall). Depending on the type of site, the buffer zone can vary from
 - 10 metres for a single grave, or a built structure, to
 - 50 metres where the boundaries are less obvious, e.g. a Late Iron Age site.
- (2) Archaeological investigation: This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards. This can only be done by a suitably qualified archaeologist.
 - This option should be implemented when it is impossible to avoid impacting on an identified site or feature.
 - This also applies for graves older than 60 years that are to be relocated. For graves younger than 60 years a permit from SAHRA is not required. However, all other legal requirements must be adhered to.
 - Impacts can be beneficial – e.g. mitigation contribute to knowledge
- (3) Rehabilitation: When features, e.g. buildings or other structures are to be re-used. Rehabilitation is considered in heritage management terms as an intervention typically involving the adding of a new heritage layer to enable a new sustainable use.
 - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
 - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
 - Conservation measures would be to record the buildings/structures as they are (at a particular point in time). The records and recordings would then become the 'artefacts' to be preserved and managed as heritage features or (movable) objects.
 - This approach automatically also leads to the enhancement of the sites or features that are re-used.

- (4) Mitigation is also possible with additional design and construction inputs. Although linked to the previous measure (rehabilitation) a secondary though 'indirect' conservation measure would be to use the existing architectural 'vocabulary' of the structure as guideline for any new designs.
 - The following principle should be considered: **heritage informs design**.
 - This approach automatically also leads to the enhancement of the sites or features that are re-used.
- (5) No further action required: This is applicable only where sites or features have been rated to be of such low significance that it does not warrant further documentation, as it is viewed to be fully documented after inclusion in this report.
 - Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage/remains are destroyed.

4. Relocation of graves

If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.

If the graves are older than 60 years old or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

Information needed for the SAHRA permit application

- The permit application needs to be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.
- All the information on the families that have identified graves.
- If graves have not been identified and there are no headstones to indicate the grave, these are then unknown graves and should be handled as if they are older than 60 years. This information also needs to be given to SAHRA.
- A letter from the landowner giving permission to the developer to exhume and relocate the graves.
- A letter from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district and GPS coordinates of the gravesite.

