

PHASE 1 AIA/HIA FOR MINING
RIGHT APPLICATION
DANNHAUSER COAL PROJECT
(DCP) FARMS, MOOIDOORNHOEK
(3722 HT), NGISANA (13992 HT)
AND AVALON (14869 HT)
DANNHAUSER LOCAL
MUNICIPALITY, KWAZULU NATAL
PROVINCE.



T Mlilo

PREPARED FOR



DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)

Item	Description
Proposed development and location	Phase 1 Archaeological/Heritage Impact Assessment for the proposed Dannhauser Coal project Mining Right Application on the farms, Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT) Dannhauser Local Municipality, KwaZulu Natal Province
Purpose of the study	The Phase 1 Archaeological Impact Assessment is to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the area demarcated for the proposed mining right application.
1:50 000 Topographic Map	
Coordinates	See table 1.
Municipalities	Dannhauser Local Municipality.
Predominant land use of surrounding area	Agricultural, mining and residential
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Authors	Trust Mililo
Date of Report	20 June 2020

This report serves to inform and guide the applicant and contractors about the possible impacts that the proposed mining development may have on heritage resources (if any) located in the study area. In the same light, the document must also inform KwaZulu Natal Amafa and Research Institute about the presence, absence and significance of heritage resources located in the study area. This report is required in terms of Section 23(a), (b) and (c) of the Minerals and Petroleum Resources Development read together with regulations 11(1) (g) of the Mineral and Petroleum Resources Development Act 28 of 2002). In addition, this report is required in terms of Section 38 of the NHRA and Section 41 of KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018). This mining right application requires a pre-development archaeology and Heritage assessment by a competent heritage practitioner in order to identify, record and if necessary, salvage the irreplaceable heritage resources that may be impacted upon by the proposed mining development. In compliance with these laws Tshifcor Investment and Resources (Pty) Ltd retained Integrated Specialist Services (Pty) Ltd (ISS) to conduct a Phase 1 Archaeological and Heritage Impact Assessment (AIA/HIA) of the proposed mining development. Desktop studies, drive-throughs and fieldwalking were conducted in order to identify heritage landmarks on the farms Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT) earmarked for mining development. The study site is not on pristine ground, having seen significant transformations owing to agriculture, mining and associated infrastructure developments such as roads and farmsteads (see Figure 1). The general project area is known for historical and Late Iron Age occurrences. The project area was extensively researched by several archaeologists such as Pelser and Van Vollenhoven (2011, 2018), Prins (2013,2018,2019) and several others. In terms of the built environment of the project area, structures older than 60 years of age occur within the proposed project site. In addition, sub-surface archaeological material and unmarked graves may still exist and when encountered during construction and mining, work must be stopped forth-with and the finds must be reported to the Amafa aKwaZulu Natali and Research Institute for review.

The report makes the following observations:

- The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project.
- Most sections of the project area are accessible, and the field survey was effective enough to cover significant sections of the project receiving environs. However, surface visibility was compromised by overgrown vegetation.

- The community representatives who assisted in the field work have thorough knowledge of heritage resources within the mining development site.
- The immediate project area is predominantly agricultural and mining
- Some sections of the proposed development site are severely degraded by previous mining activities and cattle rearing activities.
- The study did not record any archaeological site within the proposed mining development site.
- The study recorded a number of burial sites located within different portions of the farms Moidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT).

The report sets out the potential impacts of the proposed mining development on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to reduce the impacts where appropriate. The Report makes the following recommendations:

- The recorded burial sites must be preserved *in situ* by barricading during mining activities.
- Buildings and structures that are older than 60 years old must not be destroyed or altered without a permit from Amafa aKwaZulu Natali and Research Institute.
- The Anglo Boer War Fortress must be mapped and protected before mining activities commence.
- A management plan for the recorded fortress must be compiled to ensure proper management of the heritage resource.
- Mine workers must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during subsurface construction prior to commencement of work on the site in order to ensure appropriate mitigation measures and that course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work must cease immediately and the Amafa aKwaZulu Natali and Research Institute be notified, and activity should not resume until appropriate management provisions are in place.
- The findings of this report, with approval of the Amafa aKwaZulu Natali and Research Institute, may be classified as accessible to any interested and affected parties within the limits of the legislations.

This report concludes that the impacts of the proposed mining development of the cultural environmental values are not likely to be significant on the entire development site if the EMP includes recommended safeguard and mitigation measures identified in this report.

NATIONAL LEGISLATION AND REGULATIONS GOVERNING THIS REPORT

This is a specialist report' and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014.

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence.

I, **Trust Mlilo**, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own, notwithstanding the fact that I have received fair remuneration from the client for preparation of this report.

Expertise:

Trust Mlilo, PhD *cand* (Wits), MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) ASAPA (Professional affiliation member) and more than 15 years of experience in archaeological and heritage impact assessment and management. Mlilo is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), Amafa akwaZulu Natali and Research Institute and Eastern Cape Heritage Resources Agency (ECPHRA). He has conducted more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects over the past 15 years of service. The completed projects vary from Phase 1 and Phase 2 as well as heritage management work for government, parastatals (Eskom) and several private companies such as BHP Billiton and Rhino Minerals.

Independence

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and the survey was carried out under Tshifcor Investment and Resources (Pty) Ltd. Integrated Specialist Services (Pty) Ltd has no any business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Integrated Specialist Services (Pty) Ltd reserves the right to modify the report in any

way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field, or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author and Tshifcor Investment and Resources (Pty) Ltd. This also refers to electronic copies of the 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.

Authorship: This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Heritage Resources Agency (PHRA).

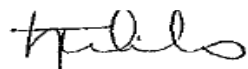
Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

Disclaimer: The Authors are not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.

The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the KwaZulu Natal Amafa and Research Institute and SAHRA Regulations and Guidelines as to the authorisation of proposed Mining Right Application being proposed by Ericure (Pty) Ltd.

Signed by



20/ 06/ 2020

ACKNOWLEDGEMENTS

The authors acknowledge Tshifcor Investment and Resources (Pty) Ltd. for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project. Our special thanks go to community representatives Khumalo and colleague who provided vital information about the heritage character of the proposed mining development site as well as assisting in identifying burial sites within their respective farms.

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ABBREVIATIONS

AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
EIA	Environmental Impact Assessment
EIA	Early Iron Age (<i>EIA refers to both Environmental Impact Assessment and the Early Iron Age but in both cases the acronym is internationally accepted. This means that it must be read and interpreted within the context in which it is used.</i>)
EIAR	Environmental Impact Assessment Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council of Monuments and Sites
LIA	Late Iron Age
LFC	Late Farming Community
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act 107 of 1998
NHRA	National Heritage Resources Act 25 of 1999
PHRA-NW	Provincial Heritage Resource Agency of North West
SAHRA	South African Heritage Resources Agency
ISS	Integrated Specialist Services

ToR Terms of Reference

KEY CONCEPTS AND TERMS

Periodization

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below.

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, eco-facts and artefacts of importance associated with the history, architecture, or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social, or spiritual values for past, present, or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Archaeological site/materials are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

Historic material are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Impact is the positive or negative effects on human well-being and / or on the environment.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

Study area or '**project area**' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

Assumptions and disclaimer

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed within the mining development site during mining, such activities should be halted immediately, and a competent heritage practitioner and KwaZulu Natal Amafa and Research Institute must be notified in order for an investigation and evaluation of the find(s) to take place (see KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018). Recommendations contained in this document do not exempt the developer/applicant from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018), ISS assumes no responsibility for compliance with conditions that may be required by KwaZulu Natal Amafa and Research Institute in terms of this report.

INTRODUCTION

Integrated Specialist Services (Pty) Ltd was retained by Tshifcor Investment and Resources to carry out a Phase 1 AIA/ HIA of the proposed Mining Right Application on the farms Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT), in KwaZulu Natal Province. The proposed new mining development is gazetted in terms of section 38 (1) of the NHRA and Section 41 of KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018), (see Figure 1). This HIA study is triggered by mining right application by Ericure (Pty) Ltd in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) as amended. The overall purpose of this heritage report is to identify, assess any heritage resources that may be located in the study area and evaluate the positive and negative impacts of the proposed mining development on these resources in order to make recommendations for their appropriate management. To achieve this, we conducted background research of published literature, maps, and databases (desktop studies) which was then followed by ground-truthing by means of drive-through surveys and field walking. Desktop studies revealed that the general project area is rich in Late Iron Age (LIA), historical buildings and graves outside municipal cemeteries. It should be noted that while heritage resources may have been located in the entire study area, subsequent developments such as agriculture and infrastructure development work have either obliterated these materials or reduced them to isolated finds that can only be identifiable as chance finds during construction and mining. The proposed mining development may be permitted subject to adopting recommendations and mitigation measures proposed in this report. Other than graves located within the mining development site, there is no archaeological and heritage reason why the development cannot proceed, taking full cognizance of clear procedures to follow in the event of chance findings.

1.1 Terms of Reference (ToR)

The author was requested by Tshifcor Investment and Resources to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the mining right application site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the KwaZulu Natal Amafa and Research Institute to make an informed decision in respect of authorisation of the proposed mining development
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located within the mining right application site;
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impact of the proposed mining on these cultural remains, according to a standard set of conventions.

- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources; and
- Review applicable legislative requirements.

1.2 Project Location

The Dannhauser Coal Project is located in the Klip River coalfield. The Klip River coalfield lies in the eastern portion of the Karoo basin which is closer to KwaZulu Natal and the coal seams are of higher quality and richer in vitrinite than in the Free State Province. The project area is located approximately 28km south of Newcastle, approximately 22km north of Dundee and approximately 325km east to north-east of the City of Durban in the KwaZulu-Natal Province. The city of Johannesburg lies approximately 380km north-west of the project area. The extent of the area required for mining is 1620.6104Ha. (Area defined by prospecting rights) and the extent required for infrastructure development is 311.19ha. The following table presents coordinates of the recorded heritage sites.

