



**DEPARTMENT: NGT HERITAGE MANAGEMENT
SOLUTIONS**

PROJECT TITLE:

PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION FOR THE
PROPOSED WRE NKUNZANA PROSPECTING RIGHT PROJECT

PROJECT REFERENCE NUMBER:

PROSPECTING RIGHT REF.: KZN 30/5/1/1/2/10722 PR

DATE OF ISSUE:

18 APRIL 2018

SPECIALIST REPORT:

Heritage Impact Assessment for Prospecting Right and
Environmental Authorisation for the Proposed WRE
Nkunzana Prospecting Right Project

Revision: 01

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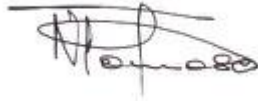
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NGT takes full liability for its specialists working on the project for all heritage related matters based on the information provided by the clients. NGT will not be liable for any changes in the type of mining application or changes in the environmental management process of the proposed project. Furthermore – any changes to the scope of works that may require significant amendments to the current heritage document will result in alteration of the fee schedule agreed upon with Shango Solutions.

DECLARATION OF INDEPENDENCE

Nkosinathi Tomose for NGT has compiled this report. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the project.

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Signature (Hand Signature on Approval by Client)	

EXECUTIVE SUMMARY

NGT has been appointed by Shango as an independent Cultural Resource Management (CRM) firm to conduct an HIA (inclusive of a PIA) for the proposed WRE Nkunzana Prospecting Right project in the Nkandla Local Municipality within King Cetshwayo District Municipality, in KwaZulu-Natal, South Africa. This study is conducted independently in terms of Section 38 (3) of the National Heritage Resources Act (NHRA), No. 25 of 1999. The KwaZulu-Natal Heritage Act (KZNHA), No. 10 of 1997 (at a provincial level) and the applicable legislations and bills such as the KwaZulu-Natal Heritage Bill (ZNHB) of 21 February 2008. It forms part of a Basic Assessment Report (BAR) conducted by Shango Solutions in terms of the National Environmental Management Act (NEMA), No. 107 of 1998 as well as Prospecting Rights Application in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act No. 28 of 2002). The study aims to assess potential impacts of the proposed project on archaeological, general heritage and palaeontological resources within the receiving environment as determined by the background information search of this study and the fieldwork conducted by NGT. Some of the identified heritage resources in the background information search include: archaeology, burial grounds and graves, built environment and landscape features such a provincial heritage site in form of a Barn.

The physical survey of the project area (footprint) was conducted on Friday the 13th and Saturday the 14th April 2018. The walk about of the project area took place on Thursday the 12th of April 2018. The survey was conducted Mr. Nkosinathi Tomose (Principal Archaeologist and Heritage Consultant– NGT) and Ms Zetu Damane (Non-Executive Director-NGT who also specialises in Social and Socio-Economic Studies). The two specialists were assisted by Ms G, Shezi and four local's men some of whom once had household in the ridge proposed for prospecting activities. The survey was conducted on foot and a vehicle was used to gain access to the receiving environment. Within the ridge for the proposed six drill points and six trenches there were no archaeological and built environment heritage resources. The survey identified a total of five cemeteries and one possible cemetery. The possible cemetery is located in a thick vegetated area known to have been occupied by the Nzuza family who also buried in the area (this area has been marked as a possible cemetery site). The five cemeteries, including the possible cemetery, have been allocated the following Unique Site Reference Numbers (USRN):

- Nku-Cem 01
- Nku-Cem 02

- Nku-Cem 03
- Nku-Cem 04 (**possible cemetery site**)
- Nku-Cem 05
- Nku-Cem 06 (**King Cetshwayo Grave**)

The identified cemetery sites including the possible site as graded to be of high heritage significance. Cemetery Nku-Cem 01, Nku-Cem 02 and Nku-Cem 06 will not be directly impacted by the proposed prospecting activities. These heritage resources are located a distance away from the proposed activities and associated infrastructure such as the proposed road. Nku-Cem 03, Nku-Cem 04 and Nku-Cem 05 are more at risk from the proposed prospecting activities than the three cemeteries mentioned above.