5. Inventory of identified cultural heritage sites

Nil

6. Additional images

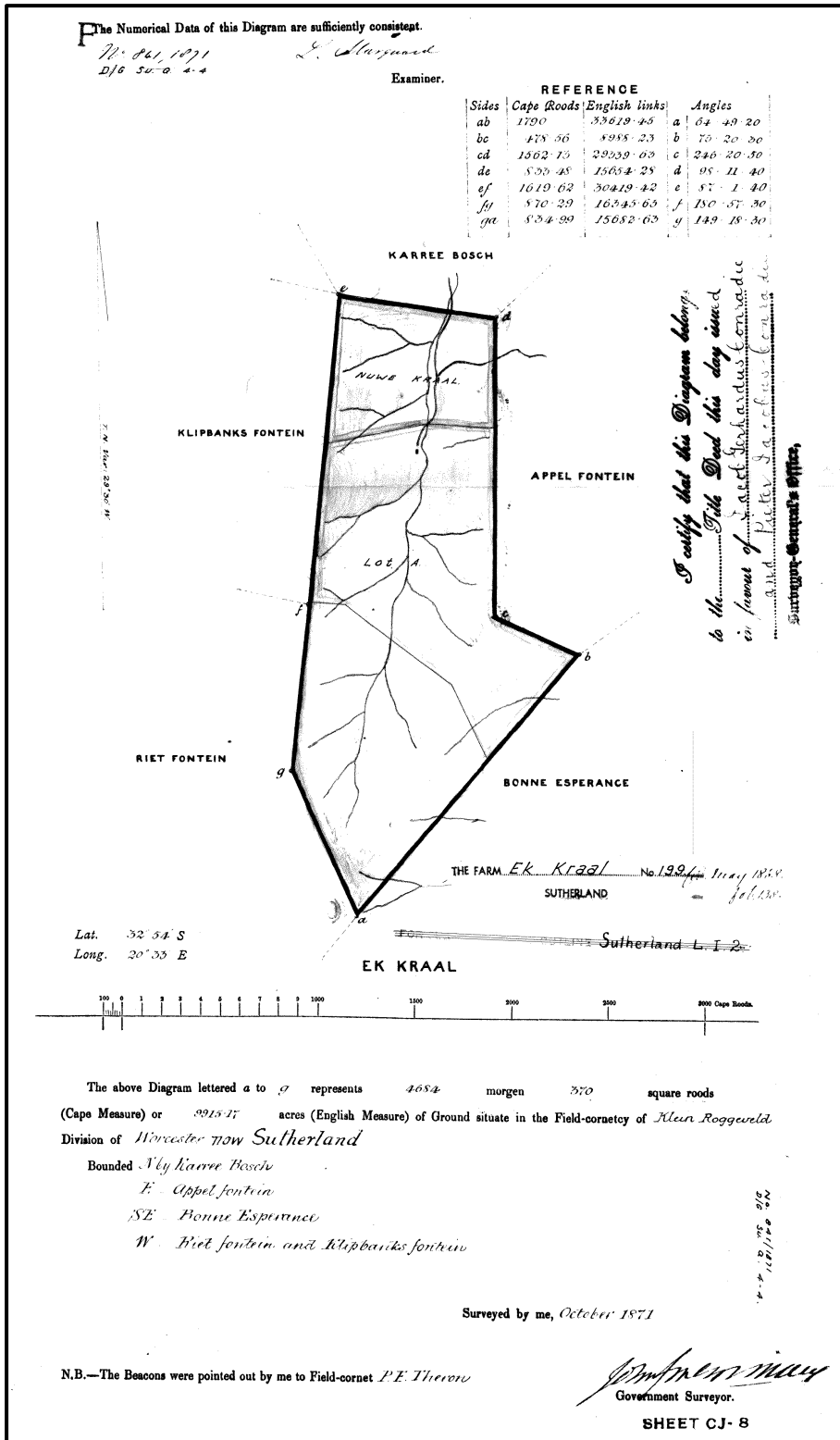


Figure 8. Ek Kraal Deed of Transfer

7. Curriculum vitae

Johan Abraham van Schalkwyk

Personal particulars

Date of birth: 14 April 1952
Identity number: 520414 5099 08 4
Marital status: Married; one daughter
Nationality: South African

Current address: home

62 Coetzer Ave, Monument Park, Pretoria, 0181
Mobile: 076 790 6777; E-mail: jvschalkwyk@mweb.co.za

Qualifications

1995 DLitt et Phil (Anthropology), University of South Africa
1985 MA (Anthropology), University of Pretoria
1981 BA (Hons), Anthropology, University of Pretoria
1979 Post Graduate Diploma in Museology, University of Pretoria
1978 BA (Hons), Archaeology, University of Pretoria
1976 BA, University of Pretoria

Non-academic qualifications

12th HSRC-School in Research Methodology - July 1990
Dept. of Education and Training Management Course - June 1992
Social Assessment Professional Development Course - 1994
Integrated Environmental Management Course, UCT - 1994

Professional experience

Private Practice
2017 - current: Professional Heritage Consultant

National Museum of Cultural History

1992 - 2017: Senior researcher: Head of Department of Research. Manage an average of seven researchers in this department and supervise them in their research projects. Did various projects relating to Anthropology and Archaeology in Limpopo Province, Mpumalanga, North West Province and Gauteng. Headed the Museum's Section for Heritage Impact Assessments.
1978 - 1991: Curator of the Anthropological Department of the Museum. Carried out extensive fieldwork in both anthropology and archaeology

Department of Archaeology, University of Pretoria

1976 - 1977: Assistant researcher responsible for excavations at various sites in Limpopo Province and Mpumalanga.

Awards and grants

1. Hanisch Book Prize for the best final year Archaeology student, University of Pretoria - 1976.
2. Special merit award, National Cultural History Museum - 1986.
3. Special merit award, National Cultural History Museum - 1991.
4. Grant by the Department of Arts, Culture, Science and Technology, to visit the various African countries to study museums, sites and cultural programmes - 1993.
5. Grant by the USA National Parks Service, to visit the United States of America to study museums, sites, tourism development, cultural programmes and impact assessment programmes - 1998.
6. Grant by the USA embassy, Pretoria, under the Bi-national Commission Exchange Support Fund, to visit cultural institutions in the USA and to attend a conference in Charleston - 2000.
7. Grant by the National Research Foundation to develop a model for community-based tourism - 2001.

8. Grant by the National Research Foundation to develop a model for community-based tourism - 2013. In association with RARI, Wits University.

Publications

Published more than 70 papers, mostly in scientifically accredited journals, but also as chapters in books.

Conference Contributions

Regularly present papers at conferences, locally as well as internationally, on various research topics, ranging in scope from archaeology, anthropological, history, cultural historical and tourism development.

Heritage Impact Assessments

Since 1992, I have done more than 2000 Phase 1 and Phase 2 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.