Table 1: Location of Identified Sites

Site	Coordinates	Description
DCPBS01	S27°59'58.00" E30°13'39.70".	Burial Site
DCPBS 02	S28°00'27.90" E30°13'38.60".	Burial site
DCPBS 03	S28°00'30.70" E30°13'42.40".	Burial site
DCPBS 04	S27°59'38.10" E30°13'22.60".	Burial site
DCPBS 05	S27°59'34.20" E30°13'21.1".	Burial site
DCPBS 06	S27°59'18.80" E30°12'12.50".	Burial Site
DCPBS 07	S27°59'50.70" E30°12'37.10".	Burial Site
DCPBS 08	S27°59'49.80" E30°12'41.50".	Burial Site
Historical Building (Henning Farm)	S27°59'44,20" E30°13'18.2".	Historical building
Historical Structure (Old Fort Ngisana)	S28°00'12.70" E30°13'44.50".	Historical Structure

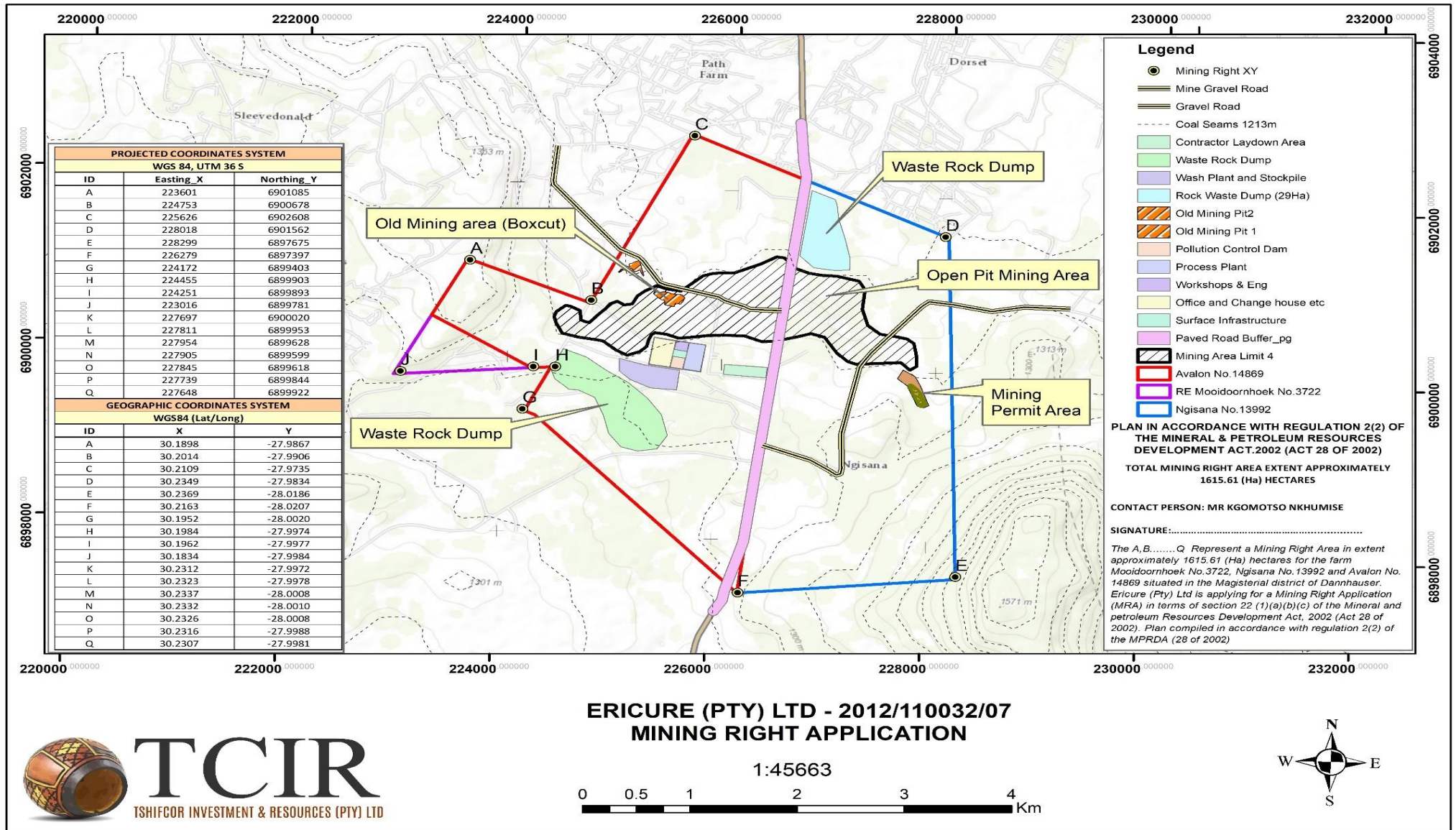


Figure 1: Location of the proposed project site (TCIR 2020)

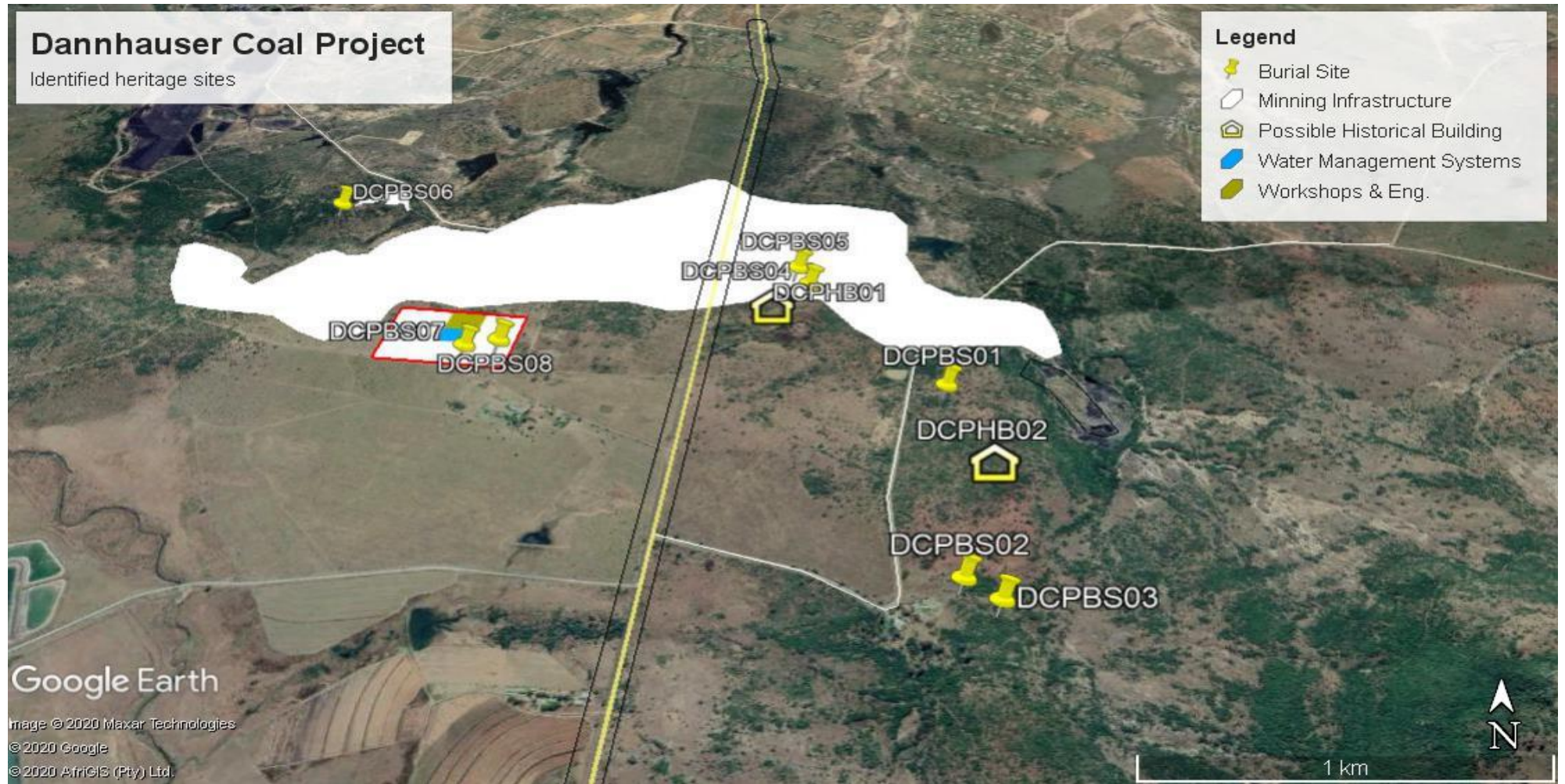


Figure 2: Location of heritage sites recorded within the proposed core area (Mlilo 2020)

1.3 Project Background and description

Ericure (Pty) Ltd is the holder of a new order prospecting rights granted and issued in terms of Section 11(1) of the Mineral and Petroleum Resources Development Act 28 of 2002 as amended by Act 49 of 2008 ("MPRDA") Jindal Africa Limited was the holder of the a new order prospecting rights granted and issued in terms of Section 17(1) of the Minerals and Petroleum Resources Development Act No 28 of 2002 ("MPRDA"). A consent letter to confirm the approval of the application was received from the Department of Minerals and Resources ("DMR"). The Dannhauser Coal Project is planned as a conventional open pit mining operation. Currently little infrastructure exists to service the planned mining activities and a majority of the infrastructure requirements will be established as part of the planned mining and processing operation. The proposed infrastructure development includes:

- Mining related infrastructure, including site offices
- Processing plant and associated crushing facilities infrastructure
- Access roads
- Internal roads
- Bulk storage for fuel
- Surface silo
- Topsoil stockpiles
- Overburden stockpiles
- Pollution control dams
- Sewage treatment plant
- Waste and scrap yard
- Workshop
- Wash-bay
- Conveyor routes
- Service roads

- Powerlines
- Pipelines
- Fencing
- Mine laboratory
- Accommodation village
- HV power line and related sub-station
- Water supply and water storage infrastructure

LEGISLATIVE CONTEXT

Three main pieces of legislations are relevant to the present study and there are presented here. Under KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018), the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA), an AIA or HIA is required as a specialist sub-section of the Basic Assessment (BA) process. This report is also required in terms of Section 23(a), (b) and (c) of the Minerals and Petroleum Resources Development read together with regulations 11(1) (g) of the Mineral and Petroleum Resources Development Act 28 of 2002).

General protection for Structures,

37.(1)(a) No structure which is, or which may reasonably be expected to be, older than 60 years, may be demolished, altered or added to without the prior written approval of the Institute having been obtained on written application to the Institute.

(b) Where the Institute does not grant approval, the Institute must consider special protection in terms of sections 44, 45, 46, 47 and 49 of Chapter 9.

(2) The Institute may, by notice in the Gazette, exempt –

(a) a defined geographical area; or

(b) defined categories of sites within a defined geographical area,

from the provisions of subsection (1) where the Institute is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 44, 45, 46, 47 and 49 of Chapter 9.

(3) A notice referred to in subsection (2) may, by notice in the Gazette, be amended or withdrawn by the Institute.

General protection: Graves of victims of conflict

38. No person may damage, alter, exhume, or remove from its original position –

(a) the grave of a victim of conflict.