Based on the impact assessment of the identified heritage resources, the following conclusions and recommendations are made about the proposed prospecting activities which include drilling and trenching:

Conclusions:

Based on the results of literature review and the survey results the following conclusions are made:

- It is concluded that the proposed Nkunzana Mine is situated in a rich cultural landscape in terms of the historic period as per the desktop study.
 - It is an area known to have been the base of Zokufa Shezi a metallurgist for King Shaka.
 - It is also situated in the land where King Cetshwayo is buried.
 - The area has also been settled by various groups over time.
 - The proposed activities have high potential of disturbing marked and unmarked burial grounds and graves.
 - Burial grounds and graves are some of the resources that have been identified in the current study some of which could not be easily recognised by an outsider without knowing the people who resided in the area and the people buried.
- It is concluded that the fact that King Cetshwayo grave is situated in close proximity to the area proposed for prospecting and within the Nkunzana Mine Application area might raise alarms to

both Amafa KwaZulu Natal and the Royal House; royal burial grounds are accorded a significant status in the province and the matter will have to be dealt with in a very sensitive, socio-culturally and political manner even though the cemetery will not be impacted by the proposed prospecting activities.

- Although the grave of King Cetshwayo falls outside of the current prospecting area and will not be directly impacted by prospecting; it falls within the proposed Nkunzana Mine Application Area which means that it is at high risk from future mining activities depending on the nature and type of mining that will be conducted within the application area.
- Graves of Royal Family are accorded special protection in terms of the heritage laws of the country; for example, it is protected as a Provincial Heritage Site (Level II Heritage Site) in terms of Section 7 (1) (b) of the NHRA, No. 25 of 1999; as Heritage Landmarks in terms of Section 38; Provincial Landmark in terms of in terms of Section 38; and a special protection in terms of Section 40 of the KZNHA), No. 10 of 1997.
- On the ridge proposed for prospecting four cemeteries and one possible cemetery site have been identified (Nku-Cem 01, Nku-Cem 02, Nku-Cem 03, Nku-Cem 05 and possible cemetery Nku-Cem 04E), two of these cemeteries are located on the south-western slope of the affected ridge and away from the proposed activities (Nku-Cem 01 and Nku-Cem 02).
- The other two cemeteries, including the possible cemetery site, are located in close proximity to the development activities and the associated infrastructure such as the access road (Nku-03, Nku-05 and possible cemetery Nku-Cem 04)
- The four identifiable cemeteries (Nku-Cem 01, 02, 03 and Nku-Cem 05) on the ridge (as well as access road) have a combined total of 22 graves.
- The cemetery with eight graves (Nku-Cem 05) is identified to be at high risk from the proposed construction of the access road to site as it is within 1m from the proposed road and will fall within the road servitude.
- Nku-Cem 04 (possible cemetery) is also located in close proximity to the access road; it is only 10m away.
- The nature of the underlying geology in the receiving environment consists of “Hekpoort and Timeball Hill formations and within these areas Malmani, Mokolian and Quaternary sections” (Bootsma, 2017). These rocks are not known to contain palaeontological fossils, meaning that there is no need to conduct any other palaeontological studies or have a monitoring programme to rescue palaeontological resources during the trenching and drilling process associated with

the proposed prospecting activities. The Council of Geoscience has also mapped the area as a non-sensitive in terms of the South African palaeontological sensitivity layer.

Recommendations:

- It is recommended that the four cemeteries and the one potential cemetery site situated on the affected ridge and the area earmarked for the construction of access for the proposed prospecting activities should be avoided and be treated as No-Go-Areas from all stages of the project:
 - Planning
 - Construction
 - Operation
 - Decommission
 - Rehabilitation and closure
- These cemeteries should be fenced off from construction activities and a 10m buffer be established from each of the cemeteries.
- Cemetery Management Plans (CeMPs) should be developed to manage and monitor the cemeteries during the prospecting and construction phase of the access road associated with the project.
- The project Environmental Control Officer (ECO) should report of the conditions of the cemeteries during Environmental Management Programme (EMPr) reporting associated with his/her activities.
- No machinery placed near the graves or site camp should be established in the area with cemeteries (including the possible cemetery) to avoid any potential impacts to these resources.
- Of the four cemeteries, Nku-Cem 05 will be directly affected because it falls within a meter from the proposed access road - but can be mitigated by moving the road approximately 15m from the cemetery.
- No cemetery will be impacted if the above recommendations are fully implemented; therefore, it is recommended that the Amafa Burial Grounds and Graves (BGG) Unit grants the project a Positive Review Comment (PRC) and allow the proposed prospecting activities to proceed as planned.