(b) a cemetery made up of such graves; or

(c) any part of a cemetery containing such graves, without the prior written approval of the Institute having been obtained on written application to the Institute and in terms of the Regulations to this Act

General protection: Graves of victims of conflict

39. (1) No grave or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority –

- (a) not otherwise protected by this Act; and
- (b) not located in a formal cemetery managed or administered by a local authority,

may be damaged, altered, exhumed, inundated, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Institute.

(2) The Institute may only issue written approval once it is satisfied that –

- (a) the applicant has provided evidence of efforts to consult with communities or descendants who may have an interest in the grave, using the guidelines and criteria for consultation set out in regulations; and
- (b) the applicant and the relevant communities or descendants have reached agreement regarding the grave

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites

40.(1) No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Institute.

(2) Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Institute without delay.

(3) The Institute may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Institute to be inappropriate within 50 metres of a rock art site.

(4) No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Institute

(5) No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use similar detection or excavation

equipment for the recovery of meteorites, without the prior written approval of the Institute having been obtained on written application to the Institute.

(6)(a) The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

(b) The Institute may establish and maintain a provincial repository or repositories for the safekeeping or display of

–

- (i) archaeological objects;
- (ii) palaeontological material;
- (iii) ecofacts;
- (iv) objects related to battlefield sites;
- (v) material cultural artefacts; or
- (vi) meteorites.

(7) The Institute may, subject to such conditions as the Institute may determine, loan any object or material referred to in subsection (6) to a national or provincial museum or institution.

(8) No person may, without the prior written approval of the Institute having been obtained on written application to the Institute, trade in, export or attempt to export from the Province –

- (a) any category of archaeological object;
- (b) any palaeontological material;
- (c) any ecofact;
- (d) any object which may reasonably be regarded as having been recovered from a battlefield site;
- (e) any material cultural artefact; or
- (f) any meteorite.

(9)(a) A person or institution in possession of an object or material, referred to in paragraphs (a) - (f) of subsection (8), must submit full particulars of such object or material, including such information as may be prescribed, to the Institute.

(b) An object or material referred to in paragraph (a) must, subject to paragraph (c) and the directives of the Institute, remain under the control of the person or institution submitting the particulars thereof.

(c) The ownership of any object or material referred to in paragraph (a) vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

Heritage resources management

41.(1) 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 300 m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site –

(i) exceeding 5 000 m² in extent;

(ii) involving three or more existing erven or subdivisions thereof;

(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;

(d) the rezoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in regulations,

must, at the very earliest stages of initiating such a development, notify the Institute and furnish it with details regarding the location, nature and extent of the proposed development.

(2) The Institute must, within 14 days of receipt of a notification in terms of subsection (1) –

(a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report: Provided that such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the Institute with relevant qualifications and experience and professional standing in heritage resources management; or

(b) notify the person concerned that this section does not apply.

(3) The Institute 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 affect;
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations;
- (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) the consideration of alternatives, if heritage resources will be adversely affected by the proposed development; and
- (g) plans for mitigation of any adverse effects during and after the completion of the proposed development.

(4) The report must be considered timeously by the Institute which must, after consultation with the person proposing the development, decide –

- (a) whether or not the development may proceed;
- (b) any limitations or conditions to be applied to the development;
- (c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
- (d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
- (e) whether the appointment of specialists is required as a condition of approval of the proposal.

(5) The Institute must not make any decision under subsection (4), with respect to any development which impacts on a heritage resource protected at national level, unless it has consulted the heritage resources authority.

(6) The applicant may appeal against the decision of the Institute to the responsible Member of the Executive Council, who –

- (a) must consider the views of both parties; and
 - (b) may, at his or her discretion –
 - (i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the Institute; and
 - (ii) consult the National Heritage Resources Agency; and
 - (c) must uphold, amend or overturn such decision.
- (7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by the National Heritage Resources Agency unless the Institute decides otherwise.
- (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that –
- (a) the evaluation fulfils the requirements of the Institute in terms of subsection (3); and
 - (b) any comments and recommendations of the Institute with regard to such development have been taken into account prior to the granting of the consent.
- (9) The Institute, with the approval of the responsible Member of the Executive Council, may, by notice in the Provincial Gazette, exempt from the requirements of this section any place specified in the notice.
- (10) Any person who has complied with the decision of the Institute in subsection (4) or of the responsible Member of the Executive Council in terms of subsection (6) or other requirements referred to in subsection (8), is exempted from compliance with all other protections in terms of this Part, but any existing heritage agreements made in terms of section 42 continue to apply

METHODOLOGY

This document falls under the Basic Assessment phase of the AIA/HIA and therefore aims at providing an informed heritage-related opinion about the proposed mining right application in KwaZulu Natal Province. This is usually achieved through a combination of a review of any existing literature and a basic site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied. The desktop study was followed by field surveys. The field assessment was conducted according to generally accepted AIA/HIA practices and aimed at locating all possible objects, sites, and features of cultural significance on the development footprint. Initially a drive-through was undertaken around the proposed development site as a way of acquiring the archaeological impression of the general area. This was then followed by a walk down survey in the study area, with a handheld Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed mining development in order to suggest further action. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.

1.4 The Fieldwork survey

The fieldwork survey was undertaken on the 19th of June 2020. The desktop studies were followed by intensive and extensive field walking to verify the situation on the ground and to identify the extent of the stone walled fortress and burial sites. As a result of advances in technology, it is possible to survey large tracts of land on the desktop. A scoping survey was thus conducted for the entire mining right application site (Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT)). The desktop scoping survey in Google Earth and Ortho-rectified satellite imagery identified buildings, structures, previously mined areas, and Anglo Boer stone fortress which may be protected by the heritage legislation. The stone walled sites were identified by the concentration of stone walled enclosures. Sites known from written sources were marked pending verification during ground-truthing. During the scoping survey using Google Earth and other electronic databases, it became clear that most of the images were taken when there was little vegetation cover. It was thus easier to map the sites pending verification during ground-truthing. This mapping exercise also gave indications regarding the possible size of the settlements. There were some areas that were not visible enough to allow for mapping because the walls had collapsed to the foundation level and concealed by thick vegetation cover. These were noted and the maps were verified during field walking. The study team was accompanied by two community representatives and they assisted in identifying mostly burial sites which were concealed by dense vegetation cover.

Based on the maps, it was noted that most of the stone walled structures and farmstead including previous mining activities were identifiable on the google earth maps. A comprehensive survey of this area was conducted to identify

the salient features as well as relationships between the different components of the heritage sites, buildings and burial sites. The main focus of the survey involved a pedestrian survey which was conducted within the proposed mining right application site. The pedestrian survey focused on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; strands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence of building rubble, existing buildings and ecological indicators such as invader weeds.

The literature survey suggests that prior to the 20th century modern residential and on-going infrastructure developments; the general area where the proposed development is located would have been a rewarding region to locate heritage resources related to Stone Age and particularly Iron Age and historical sites (Bergh 1999: 4). However, the situation today is completely different. The study area now lies on a clearly modified landscape that is dominated by agricultural infrastructure and developments.

1.5 Visibility and Constraints

Most sections of the proposed mining development sites are visible because they were previously cleared for agriculture, however, visibility of surface remains, and graves was seriously compromised by dense vegetation cover. It is conceded that due to the subterranean nature of cultural remains this report should not be construed as a record of all archaeological and historic sites in the area.

1.6 Consultations

The Public Participation process is conducted by the EAP. The study team consulted Mr Khumalo and other residents about the heritage character of the proposed mining development site. The project archaeologist and heritage practitioner consulted listed landowners about any heritage resources located within their farms. This process helped in identifying mostly forgotten graves within the proposed mining development site. We also took the opportunity to investigate the presence of buildings and structures older than 60 years within the affected farms. The Public Participation Process will also invite and address comments from affected communities and any registered heritage bodies on any matter related to the proposed mining project including heritage concerns that may arise as a result of the proposed mining project. The issues raised by the public with respect to heritage resources within the proposed mining development site will also be included in the Scoping and EIR.

The following photographs illuminate the nature and character of the Project Area.



Plate 1: Shows remains previous mining infrastructure (weighbridge).



Plate 2: showing previously mined area of the proposed mining development site.



Plate 3: showing previously stockpiled coal within the mining development site.



Plate 4: Showing previous mine area within the proposed mining development site.



Plate 5: Showing proposed mining development site. Note the dense grass which compromised visibility of surface finds.



Plate 6: showing proposed mining development site.



Plate 7: Showing proposed mining development site and Ngisane hill in the background..



Plate 8: showing community representatives searching for known burial sites within the mining development site.



Plate 9: showing mining right application site.



Plate 10: showing mining right application site



Plate 11: showing previous agricultural field within the mining right application site.



Plate 12: showing previous agricultural field drainage within the mining right application site.

ARCHAEOLOGICAL CONTEXT

The project area is located in the Dannhauser Local Municipality area in KwaZulu Natal Province of South Africa that boasts a rich traditional history of contemporary Zulu (Huffman 2007, Prins 2014, 2017, 2019, Beater 2017, 2019). Archaeological and heritages studies in the KwaZulu Natal region indicate that the area is of high pre-historic and heritage significance. It is in fact a cultural landscape where Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region (also Bryant 1965, Maggs 1989, Huffman, 2007). The study area has been systematically surveyed for archaeological and heritage sites in the past by the KwaZulu Natal Museum and Amafa AkwaZulu Natal staff (Beater 2019, Prins 2019). The previous surveys recorded MSA, LSA, LIA and historical heritage sites in the Vryheid area of KwaZulu Natal. However, none of the recorded sites are located within the proposed project site.

The greater Dannhauser area has never been systematically surveyed for archaeological heritage sites (Prins 2019). According to Prins (2019) only five sites are recorded in the data base of the KwaZulu-Natal Museum. These include two rock art sites with later Stone Age material and three Later Iron Age sites with characteristic stone walling. Oliver Davies recorded Middle Stone Age sites between Dannhauser and Newcastle (Prins 2019). European settlement of the area started soon after 1838 when the first Voortrekker settlers marked out large farms in the area. However, most of these farms were abandoned in the 1840's when Natal became a British colony only to be reoccupied again by British immigrants.

Stone Age sites are generally identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south west of the project area.

From an archaeological perspective, the south of Vryheid area, like most of KwaZulu Natal region has potential to yield Stone Age period sites (also see Deacon and Deacon, 1997). The greater Vryheid area has been surveyed by archaeologists from the then Natal Museum and Amafa in the 1970's and 1980's (Prins 2019). and later by various archaeologists attached to the Natal Museum (Mazel 1989; Mitchell 2005). Literature in the KwaZulu-Natal Museum indicates that the Dundee and Dannhauser areas are rich in archaeological sites covering diverse time-periods and cultural traditions. These include Early, Middle and later Stone Age sites, Early Iron Age sites, Later Iron Age sites, and some historical sites (Prins 2019). However, the specific affected project-receiving environment did not yield any confirmable Stone Age sites.

Stone Age sites of all the main periods and cultural traditions occur in open air contexts as exposed by excessive erosion in the Vryheid area. The occurrence of Early Stone Age tools in the near vicinity of permanent water resources is typical of this tradition. These tools can be attributed to early hominins such as *Homo erectus*. Based on typological criteria they most probably date back to between 300 000 and 1.7 million years ago. A few MSA blades and flakes which date back to between 40 000 and 200 000 years ago are on record in the project area. The later Stone Age flakes and various rock painting sites associated with San are also on record in the general project area (Beater 2019, Prins 2019).

The Iron Age of the KwaZulu Natal region dates back to the 5th Century AD when the Early Iron Age (EIA) proto-Bantu-speaking farming communities began arriving in this region, which was then occupied by hunter-gatherers. These EIA communities are archaeologically referred to as the Kwale branch of the Urewe EIA Tradition (Huffman, 2007: 127-9). The Iron Age communities occupied the foothills and valley lands introducing settled life, domesticated livestock, crop production and the use of iron (also see Maggs 1984a; 1984b; Huffman 2007). Alongside the Urewe Tradition was the Kalundu Tradition whose EIA archaeological sites have been recorded along the KwaZulu Natal region. From about 15 00 AD the region was occupied by new coming groups of Late Iron Age farmers of the Kalundu Tradition (ibid). The region was the centre of immigration and migration of different African groups some of which are ancestors of the contemporary Zulu predominant in the region. Early Iron Age sites of Mzuluzi (AD500-700), Ndongondwane (AD 700-800) and Ntshokane (AD 800 -900) were recorded in the Ugu District Municipality (Maggs 1989:31, Huffman 2007:325-462. LIA farmers arrived in the Vryheid area around 800 yrs ago (Bryant 1965)

Throughout the middle of the 1800s the region witnessed the Mfecane migrations and displacements linked to Tshaka's expansionist policy. The Voortrekkers arrived in Natal regions in the shadow of the weakened African kingdoms and chiefdoms in the aftermath of the Mfecane. This effectively ushered in new era of colonial occupation by succeeding Afrikaans and British colonial administration authorities through the last half of the 1800s and into the last 1900s. By 1850s the region witnessed the influx of more settler communities which triggered settler wars between the African chiefdoms and the incoming Afrikaner settlers. Some of these colonial wars and battles lasted into Anglo-Boer wars of 1899-1902. The Vryheid area was tightly contested by the local Zulu, the Boers and the British Imperial forces. Several battles and skirmishes occurred in the Vryheid area. The battle of Blood River between the Zulu and the invading Boers occurred further northwest of the project area (Derwent 2006). The Anglo Zulu War of 1879 was also fought in the Dannhauser and Vryheid areas for example the Battle of Scheepersnek and the Battle of Lancaster Hill north of Vryheid (Derwent 2006). Traces of these battles are still visible in the project area and protected as such.

The Vryheid area was at one time from 1884 to 1888 under the short-lived Nieuwe Republiek and Vryheid was the capital. This happened when the Boers assisted Dinizulu to reclaim his throne from his uncle Uzibhebhu. Lucas

Meijer was the president of the short-lived republic. The Nieuwe Republiek became defunct in 1888 when it was absorbed by the Zuid Afrikaansche Republiek. The later effectively led to complete subjugation of African communities to settler administration starting as part of the ZAR of Transvaal. There after the region was subsequently annexed by the British and effectively placed the majority of African communities under the Union of South Africa in 1910, which eventually ended with the establishment of the new South Africa in 1994.

The town of Dannhauser was named after Renier Dannhauser, a German settler, who purchased the farm Palmietfontein from the Natal Government in 1872. It was proclaimed a village in 1937. Contemporary Dannhauser covers five farms, namely Tweediedale, Gleneagles, Rocky Branch, Cornwall and Klipkuil. Dannhauser, like Newcastle, is a former coal mining town. Some historical buildings in town includes the post office and residential homes older than 60 years old.

Coal mining in the project area

Hancox and Gotz (2014:86) have posited that the coalfields of KZN have historically played an important role in the coal industry of South Africa for the high quality of the coals produced. Historically the Vryheid Coalfield was an important producer of high-quality coking coal and anthracite, producing the highest quality anthracite in South Africa. The coalfields in the project area have been extensively mined. The earliest recorded commercial exploitation in the Vryheid Coalfield was in 1898, with coal being mined from the Hlobane and Zuinguin mountains. The rail line only reached Vryheid in 1906 and it took the creation of a branch line in 1908 to open up the development of the Hlobane coal mining sector.

In the early seventies, the Anglo-American Corporation acquired the Enyati and Natal Anthracite Collieries, which were located in the Enyati and Ngwibi mountains in the Vryheid district. Since then most of the production came from Natal Anthracite Colliery until it ceased production at the end of March 1992. Natal Anthracite provided direct employment for up to a 1000 people over a period of 50 years.

1.7 Intangible Heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage remains because no historically known groups occupied the study area and most of the original settler descendants moved away from the area.

1.8 SAHRIS Data Base and Impact Assessment Reports in the project area

The SAHRIS website was consulted for previous heritage surveys and heritage site data covering the project area. Various heritage surveys have been conducted in the region. Prins (2012, 2013, 2017, 2018, 2019) Beater (2017, 2019), Pelser and Van Vollenhoven (2011) and Van Schalkwyk (2009,2015) conducted HIA studies for infrastructure developments in the Dannhauser area. The studies confirmed the occurrence of archaeological and heritage sites Spanning from the LSA to the historical period. These studies did not indicate any heritage sites or features on the footprint of the proposed development site. Several colonial battles and skirmishes between the Boers and British, the Boers and the Zulu and the British and Zulu were fought in the project area. Traces of these battles and skirmishes are still visible and protected by KwaZulu Natal Amafa and Research Institute in collaboration with Natal Museum. The recorded Anglo Boer War stone walled fortress is one such remarkable example.

RESULTS OF THE FIELD STUDY

1.9 Archaeology

The main cause of impacts to archaeological sites is direct, physical disturbance of the archaeological remains themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The primary impacts are likely to occur during clearance and digging for foundations of mining infrastructure, mining, indirect impacts may occur during movement of heavy mining equipment and construction vehicles. The excavation for foundations for buildings and structures and fence line posts will result in the relocation or destruction of all existing surface heritage material (if any are present).

Similarly, the clearing of access roads, haul roads and powerlines will impact material that lies buried in the topsoil. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to mining. It is important to note that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed mining development site. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during surface clearance and mining. The purpose of the AIA is to assess the sensitivity of the area in terms of archaeology and to avoid or reduce the potential impacts of the proposed development by means of mitigation measures (see appended Chance Find Procedure). The study concludes that the impacts on the LIA site will require mapping and documentation before the proceeding with the approval processes. The following section presents results of the archaeological and heritage survey conducted within the proposed development project site.

The field study did not record any confirmable archaeological sites within the proposed mining right application site. A solitary potsherd identified within the site could not be diagnosed because of lack of provenance.



Plate 13: showing a solitary potsherd identified within an eroded area .

Based on the field study results and field observations, the receiving environment for the proposed mining development is low to medium potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed mining development. Literature review also revealed that no Stone Age sites are shown on a map contained in a historical atlas of this area. This, however, should rather be seen as a lack of research in the area and not as an indication that such features do not occur.

1.10 Burial grounds and Graves

Human remains and burials are commonly found close to archaeological sites and abandoned settlements; they may be found in abandoned and neglected burial sites or occur sporadically anywhere because of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human burials on the landscape as these burials, in most cases, are not marked at the surface and concealed by thick vegetation cover.

Human remains are usually identified when they are exposed through erosion, earth moving activities and mining. In some instances, packed stones or bricks may indicate the presence of informal burials. If any human bones are found during the course of construction work, then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial, they would need to be exhumed under a permit from either KwaZulu Natal Amafa and Research Institute (for pre-colonial burials as well as burials later than about AD 1500) or Department of Health for graves younger than 60 years.

The field survey identified 7 burial sites located within the mining right application site. The burial sites were recorded as Dannhauser Coal Project Burial site (DCPBS 1 to 8.) (see Figure 2). All the burial sites seem to have been forgotten and neglected. These may have been of local communities who were displaced by the establishment of the settler farms.

Burial site DCPBS1 is located at GPS Coordinates S27°59'58.00" E30°13'39.70". The study recorded eleven (11) traditional graves belonging to the Sekhakhane family. The site is comprised of 6 adult graves and 5 graves for your individuals. Some graves at the site are older than 60 years. A member of the Sekhakhane family assisted in the identification of graves concealed by dense vegetation cover. The family is aware of the proposed mining development and it is anticipated that they will participate in any mitigation measures decided by the applicant.

Burial site DCPBS2 is located at GPS Coordinates S28°00'27.90" E30°13'38.60" near the Sekhakhane homestead. The study recorded 7 traditional graves at the site. The graves are marked by oval shaped stone piles with distinctive headstones. The site is fenced and well maintained by the custodians (see Plates 18&19).

Burial site DCPBS3 is located at GPS Coordinates S28°00'30.70" E30°13'42.40" within a stone walled enclosure (see Plate 20-27). The burial site belongs to the De Waal families. Three of the graves are marked by tombstones and inscribed headstones (see Plate 22, 23, 25 and 27). The site used to be secure, however, the gate and fence has been vandalised. In addition, one grave was robbed possibly by treasure hunters (see Plate 28).

Burial site DCPBS4 is located at GPS Coordinates S27°59'38.10" E30°13'22.60" near Khumalo's homestead and approximately 300m from Hennings farmstead. Two traditional graves were recorded at this site. The site looks neglected. The owners of the graves are not known although their location can be traced. The graves are probably for migrant farm workers who have since left the area.

Burial site DCPBS5 is located at GPS Coordinates S27°59'34.20" E30°13'21.1". Four traditional graves were recorded at this site. The graves are marked by oval shaped stone piles. The graves are probably older than 60 years. The site is located in the vicinity of disused borrow pit. The local guides confirmed that graves belong to the Manyatela family.