- From a built environment perspective, there were no historic buildings or structures that are older than 60 years on site. The Amafa Built Environment Unit should grant the project a PRC.
- No archaeological resources were identified in and along the project area and the Amafa Archaeology, Palaeontology and Meteorite (APM) Unit should grant the project a PRC.
- The study area is located in an area with non-fossiliferous rocks, it is therefore recommended that no further palaeontological studies are required; Amafa Archaeology, Palaeontology and Meteorite (APM) Unit should grant the project a PRC to proceed from a palaeontological perspective.
- Once the environmental process for the proposed prospecting has been approved by the relevant authority in terms of all compliance requirements such as issuance of Environmental Authorisation (EA) and associated specialist permits, the following should be implemented from a heritage perspective:
 - The project proponent contractor on site should appoint an archaeologist or heritage specialist to monitor all construction related activities on site during bush clearing, to pegging and construction of the access road to the affected ridge.
 - The appointed archaeologist of heritage consultant will also have to assess the area for the proposed site camp and give advice on its suitability based on whether or not it is to be established within an area with graves.
- The royal graves are accorded a significant status in KwaZulu-Natal and are protected as a Provincial Heritage Site (Level II Heritage Site) in terms of Section 7 (1) (b) of the NHRA, No. 25 of 1999; as Heritage Landmarks in terms of Section 38; Provincial Landmark in terms of in terms of Section 38; and a special protection in terms of Section 40 of the KZNHA), No. 10 of 1997. It is recommended that although the grave of King Cetshwayo is located a distance away from the current prospecting activities and will not be impacted, that no machinery or site camp associated with the proposed prospecting activities should be established near the grave.
- It is also recommended that the project proponent should pen a letter that should accompany this HIA submission to Amafa and clearly state that there will be no prospecting activities on the ridge in which the grave is situated. The letter will take Amafa and the representative of the Zulu Royal House (who sit on Amafa committees) into confidence that the Royal Grave will not be impacted.

- A long term strategy on how the Royal Grave will be dealt with during the actual mining activities should be discussed between the project proponent, the Zulu Royal House, Amafa KwaZulu Natal facilitated by an appointed archaeologist and heritage consultant.
- It is advisable that the project proponent should start the heritage consultative process on the matter (how to deal with the royal grave) now to avoid any potential false alarms socio-culturally and politically that may risk the project on a long-term basis.

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LIST OF ABBREVIATIONS

ACRONYMS	DESCRIPTION
AIA	Archaeological Impact Assessment
Amafa	Amafa KwaZulu Natali
ASAPA	Association of South African Professional Archaeologists
ARCH	Archaeological
BAR	Basic Assessment Report
BEL	Built Environment & Landscape
BGG	Burial Grounds & Graves
CeMPs	Cemetery Management Plans
CRM	Cultural Resource Management
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DMR	Department of Mineral Resources
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
Kya	Thousand Years Ago,
KZN-DEDTEA	KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NHRA	National Heritage Resources Act
NEMA	National Environmental Management Act

NGT	Nurture, Grow, Treasure
PWP	Prospecting Work Programme
SAHRA	South African Heritage Resources Agency
SAHRIS	South Africa Heritage Resources Information Systems
SPV	Special Purpose Vehicle
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WOM	Without Mitigation
WM	With Mitigation

TERMS AND DEFINITIONS

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

Glossary of Terms

Archaeological Site (remains of human activity over 100 years old)

- 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)
- The Iron Age (~AD 400 to 1840)
- Historic (~AD 1840 to 1950)
- Historic Building (over 60 years old)

Archaeological resources

These include:

- Material remains resulting from human activities which 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;
- Rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- Wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of

the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;

- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- Construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- Carrying out any works on or over or under a place;
- Subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- Constructing or putting up for display signs or boards; any change to the natural or existing condition or topography of land;
- And any removal or destruction of trees, or removal of vegetation or topsoil.

Heritage resources: This means any place or object of cultural significance.

1. INTRODUCTION

1.1 The Nature and Extent of the Proposed Area (Prospecting Rights and Environmental Authorisation for the Proposed Nkunzana Prospecting Right Project)

This study is an HIA (inclusive of a PIA report) study for the proposed WRE Base Metals Nkunzana Prospecting Right Project in Nkandla Local Municipality within King Cetshwayo District Municipality in the KwaZulu-Natal Province, South Africa (*Figure 1*). The study area covers an area of approximately 2069.06ha in extent and is situated on Reserve Number 19 15839 south of Nkandla Forest (*Figure 2*). In KZN it is ensconced between four major towns: Greytown (in the south), Eshowe (south-east), Richards Bay (in the east) and Dundee (in the north-west) (*Figure 1*).

The objective of the proposed project is to explore and quantify the potential mineral resources in the area concerned. The HIA investigates the potential impacts of the proposed project activities on heritage resources within the receiving environment such as: burial grounds and a historical feature of the built environment. The overall objective of this HIA is to give advice on the management of heritage resources in and around the proposed project area in terms of known heritage resources management measures in line with prescripts of the NHRA, No. 25 of 1999.

1.2. Site Name

Nkunzana Mine Application Area, covering 2069.06ha 15.5km in Nkandla Local Municipality herein referred to as “site”.

1.3. Locality Map

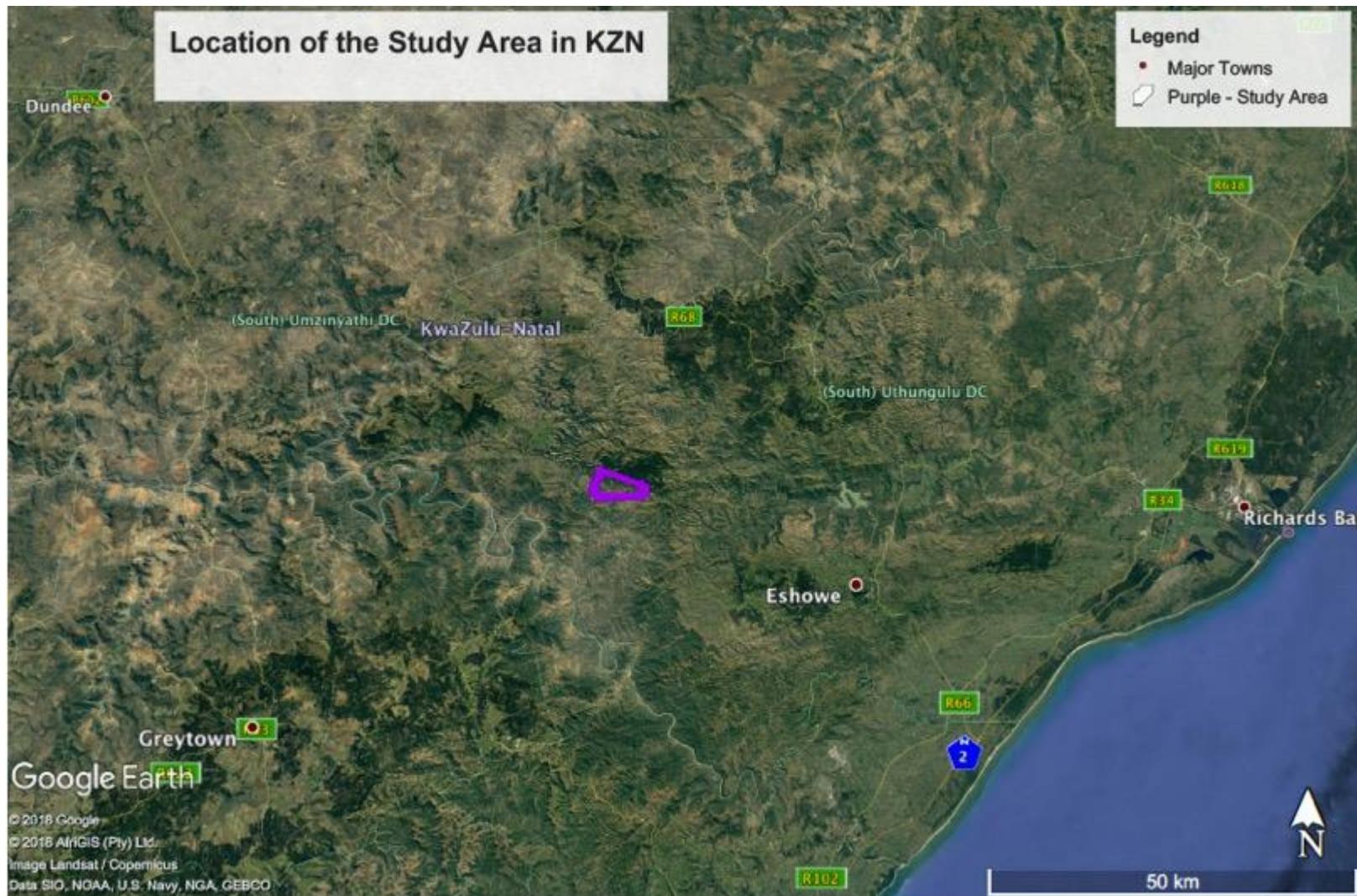


Figure 1-Google Earth map showing the location of the study area in KwaZulu Natal in relation to major towns: Greytown, Eshowe, Richards Bay and Dundee