Burial site DCPBS6 is located at GPS Coordinates S27°59'18.80" E30°12'12.50" within the Avalon Farm Section. The area has been extensively mined before and what remains are pools of water in the vicinity of the burial site. Three traditional graves were recorded at this site. They are marked by oval shaped stone piles with distinctive headstones. The site has not been maintained for a long time although residents are aware of their existence.

Burial site DCPBS7 is located at GPS Coordinates S27°59'35.1" E30°12'26.7" in the Avalon Section of the mining right application site. Seven traditional graves were recorded at this site. The graves are in 3 clusters within proximity, as such they were recorded as one site. The graves have long been forgotten. A local resident directed the study team to the site. The area has been extensively disturbed by previous agriculture activities.

It should be noted that burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. In addition, graves are important in providing evidence for communities seeking land restitution. Wherever they exist or not, they may not be tempered with or interfered with during any development without a permit from KwaZulu Natal Amafa and Research Institute. It is also borne in mind that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low within the proposed mining development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected.



Plate 14: showing graves at Sekhakhane Burial site.



Plate 15: showing a member of Sekhakhane Family showing the extent of her family burial site.



Plate 16: showing graves at Sekhakhane Family burial site. Note that visibility of the graves was compromised by dense vegetation cover.



Plate 17: showing some partially visible graves at Sekhakhane Family burial site.



Plate 18: showing second burial site for Sekhakhane Family. Note that this site is well maintained and fenced.



Plate 19: showing traditional graves at the Sekhakhane Family burial site. Note the lay out of the graves and the flowers within the family cemetery.



Plate 20: showing stone walled ensure at De Waal Family burial site.



Plate 21: showing sections of the stone walled enclosure at the De Waal Family cemetery.



Plate 22: showing one of the graves at the De Waal Family burial site.



Plate 23: showing one of the two graves marked by inscribed tombstones.



Plate 24: showing a vandalised tombstones for a grave of a young individual.



Plate 25: showing one of the graves marked by inscribed tombstone typical of the historical white settlers in South Africa.



Plate 26: showing one of the graves at the cemetery which was recently robbed by treasure hunters.



Plate 27: showing a broken tombstone at the cemetery.



Plate 28: showing closer view of a dug up grave which was destroyed by treasure hunters.



Plate 29: showing section of the stone walled enclosure.



Plate 30: showing section of the stone walled enclosure. Note the vandalised tombstone.



Plate 31: showing one of our guides pointing at graves near Khumalo's house.



Plate 32: showing graves at the long abandoned burial site.



Plate 33: showing graves at Manyatela family burial site in a disused quarry site.



Plate 34: showing graves at Mayatela Family burial site near a disused quarry site.



Plate 35: showing traditional graves at Manyatela Family burial site.



Plate 36: showing graves within the Avalon section of the mining right application site.



Plate 37: showing a traditional grave at close range.



Plate 38: showing a grave at close range. Note the the distinct headstone is the most visible.



Plate 39: showing graves at the Avalon Section of the Mining right application site.



Plate 40: showing graves at the Avalon Section of the Mining right application site.



Plate 41: showing graves at the Avalon section of the Mining Right Application site.



Plate 42: showing old graves which are no longer very visible.



Plate 43: showing graves which are now difficult to identify because the graves have surged over time.



Plate 44: showing a grave whose stones have surged and now difficult to identify.

1.11 Public Monuments and Memorials

The study did not record any public memorials and monuments within the mining right application site.

1.12 Buildings and Structures

There are existing farmsteads and associated infrastructure within all portions of the mining right application site. Most buildings and structures appear to be older than 60 years although they have been previously altered and renovated. Section 34 of the NHRA and Section 37 KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018), protects buildings and structures older than 60 years. However, of major interest is the historical Anglo Boer War fortress located at GPS Coordinates S28°00'12.7" E30°13'44.5" within the mining right site. The stone walled fortress is still spectacular although it has been partially disturbed by overgrown vegetation and natural decay. The fortress covers approximately 40m in length and approximately 30m in width. Some sections of the stone walled fortress are collapsing due to toppling and bulging as well as deterioration as a result of years of neglect. Movement of livestock is another cause for collapse of walls. The study team ascribed a local significance for the site. The site has both historical and education value. It is the considered opinion of the author that the site can be preserved *in situ* and incorporated into the mining layout as part of the area's rich heritage. As such the site must be mapped and documented before mining commences, However, should it become necessary to destroy the site, the proper procedures must be adhered to in accordance with the NHRA and KwaZulu Natal Amafa and Research Institute Act.

The old Caroline shop is located at GPS Coordinates S28°00'30.7" E30°13'42.4 within the mining right application site. The shop was owned by Mr Bell and it served the entire Ngisana area. It was a compound shop including a post office. The building is now used as residence for a security staff. It looks like the building has been altered and renovated over years. Although the original building is over 60 years some sections of the building are fairly recent.

The study team recorded an abandoned farmhouse with buildings and structures that appear to be older than 60 years. The farmstead is located at GPS S27°59'41.2" E30°13'22.6 within the mining development site. The Farmstead belonged to Mr Henning. The structures are rapidly deteriorating due to neglect and possible vandalism. Should it become necessary for the farmstead to be destroyed, proper procedures to obtain a destruction permit must be followed. The site must not be altered or destroyed without a destruction permit from KwaZulu Natal Amafa and Research Institute Act.



Plate 45: showing surviving walls of the Angolo Boer War Fortress of Ngisana.



Plate 46: showing collapsed sections of the Boer fortress. Note that dense vegetation cover inhibited visibility of the structure.



Plate 47: showing surviving walls of the Boer Fortress. Note that vegetation compromised visibility of the site.



Plate 48: showing stone walls disturbed by vegetation overgrowth.



Plate 49: showing stone walls. Note that overgrown vegetation compromised the docuemntation of the site.



Plate 50: showing spectacular walls at the Boer Fortress.



Plate 51: showing surviving walls of the Boer Fortress. Note that overgrown vegetation compromised visibility and documentation of the site.



Plate 52: showing our guide Khumalo showing the extent of the site.



Plate 53: showing the old Caroline Store owned by Mr Bell.



Plate 54: showing farm structure which is probably more than 60 years old.



Plate 55: showing farm house which is probably more than 60 years old.



Plate 56: showing hut at the Hennings farmstead.



Plate 57: showing main farm house which probably is more than 60 years old.



Plate 58: showing farm house which is probably more than 60 years old.



Plate 59: showing farm structure which is probably more than 60 years old.



Plate 60: showing a vandalised farm house which is probably more than 60 years old.



Plate 61: showing a vandalised farm house which is probably more than 60 years old.



Plate 62: showing farm house at the Avalon Section of the site.

Table 2: Summary of findings

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	There are farm structures and buildings which are older than 60 years as well as an Anglo Boer War fortress.
Areas to which oral traditions are attached or which are associated with intangible heritage	None exist
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	LIA sites occur in the broader project area, one was recorded on site.
Graves and burial grounds	There are 7 confirmed burial sites.
Movable objects	None
Overall comment	The surveyed area has no confirmable archaeological resources on the surface, but sub-surface chance finds are still possible. The recorded burial sites must preferably be preserved <i>in situ</i> , however, should it be necessary to remove them proper procedures must be followed before they are removed. The Anglo Boer war fortress and farm building must be protected in accordance with the relevant heritage legislation.

1.13 Assessment of Mining impacts

An impact can be defined as any change in the physical-chemical, biological, cultural, and/or socio-economic environmental system that can be attributed to human activities related to the project site under study for meeting a project need. The significance of the impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

Methodology Adapted in Assessing the Impacts

Table 3: Criteria Used for Rating of Impacts

Nature of the impact (N)		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
Magnitude (M)		
Minor	2	Negligible effects on heritage or social functions / processes. Includes areas / environmental aspects which have already been altered significantly and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on heritage or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on heritage or social functions / processes. Includes areas / environmental aspects which have already been moderately modified and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on heritage or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on heritage or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent (E)		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration (D)		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence (P)		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.

High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) \times \text{Probability}$$

The significance of the ecological impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the below.

Table 4: Criteria for Rating of Classified Impacts

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

Table 5: Operational Phase

Impacts and Mitigation measures relating to the proposed project during Operational Phase														
Activity/Aspect	Impact /	Aspect	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Mitigation measures	Magnitude	Extent	Duration	Probability	Significance after mitigation
Clearing and construction	Destruction of archaeological remains	Cultural heritage	-	4	1	4	5	45	<ul style="list-style-type: none"> Mitigation not required because the study did not record any confirmable sites Use chance find procedure to cater for accidental finds 	4	1	2	2	14
	Disturbance of graves	Cultural heritage	-	6	1	4	5	55	<ul style="list-style-type: none"> Burial sites must be plotted and clearly marked. Burial sites must be protected/barricaded to avoid accidental damage during mining activities Landowners/custodians must be informed about the potential impacts of the mining development, Custodians must be involved in any mitigation work to their family burial sites. 	4	2	4	3	36
	Disturbance of buildings and structures older than 60 years old	Operational	-	6	2	3	4	44	<ul style="list-style-type: none"> Buildings and structures older than 60 years must not be altered/destroyed without a permit from PHRA Buildings and structures older than 60 years must be mapped and protected. Mine management and workers must be educated about the value of historical buildings and structures. 	4	1	2	2	14

Impacts and Mitigation measures relating to the proposed project during Operational Phase

Activity/Aspect	Impact /	Aspect	Nature	Magnitude	Extent	Duration	Probability	Significanc e before mitigation	Mitigation measures	Magnitude	Extent	Duration	Probability	Significanc e after mitigation
Mining and haulage	Destruction public monuments and plaques	Operational	-	2	1	1	1	4	<ul style="list-style-type: none"> Mitigation is not required because there are no public monuments within the mining right application site 	2	1	1	4	Low

1.14 Cumulative Impacts

The European Union Guidelines define cumulative impacts as: "Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed mining development is considered the total impact associated with the proposed development when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed mining development was undertaken during the preparation of this report. The total impact arising from the proposed mining project (under the control of the applicant), other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated.

The impacts of the proposed mining development were assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation, this provides a good method of assessing a project's impact. However, in this case there are several infrastructure developments, including residential, road networks, commercial infrastructure where baselines have already been affected, the proposed mining development will add to the existing impacts in the project area. As such increased development in the project area will have a number of cumulative impacts on heritage resource whether known or covered in the ground. For example, during mining phase they will be increase in human activity and movement of heavy mining equipment and vehicles that could change, alter or destroy heritage resources within and outside the development sites given that archaeological remains occur on the surface. Cumulative impacts that could result from a combination of the proposed mining development and other actual or proposed future developments in the broader study area include site clearance and the removal of topsoil could result in damage to or the destruction of heritage resources that have not previously been recorded for example abandoned and unmarked graves.