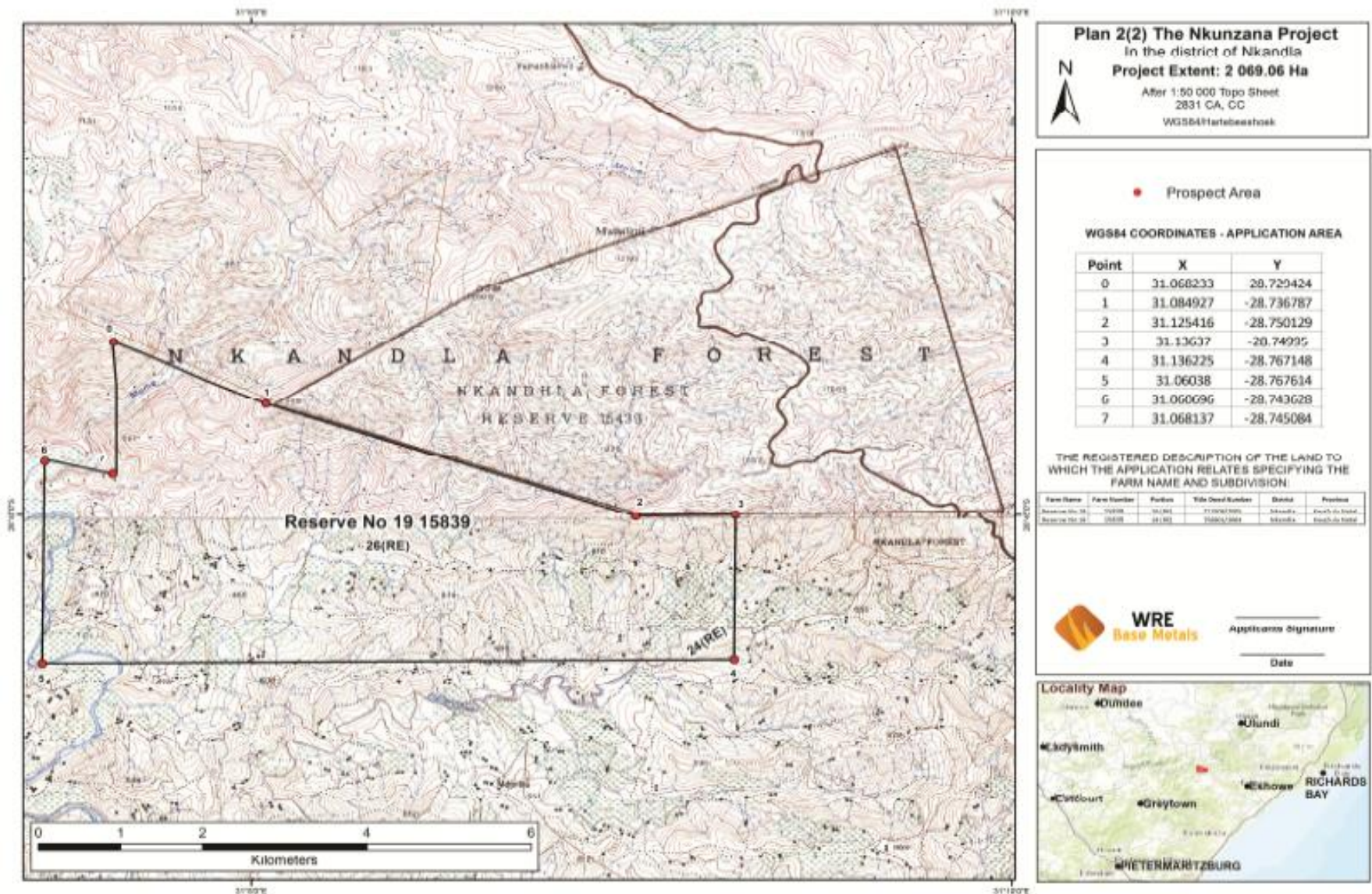


Figure 2- Location of the study area in relation to Nkandla Forest. Note the Reserve Number in which it is situated (@ Shango Solutions, 2018)