Heritage resources such as burial grounds and graves, archaeological as well as historical sites are common occurrences within the greater study area. These sites are often not visible and as a result, can be easily affected or lost. Furthermore, many heritage resources in the greater study area are informal, unmarked and may not be visible, particularly during the wet season when grass cover is dense. As such, mine workers may not see these resources, which results in increased risk of resource damage and/or loss. Earth moving and extraction of gravel have the potential to interact with archaeology, architectural and cultural heritage.

No specific palaeontological resources were found in the project area during the time of this study; however, this does not preclude the fact that paleontological resources may exist within the greater study area. As such, the proposed mining development has the potential to impact on possible paleontological resources in the area. Sites of archaeological, paleontological, or architectural significance were not specifically identified, and cumulative

effects are not applicable. The nature and severity of the possible cumulative effects may differ from site to site depending on the characteristics of the sites and variables.

Cumulative impacts that need attention are related to the impacts of clearances, digging foundations, access roads and impacts to buried heritage resources. Allowing the impact of the proposed mining development to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. A significant cumulative impact that needs attention is related to stamping by especially construction vehicles during clearance and excavation within the mining site. Movement of heavy haulage vehicles must be monitored to ensure they do not drive beyond the approved sites. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process. Cumulative impacts can be significant, if construction, haulage vehicles and mining equipment are not monitored to avoid driving through undetected heritage resources.

1.15 Mitigation

It is not clear if all the recorded sites are going to be directly impacted by the proposed mining development, but we are certain that some of the recorded heritage sites may be affected directly or indirectly. The recorded burial sites and fortress must be mitigated before any mining activities commence. The sites must be mapped and documented by a professional archaeologist. A condition assessment of the old Anglo Boer fortress must be done in conjunction with the significance assessment. This assessment will determine whether the site can be destroyed or preserved *in situ*. If the site is not going to be destroyed by mining, then a management plan must be compiled in order to ensure proper management of the heritage resource. The site must be registered on the KZN provincial heritage register for future reference. However, should it be necessary to destroy the site appropriate steps must be taken in accordance with KwaZulu Natal Amafa and Research Institute Act and Section 35 of the NHRA and any other relevant statutes. Since it is a mining development, DMR regulations will take precedence especially regarding blasting.

The recorded burial sites must be mapped and secured to avoid any accidental damage by construction and mining vehicles. The burial sites should preferably be preserved *in situ*, however, should it be necessary to relocate the graves, proper procedures as provided by the KwaZulu Natal Amafa and Research Institute Act, NHRA and the Human Tissue Act must be followed. The sites must be fenced to protect it from any mining activities. The project planners must consider aligning their layout plan to avoid known heritage sites (see Figure 2). However, should it be necessary to relocate the graves, appropriate procedure as prescribed in the Human Tissue Act must be adhered to. In respect of buildings and structures which are older than 60 years, all the buildings and structures must be mapped and must not be altered or destroyed without a permit from KwaZulu Natal Amafa and Research Institute.

ASSESSING SIGNIFICANCE

The Guidelines to the SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

1.16 Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture, and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

1.17 Historic Value

Historic value encompasses the history of aesthetics, science, and society, and therefore to a large extent underlies all the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase, or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

1.18 Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality, or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

1.19 Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national, or other cultural sentiment to a majority or minority group. Social value also extends to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

DISCUSSION

A number of archaeologists conducted several Phase 1 Archaeological/ Heritage studies for various infrastructure developments and mining in the project area since 2006. The current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the proposed project area. Although these studies recorded sites of significance for example. Prins (2012, 2013, 2017, 2018, 2019) Beater (2017, 2019), Pelsler and Van Vollenhoven (2011) and Van Schalkwyk (2009, 2015) the recorded sites are far from the current site earmarked for mining development. However, the previous studies did not mention the Anglo Boer War fortress located within the proposed mine development site. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of limited ground surface visibility on sections of the proposed mining development site impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the mining activities. It should be borne in mind that the absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist within the proposed project site.

Based on the significance assessment criterion employed for this report, the proposed mining development site was rated **medium to high** from an archaeological perspective, however, the burial sites located within the site may be affected by auxiliary mining activities such as access roads, perimeter fence lines and drainage facilities. As such the layout plan for the mine must be carefully planned to avoid recorded sites. The impact rating for the Anglo-Boer War Fortress was rated medium to high and require further walkdown survey and mitigation against the final layout plan for the mine development. However, it should be noted that significance of the sites of Interest is not limited to presence or absence of physical archaeological sites. Significant archaeological remains may be unearthed during construction. (see appended chance find procedure).

RECOMMENDATIONS

1. From a heritage perspective supported by the findings of this study, the proposed mining development may be feasible if appropriate measures are taken to deal with all recorded heritage sites.
2. The Anglo Boer War Fortress must be mapped and documented before mining commences,
3. A management plan for the site must be drawn for effective protection of the site.
4. In accordance with DMR regulations on blasting, no blasting is permitted to take place within 500m of a heritage site because blasting causes excessive vibrations which will cause collapse of dry-stone walls.
5. The identified burial sites must be mapped and preserved *in situ*, however, should it become necessary to relocate them, proper procedures must be followed in accordance with KwaZulu Natal Amafa and Research Institute Act of 2018, the NHRA and the Human Tissue Act.
6. Should the recorded burial sites be preserved *in situ*, the mine must provide access to the sites for families who want to perform rituals and cleaning at their family burial site.
7. Should it be necessary to relocate the sites, then appropriate procedures must be followed in accordance with the Human Tissue Act since all the graves are younger than 60 years.
8. Buildings and structures that are older than 60 years must not be destroyed or altered without a permit from KwaZulu Natal Amafa and Research Institute.
9. Landowners must be requested to declare all burial sites, buildings older than 60 years and suspicious stone piles located within their plots.
10. The footprint impact of the proposed development and associated infrastructure should be kept to a minimal to limit the possibility of encountering chance finds.
11. Mine workers must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during subsurface construction prior to commencement of work on the site in order to ensure appropriate mitigation measures and that course of action is afforded to any chance finds.
12. Should chance archaeological materials or human remains be exposed during subsurface construction work on any section of the proposed mining development laydown sites, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption in mining scheduling while

recovering archaeological and any affected cultural heritage data as stipulated by the NHRA regulations.

13. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP, there are no significant cultural heritage resources barriers to the proposed development. The Heritage authority may approve the proposed mining right application to proceed as planned with special commendations to implement the recommendations here in made.

CONCLUSIONS

Integrated Specialist Services (Pty) Ltd was tasked by Tshifcor Investment and Resources to carry out HIA for the proposed mining right application on the farms Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT) near Dannhauser in KwaZulu Natal Province. Desktop research revealed that the project area is rich in LIA sites and historical site although not extensively researched. Prins (2012, 2013, 2017, 2018, 2019) Beater (2017, 2019), Pelser and Van Vollenhoven (2011) and Van Schalkwyk (2009,2015). The field study confirmed that there are burial sites located in various portions of the farm which need to be protected. In addition, the study recorded an Anglo Boer War stone walled fortress which must be protected. In terms of the archaeology and heritage, other than the recorded fortress, burial grounds and historical farmsteads there are no obvious 'Fatal Flaws' or 'No-Go' areas on the rest of the farm Mooidoornhoek (3722 HT), Ngisana (13992 HT) and Avalon (14869 HT) earmarked for development, Although 40% of the farms has either been ploughed, mining or built up, the potential for chance finds, remains and the mine and contractors are advised to be diligent and observant during all mining activities on the site. The procedure for reporting chance finds has clearly been laid out and if this report is adopted by KwaZulu Natal Amafa and Research Institute, then there are no archaeological reasons why the proposed development cannot proceed.

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APPENDIX 1: CHANCE FIND PROCEDURE FOR THE PROPOSED MINING RIGHT APPLICATION ON THE FARMS MOOIDOORNHOEK (3722 HT), NGISANA (13992 HT) AND AVALON (14869 HT) IN KWAZULU NATAL PROVINCE.

June 2020

ACRONYMS

BGG	Burial Grounds and Graves
CFPs	Chance Find Procedures
ECO	Environmental Control Officer
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
SAHRA	South African Heritage Resources Authority
SAPS	South African Police Service
UNESCO	United Nations Educational, Scientific and Cultural Organisation

CHANCE FIND PROCEDURE

Introduction

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of previously unidentified cultural heritage resources during construction and mining. The main purpose of a CFP is to raise awareness of all construction, mine workers and management on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources. Chance Finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Chance Finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the site manager must ensure that all personnel on the proposed mining development site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance find procedure details the necessary steps to be taken if any culturally significant artefacts are found during construction.

Definitions

In short the term 'heritage resource' includes structures, archaeology, meteors, and public monuments as defined in the South African National Heritage Resources Act (Act No. 25 of 1999) (NHRA) Sections 34, 35, and 37 as well as KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018. Procedures specific to burial grounds and graves (BGG) as defined under NHRA Section 36 will be discussed separately as this require the implementation of separate criteria for CFPs.

Background

The proposed mining development is located near Dannhauser, in the KwaZulu Natal Province. The development site is subject to heritage survey and assessment at planning stage in accordance with the NHRA. These surveys are based on surface indications alone and it is therefore possible that sites or significant archaeological remains can be missed during surveys because they occur beneath the surface. These are often accidentally exposed in the course of construction or any associated construction work and

hence the need for a Chance Find Procedure to deal with accidental finds. In this case an extensive Archaeological Impact Assessment was completed by T. Mlilo (2020) on the proposed mining development site. The AIA/HIA conducted was very comprehensive covering the entire site. The current study (Mlilo 2020) did not record any significant archaeological or heritage resources along the proposed project site.

Purpose

The purpose of this Chance Find Procedure is to ensure the protection of previously unrecorded heritage resources along the proposed project site. This Chance Find Procedure intends to provide the applicant and contractors with appropriate response in accordance with the NHRA and international best practice. The aim of this CFP is to avoid or reduce project risks that may occur as a result of accidental finds whilst considering international best practice. In addition, this document seeks to address the probability of archaeological remains finds and features becoming accidentally exposed during digging of foundations and movement of construction equipment. The proposed mining activities have the potential to cause severe impacts on significant tangible and intangible cultural heritage resources buried beneath the surface or concealed by tall grass cover. Integrated Specialist Services and Environmental Consultants developed this Chance Find Procedure to define the process which govern the management of Chance Finds during construction. This ensures that appropriate treatment of chance finds while also minimizing disruption of the construction schedule. It also enables compliance with the NHRA and all relevant regulations. Archaeological Chance Find Procedures are to promote preservation of archaeological remains while minimizing disruption of construction scheduling. It is recommended that due to the low to moderate archaeological potential of the project area, all site personnel and contractors be informed of the Archaeological Chance Find procedure and have access to a copy while on site. This document has been prepared to define the avoidance, minimization and mitigation measures necessary to ensure that negative impacts to known and unknown archaeological remains as a result of project activities and are prevented or where this is not possible, reduced to as low as reasonably practical during construction and mining.