1.4. Proposed Development Programme

The proposed prospecting project involves a combination of invasive and non-invasive prospecting activities as part of the Prospecting Work Programme (PWP). The aim is to explore and quantify the potential mineral resources within the study area which include: silver, gold, coal, cobalt, copper, diamond (alluvial), iron, manganese, molybdenum, nickel, lead, platinum group metals, rare earths, sulphur, uranium, tungsten and zinc.

The programme involves the following steps (summary – for details request for project Background Information Document (BID)):

- Data Gathering (inclusive of site visit)
- Field and Preliminary Target Generation – site visit and mapping
- Stream Sediment Sampling and Target Generation
- Underground Sampling of Historical Mine
- Detailed Grid Sampling on Identified Targets
- Trench, Mapping and sampling
- Drilling
- Concept Study and Resources Estimation

1.5. Terms of Reference for the Appointment of Archaeologist and Heritage Specialist

The nature and the size of the proposed development and associated infrastructure exceeds more than two erf/stands and is over 5000m² in size. Developments taking place in an area that exceed two erf/stands and is over 5000m² in size requires that an HIA be conducted in terms of Section 38 (1) of the NHRA, No. 25 1999. The HIA is conducted in terms of Section 38 (3) of the NHRA, No. 25 of 1999. The KZNHA, No. 10 of 1997 and the KwaZulu-Natal Heritage Bill (ZNHB) of 21 February 2008 at the provincial level.

The NHRA, No. 25 of 1199 prescript state that: “the responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:

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

WER Base Metals (Pty) Ltd has appointed Shango Solutions as the Environmental Assessment Practitioner (EAP) for the proposed project. In turn, Shango Solutions appointed NGT as the lead and independent CRM consultant to conduct and manage the HIA (inclusive of a PIA) and apply for heritage permits. Nkosinathi Tomose (Principal Archaeologist and Heritage Consultant- NGT) conducted the HIA study for the proposed project. The appointment of NGT as an independent CRM firm is in terms of the NHRA, No. 25 of 1999.

1.6. Legal Requirements for Completion of the Study

The NHRA, No. 25 of 1999 sets the norms and standards for the management of heritage resources in South Africa. Section 38 (3) of the NHRA, No. 25 of 1999 informs the current HIA study. Other applicable sections of the NHRA, No. 25 of 1999 includes Section 36 for the burial grounds and graves in and around the proposed prospecting area. Section 35 (archaeology) and Section 34 (built environment) will only be applicable during the mining rights application which will affected the built environment within the area earmarked for the Nkunzana Mine (*Figure 1 & 2*). Section 35 is also applicable for the management of historic and industrial archaeological resources on site as well as paleontological resources referred to in the current study. At the provincial level, the KZNHA, No. 10 of 1997 and legislations and bills such as the KZNHB of 21 February 2008 are applicable. Table 1 and 2 below give summary of all relevant legislations that informed the current study.

Table 1-Legislation and relevance to this Phase IHIA Study

Legislation (incl. Policies, Bills and Framework)	
Heritage	<ul style="list-style-type: none"> •Heritage resources in South Africa are managed through the National Heritage Resources Act (NHRA), No. 25 of 1999. This Act sets guidelines and principles for the management of the <i>nation estate</i>. •Section 38 of the Act becomes relevant in terms of nature of the proposed project in terms of developing the heritage impact assessment study. •While Section 35 becomes relevant in terms of archaeology and palaeontology and Section 36 for the management of burial grounds and graves. •The KwaZulu Natal Heritage Act (KZNHA), No. 10 of 1997 is developed to manage heritage resources at a provincial level. •The other applicable legal document is the KwaZulu Natal Heritage Bill of 21 February 2008.
Environmental	<ul style="list-style-type: none"> • The National Environmental Management Act (NEMA), No. 107 of 1998. •The cultural environment in South Africa is managed through Section 24 of the NEMA, No. 107 of 1998. •Prospecting Rights Application in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act No. 28 of 2002)

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Table 2-Summary of legislation relevant to traditional burial places in the KwaZulu-Natal Province