Thus, this Chance Finds Procedure covers the actions to be taken from the discovering of a heritage site or item to its investigation and assessment by a professional archaeologist or other appropriately qualified person to its rescue or salvage.

CHANCE FIND PROCEDURE

General

The following procedure is to be executed in the event that archaeological material is discovered:

- All construction/clearance activities in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the find site.
- Briefly note the type of archaeological materials you think you have encountered, and their location, including, if possible, the depth below surface of the find
- Report your discovery to your supervisor or if they are unavailable, report to the project ECO who will provide further instructions.
- If the supervisor is not available, notify the Environmental Control Officer immediately. The Environmental Control Officer will then report the find to the Site Manager who will promptly notify the project archaeologist and KwaZulu Natal Amafa and Research Institute.
- Delineate the discovered find/ feature/ site and provide 25m buffer zone from all sides of the find.
- Record the find GPS location, if able.
- All remains are to be stabilised *in situ*.
- Secure the area to prevent any damage or loss of removable objects.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice).
- The project archaeologist will undertake the inspection process in accordance with all project health and safety protocols under direction of the Health and Safety Officer.
- **Finds rescue strategy:** All investigation of archaeological soils will be undertaken by hand, all finds, remains and samples will be kept and submitted to a Museum as required by the heritage legislation. In the event that any artefacts need to be conserved, the relevant permit will be sought from the KwaZulu Natal Amafa and Research Institute.
- An on-site office and finds storage area will be provided, allowing storage of any artefacts or other archaeological material recovered during the monitoring process.
- In the case of human remains, in addition to the above, the KwaZulu Natal Amafa and Research Institute will be contacted and the guidelines for the treatment of human remains will be adhered to. If skeletal remains are identified, an archaeologist will be available to examine the remains.
- The project archaeologist will complete a report on the findings as part of the permit application process.
- Once authorisation has been given by KwaZulu Natal Amafa and Research Institute, the Applicant will be informed when mining activities can resume.

Management of chance finds

Should the Heritage specialist conclude that the find is a heritage resource protected in terms of the NRHA (1999) Sections 34, 36, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), ISS will notify KwaZulu Natal Amafa and Research Institute on behalf of the applicant. KwaZulu Natal Amafa and Research Institute Act No. 05 of 2018 may require that a search and rescue exercise be conducted in terms of NHRA Section 38, this may include rescue excavations, for which ISS will submit a rescue permit application having fulfilled all requirements of the permit application process.

In the event that human remains are accidentally exposed, KwaZulu Natal Amafa and Research Institute or ISS Heritage Specialist must immediately be notified of the discovery in order to take the required further steps:

- a. Heritage Specialist to inspect, evaluate and document the exposed burial or skeletal remains and determine further action in consultation with the SAPS and Traditional authorities:
- b. Heritage specialist will investigate the age of the accidental exposure in order to determine whether the find is a burial older than 60 years under the jurisdiction of KwaZulu Natal Amafa and Research Institute or that the exposed burial is younger than 60 years under the jurisdiction of the Department of Health in terms of the Human Tissue Act.
- c. The local SAPS will be notified to inspect the accidental exposure in order to determine where the site is a scene of crime or not.
- d. Having inspected and evaluated the accidental exposure of human remains, the project Archaeologist will then track and consult the potential descendants or custodians of the affected burial.
- e. The project archaeologist will consult with the traditional authorities, local municipality, and SAPS to seek endorsement for the rescue of the remains. Consultation must be done in terms of KwaZulu Natal Amafa and Research Institute
- f. Having obtained consent from affected families and stakeholders, the project archaeologist will then compile a Rescue Permit application and submit to KwaZulu Natal Amafa and Research Institute.

- g. As soon as the project archaeologist receives the rescue permit from KwaZulu Natal Amafa and Research Institute he will in collaboration with the company/contractor arrange for the relocation in terms of logistics and appointing of an experienced undertaker to conduct the relocation process.
- h. The rescue process will be done under the supervision of the archaeologist, the site representative and affected family members. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hand; all Contractor personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA. The project archaeologist will document the process from exhumation to reburial.
- i. Having fulfilled the requirements of the rescue/burial permit, the project archaeologist will compile a mitigation report which details the whole process from discovery to relocation. The report will be submitted to KwaZulu Natal Amafa and Research Institute and to the company.

Note that the relocation process will be informed by KwaZulu Natal Amafa and Research Institute Regulations and the wishes of the descendants of the affected burial.

APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED MINING RIGHT APPLICATION EMP

Objective								
<ul style="list-style-type: none"> Protection of archaeological sites and land considered to be of cultural value. Protection of known physical cultural property sites against vandalism, destruction and theft; and The preservation and appropriate management of new archaeological finds should these be discovered during construction. 								
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or KwaZulu Natal Amafa and Research Institute official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform KwaZulu Natal Amafa and Research Institute .		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the KwaZulu Natal Amafa and Research Institute and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as mining phase.						
Operational Phase								
		Same as mining phase.						

APPENDIX 3: HERITAGE MITIGATION MEASURES TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction work which may disturb previously unidentified chance finds.	<p>Possible damage to previously unidentified archaeological and burial sites during construction phase.</p> <ul style="list-style-type: none"> • Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites. • Loss of historic cultural landscape. • Destruction of burial sites and associated graves • Loss of aesthetic value due to construction work • Loss of sense of place <p>Loss of intangible heritage value due to change in land use</p>	<p>In situations where unpredicted impacts occur construction activities must be stopped, and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p> <ul style="list-style-type: none"> • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authorities permits for possible relocation of affected graves accidentally encountered during construction work. 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologist • Project EO 	Fine and or imprisonment under the PHRA Act & NHRA	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites where such development projects commence within the farm.</p>

APPENDIX 4: LEGAL PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

(a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;

(b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans.

(c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and

(d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed

(a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and

(b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must

(a) be clear and generally available to those affected thereby;

(b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and

(c) give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

(a) take account of all relevant cultural values and indigenous knowledge systems;

- (b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;
- (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
- (d) contribute to social and economic development;
- (e) safeguard the options of present and future generations; and
- (f) be fully researched, documented and recorded.

Burial grounds and graves

36. (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(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 co-operation 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.
- (7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.
- (b) The Minister must publish such lists as he or she approves in the Gazette.
- (8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.
- (9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

General policy

47. (1) SAHRA and a provincial heritage resources authority—

- (a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage resources owned or controlled by it or vested in it; and
 - (b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and
 - (c) must review any such statement within 10 years after its adoption.
- (2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.
- (3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

- (4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.
- (5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.
- (6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.

APPENDIX 4: CV OF THE ARCHAEOLOGIST (Trust Mlilo)

PERSONAL INFORMATION

ID NUMBER	690710 6184 187				
TITLE	Mr.	SURNAME	Mlilo	FIRST NAME	Trust
GENDER	Male			DATE OF BIRTH	10 July 1969
CONTACT	Email: trust.mlilo@gmail.com; Tel: +27 (0) 11 037 1565 (Bus) +27 71 685 9247 (Mobile)				
ADDRESSES	Bus. Physical: 65 Naaldehout Avenue, Heuweloord, Centurion, 0157 Cell: Fax: 086 652 9774				
QUALIFICATION: MA (ARCHAEOLOGY), BA Hons (Archaeology), [Univ. of Pretoria, Pretoria], PDGE, BA (Archaeology) UZ					

- BRIEF PROFILE**

Mr Trust Mlilo

Mr Trust Mlilo is the Archaeology/Heritage specialist at Integrated Specialist Services (Pty) Ltd. He is professional member of ASAPA and listed as an archaeologist and heritage specialist by Amafa aKwaZulu Natal and Eastern Cape Provincial Heritage Resources Agency (ECPHRA). Prior to joining Sativatec (Pty) Ltd, Trust Mlilo served as the Archaeologist and Heritage Manager at Nzumbululo Heritage Solutions (RSA Ltd.) [www.nzumbululo.com]. He has also collaborated in a number of archaeological and Heritage work with Siyathembana 293Trading (Pty) Ltd, Finishing Touch (Pty) Ltd, Vhubvo Archaeo Heritage (Pty) Ltd. And Integrated Specialist Services (Pty) Ltd. He is a professional heritage manager and research consultant with more than 15 years of practice and experience in archaeology, heritage management and education management. He has vast experience in Heritage Impact Assessments, Heritage induction, public consultations, monitoring and pre-construction heritage mitigation. He has worked as a researcher in Heritage development and nomination of heritage sites such as Nelson Mandela Legacy sites, Shembe sites and Delmas Treason Trial just to mention a few. He has attended and participated in several academic and professional symposiums and conferences.

Mr Mlilo has undertaken and assisted research teams in several projects in Sustainability, Energy & Environment (SEE); Environmental Health and Safety Solutions; Cultural Heritage Development (CHD) and Applied Socio-Economic Research and Enterprise Development [RED]. His willingness to learn has seen

him participate as a researcher and coordinator in research teams responsible, for example, in developing a Heritage Management Plans for O.R Tambo and Chris Hani memorial sites (2016) as well as the Nelson Mandela sites (2014 -2015), Integrated Development Planning (IDP) Environmental Toolkit (Mpumalanga Province [2011]), the Tourism Development Toolkit (Department of Environment and Tourism [2009]), etc. He is also effective in public engagements and consultations and has facilitated in massive grave relocation projects for several mining and infrastructure developments companies such as BHP Billiton 2013-2015 and Rhino Minerals 2009-2014 as well as Eskom and Road Agency Limpopo. He has conducted hundreds of Heritage Impact Assessment projects for Eskom minor reticulation projects in North West Province, KwaZulu Natal, Eastern Cape, Limpopo Province, Mpumalanga, Gauteng and the Free State Province as well as HIAs for various public and private developers (See SAHRIS website for HIA reports registered under Nzumbululo Heritage Solutions [Murimbika and Mlilo as the authors], Sativa and Integrated Specialist Services. The major highlight of his work was the Heritage Impact Assessment for the 700km, 765KV Gamma Kappa and Kappa Omega powerline in the Western Cape. Under Integrated Specialist Services, Mlilo served high profile companies such as GIBB, Afrimat, Eskom and Trans Africa Projects. Trust Mlilo has sound knowledge of heritage permit application processes and heritage mitigation processes. He is also effective in resource mobilization, team building and coordination. In addition, he has vast experience in project presentation and consultation.

• **EDUCATION**

Institution [Date from - Date to]	Degree(s) or Diploma(s) obtained:
University of Pretoria 2013 - 2015	MA in Archaeology
University of Pretoria 2009 – 2010	BA Honours in Archaeology
University of Zimbabwe, 2000	Post Graduate Diploma in Education (History)
University of Zimbabwe (1991-1993)	BA Gen. (Archaeology, African Languages & Linguistics)

LANGUAGE PROFICIENCY (Good, Fair, Poor)

Language	Reading	Speaking	Writing
English	Good	Good	Good
Shona	Good	Good	Good
Ndebele	Good	Good	Fair
Zulu	Fair	Good	Fair
Tsonga	Good	Good	Good
Tshivenda	Poor	Fair	Poor
Sesotho	Poor	Fair	Poor
Setswana	Poor	Fair	Poor
Xhosa	Poor	Fair	Poor
Afrikaans	Beginner's stage		

SKILLS MATRIX

Current Skills levels:

1 Had appropriate training only

2 Limited practical experience

3 Solid practical experience

4 Well versed, extensive experience

5 Expert, extensive experience

Type of Experience	Experience In months	Date Last used	Skill level
Communication and Marketing	+120	Current	4
Inter-personal and inter-governmental liaison	+120	Current	3
Organizational skills	+120	Current	4
Coordination	+120	Current	5
Facilitation	+120	Current	5
Planning	+120	Current	4
People Management	+120	Current	4
Time Management	+120	Current	5
Computer literacy (MS Office, Project management software, MAC OS)	+120	Current	3
Project management	+120	Current	4

- **COMPUTER SKILLS:**

- MS Operating System
 - Professional Level Competencies in MS Word, MS Excel, MS Power-point, PMS Publisher, and Internet.
- Mac Operating System
- Photoshop

ACADEMIC WORKS

- The challenges of cultural heritage management in South Africa: A focus on the Klasies River main site (Pending).

Title of Post-Graduate University Theses & Dissertations:

- **Master in Archaeology** (2013-2015), University of Pretoria) Management of the Klasies River main site along the Tsitsikamma Coast in the Eastern Cape Province.
- **BA Hons in Archaeology**. (2010, University of Pretoria): Comparison of conservation of archaeological sites under the jurisdiction of museums and sites in rural locations, the case BaKoni Malapa and Mahumane Late Iron Age sites in Limpopo Province.
- **Post Graduate Diploma in Education**. (2000, University of Zimbabwe): An assessment of attitudes towards use of media in the teaching of History in Secondary schools in Gweru, Zimbabwe

Selected Seminars, Lectures & Conference Papers

July 2014: Pan Africanist Archaeologist Conference. Johannesburg, South Africa Paper to be presented:

- *The challenges of heritage management in South Africa: A focus on the Klasies River main site.*

• WORK & PROFESSIONAL EXPERIENCE

PERIOD: 2015 to Present: Archaeologist/Heritage Manager at Integrated Specialist Services (Pty) Ltd [Web Site: www.sativatec.co.za] and emerging consultancy with highly experienced Heritage, Palaeontology and Ecology/Biodiversity Specialists. Sativa (Pty) Ltd 's main focus is to provide quality specialist services in Environmental and Heritage Management. Sativa (Pty) Ltd team has successfully completed a significant number of projects and is looking forward to building its profile in both Environmental and Heritage Management. The major clients are Bigtime Strategic Group Science and Research, Afrimat, Trans Africa Projects, Kimopax, Mawenje Consulting and Road Agency Limpopo. The following is a list of selected projects completed at Sativa (Pty). Ltd

- **ESKOM:** HIA study for the household electrification infrastructure of the proposed 22kv powerline for Norlim-Taung (15km) and Norlim Dikhuting (13km) in the Buxton area (Taung World Heritage Site) Greater Taung Municipality, North West Province.
- **GIBB:** HIA for proposed Assen / Tambotie Mining Right Application for the development of the Assen / Tambotie mine in Madibeng Local Municipality of North West Province
- HIA for proposed Eskom 13,5km, 132kv Randfontein Northern Strategy Power line and associated substations in Mogale City and Rand West City Local Municipalities of Gauteng Province
- HIA for proposed Eskom 132kv Westgate.Tarlton Power line in Mogale City and Rand West City Local Municipalities of Gauteng Province: Archaeological and Heritage Impact Assessment Report
- Phase 1 Heritage Impact Assessment for Eskom's proposed 11.065km 22kV Phase 3 Ngqeleni Electrification in Nyandeni Local Municipality of Eastern Cape Province

- HIA for proposed Eskom Wolvekrans Substation and 132kv Powerline in Mogale City and of Gauteng Province:
- HIA for Proposed Zandrivers Drift Mining Right Application in Madibeng Local Municipality of North West Province
- Phase 1 Heritage Impact Assessment for Eskom's proposed KwaZamoxolo normalization power line development at Noupoot in Umsobomvu Local Municipality, Northern Cape Province.
- Phase 1 Heritage Impact Assessment for Eskom's proposed 0.659km 22kv Murraysburg powerline move in the Pixley Ka Seme District Municipality, Northern Cape Province
- A Phase 1 Heritage Impact Assessment for the proposed, Tubatse Special Economic Zone in Burgersfort, Limpopo, under the jurisdiction of the Greater Tubatse Local Municipality of Limpopo Province.
- A Phase 1 Heritage Impact Assessment for the proposed construction of a new 20ML/D Pump station and bulk water pipeline in Middleburg, Steve Tshwete Local Municipality in Mpumalanga Province.
- A Phase 1 Heritage Impact Assessment for the proposed 5.5km 88kV power line and substation in Johannesburg Metropolitan Municipality, Gauteng Province.

PERIOD: 2008 to 2014: Archaeologist and Heritage Manager – Nzumbululo Holdings Limited [www.nzumbululo.com] (dynamic and market-leading consultancy providing innovative solutions in Applied Social-Economic Research and Enterprise Development services, Cultural Heritage Development, Sustainability, and Energy & Environment, Environmental Health and Safety).

Specialist Responsibilities: Assist in Project Management, fieldwork, community consultation and report compilation.

- Researcher for heritage and cultural landscape management projects that involve cultural resources management, heritage conservation management planning, heritage and environmental impact assessment, basic assessment, project management, public participation coordination, predevelopment planning specialists input coordination and liaison with compliant agencies such as government departments.

CORPORATE RESPONSIBILITIES

None

- **SPECIALIST POSITIONS AND PROFESSIONAL CONSULTANCY EXPERIENCE**

2007 - 2014 Archeological and Heritage Impact Assessment Studies

Have participated in phase 1 (scoping studies) to Phase 2 and 3 heritage and archeological impact assessment studies (mitigation excavations, rescue or salvage excavation and monitoring studies) for infrastructural developments including, powerlines, roads and other developments. The HIA and AIA portfolio during this period amounts to more than 300 projects across all nine provinces of South Africa and neighboring countries with an estimated value in excess of Million Rands in professional specialist's fees and billions in associated project budgets.

January 2008 – 2014: Environmental and Heritage Impact Assessment Study for Eskom SOC Limited 765kV Powerline Development Northern to Western Cape Provinces.

Field Archaeologist and Assistant Heritage Manager: Environmental Authorisation (EIA) and Heritage Impact Assessment (HIA) studies for Eskom SOC Transmission Gamma-Kappa & Kappa-Omega 765kV Powerlines Development in Northern & Western Cape Provinces in South Africa 2012-14. The Field archaeologist and heritage manager responsibilities involve coordinating a team of 4 (Archaeology, Palaeontology, Visual and Cultural Landscapes and Built Environment). This power transmission project is one of the largest and strategic transmission projects Eskom has ever embarked on in the past two decades.

July 2011 – March 2012: Research, Design and Development of the Delmas Treason Trials Commemorative Monument Project at Delmas Magistrate's Court, Mpumalanga Province.

Project Heritage Manager and Research Assistant for archival, oral and historical research on the 1985-1989 Delmas 22 and 1989 Delmas 4 Treason Trials (the last of the infamous apartheid treason trials). The project entails detailed legal history on treason trials, conceptualise, design and develop and commission a public commemorative monument in honour of the treason Trialists. Hundreds of hours of digital recordings of interviews with legal struggle icons such as George Bizos, the late Justice Arthur Chaskalson, Advocate Gcina Malindi, Justice Yacob, former Premier Popo Molefe and all surviving Delmas trialists and their families were collected, project report was generated and South Africa's first monument dedicated to commemoration of treason trials was developed and unveiled in March 2012 at Delmas Court in Delmas Town, Mpumalanga.

2009 – October 2010: eThekweni Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project

Commissioned by the eThekweni Metro Council as **Assistant Heritage Manager and Research Assistant** for the eThekweni Metropolitan Shembe Baptist Nazareth Church Cultural Landscape Project. The project involved conducting historical research into the evolution of Shembe Church, one of Africa's older and continuous independent churches that were founded by Isaiah Shembe in 1910. The second object was to propose, nominate the Shembe Cultural Landscape as Provincial Heritage Site under the protection of provincial and national heritage laws. The project closed with development of the cultural heritage Conservation Management Plan and nomination of Shembe cultural Landscape as Provincial Heritage Site

(Nomination Approved by the KwaZulu Natal Provincial Heritage Council (Amafa Council) on October. 18 2010).

2008- 2009: Mpumalanga Province Greening, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]

Research Assistant (Heritage) for the Mpumalanga Provincial Government commissioned Mpumalanga Province Greeting, Heritage and Greening Mpumalanga Flagship Program Management Unit [PMU]. Mr Mlilo assisted in archaeological and heritage components of the project.

- **AUXILIARY PROFESSIONAL EXPERIENCE**

1996-2006: ‘O’ and “A” Level History Examiner (Ministry of Education in collaboration with Cambridge University, UK).

- **AUXILLIARY SPECIALIST SKILLS**

Key Management skills

- Applied Environment & Heritage Management Research
- Sustainable development programmes assessment.
- Project Management
- Adult Education

Other skills

- Performance management
- Public Finance Management
- School administration and teaching
- Professional Archaeologist.

- **PROFESSIONAL AFFILIATIONS**

- **Member of Association of Southern African Professional Archaeologists (ASAPA) No.396.** Accredited by Amafa akwaZulu Natali and Eastern Cape Provincial Heritage Agency

- **REFEREES**

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