Grave type	Relevant legislation	Administrative authority-disinterment	Administrative authority – reburial
Graves located within a formal cemetery administered by a local authority	KwaZulu-Natal Cemeteries and Crematoria Act 12 of 1996 Human Tissues Act 65 of 1983	National and / or Provincial Departments of Health	If relocated to another formal cemetery – relevant local authority.
Graves younger than 60 years located outside a formal cemetery administered by a local authority and the graves of victims of conflict	KwaZulu-Natal Heritage Act No 4 of 2008 Human Tissues Act No 65 of 1983	Amafa KwaZulu-Natali, the provincial heritage management organisation	If relocated to a private or communal property – Amafa. If relocated to formal cemetery – Amafa and relevant local authority
Graves older than 60 years located outside a formal cemetery administered by a local authority	National Heritage Resources Act No 25 of 1999 Human Tissues Act of 1983	South African Heritage Resources Agency (SAHRA), the national heritage management organisation	If relocated to private or communal property – SAHRA. If relocated to formal cemetery – SAHRA and relevant local authority.

2. ENVIRONMENTAL CONTEXT AND PRESENT IMPACT OF THE DEVELOPMENT SITE ON THE REGION

2.1. Project Location

The study area is situated west of the village of Ntolwana in Nkandla Local Municipality within King Cetshwayo District Municipality of KwaZulu Natal Province in South Africa. Nkandla is situated amongst the world heritage route Isandlwana Battlefields in Nquthu, Melmoth, Ulundi, Eshowe, and Blood River in Dundee (Nkandla Local Municipality, 2014).

Table 3 below indicates a detailed description of the project footprint; the affected municipalities and it includes Global Positioning System (GPS) coordinates for the site and the names and farm numbers that fall within the proposed project area. Figure 1 shows the location of the study area in relation to some of northern KwaZulu-Natal major towns. Figure 2 shows the location of the study area in relation to Nkandla Forest; it also shows the Reserve that is affected.

Table 3-Site Location and Property Information

Location of Rietvlei Farm No 101/IR			
Names of the affected properties within the receiving environment	Reserve Name	Title Deed No	SG No.
	Reserve No. 19	T12508/2005	N0GU00000001583900026
	Reserve No. 19	T58301/2004	N0GU00000001583900024
Access	<ul style="list-style-type: none"> The study area can be accessed via Newcastle using the N11, the R68 to Melmoth and R66 to Eshowe The R34 from Richards The R74 from Greytown to Stanger branching off on the Main Road to the town of Kranskop 		
Erf or farm number	Farm Name	Farm No	Portion
	Reserve No. 19	15839	26 (RE)
	Reserve No. 19	15839	24 (RE)
Village	West of the village of Ntolwana		
Nearest Town	Kranskop in the south (approximately 24km)		

Responsible Local Authority	Nkandla Local Municipality
Magisterial District	King Cetshwayo District Municipality
Region	KwaZulu-Natal Province
Country	South Africa
Site Center GPS coordinates and Elevation in meters above sea level (masl)	<ul style="list-style-type: none"> • GPS Coordinates: 28° 45' 13.97" S and 31° 05' 55.05" E • Elevation: 515masl

2.2. Description of the Affected Environment

The study area is situated in a rural area and is ensconced between the villages of Ntolwana (where it is accessed in the east), Dlabé (in the west), Ezimbidla (in the south) and Nkandla Forest (in the north) (*Figure 3*). The terrain is generally rugged with undulating hills and valleys; a typical KwaZulu-Natal geology and landscape setting (*Figure 4 & 5*). The ridge where the proposed prospecting activities in form of borehole drilling and trenching lies east and south of Nkunzana River. A river stream that flows from Nkandla Forest in the north to south pass the study area. The ridge is covered in mix of invasive and non invasive plant species. On its southern slope are village settlements which extend to the east above the hills where the site will be accessed during prospecting activities (*Figure 6 & 8*). Across and west of Nkunzana River and the affected ridge, are other village settlements (*Figure 7*). East of the affected prospecting ridge and along the newly proposed access road are homesteads with water infrastructure (*Figure 9 & 10*)

The northern and western slopes of the affected ridge are covered in indigenous vegetation along the Nkunzana River banks to the rib of the ridge. The ridge has previously been settled by Shezi, Khumalo and Nzuza families in the past. This could be the explanation for the presence of invasive and planted vegetation species on the southern slope and in some areas of the ridge crest particularly towards the eastern end.

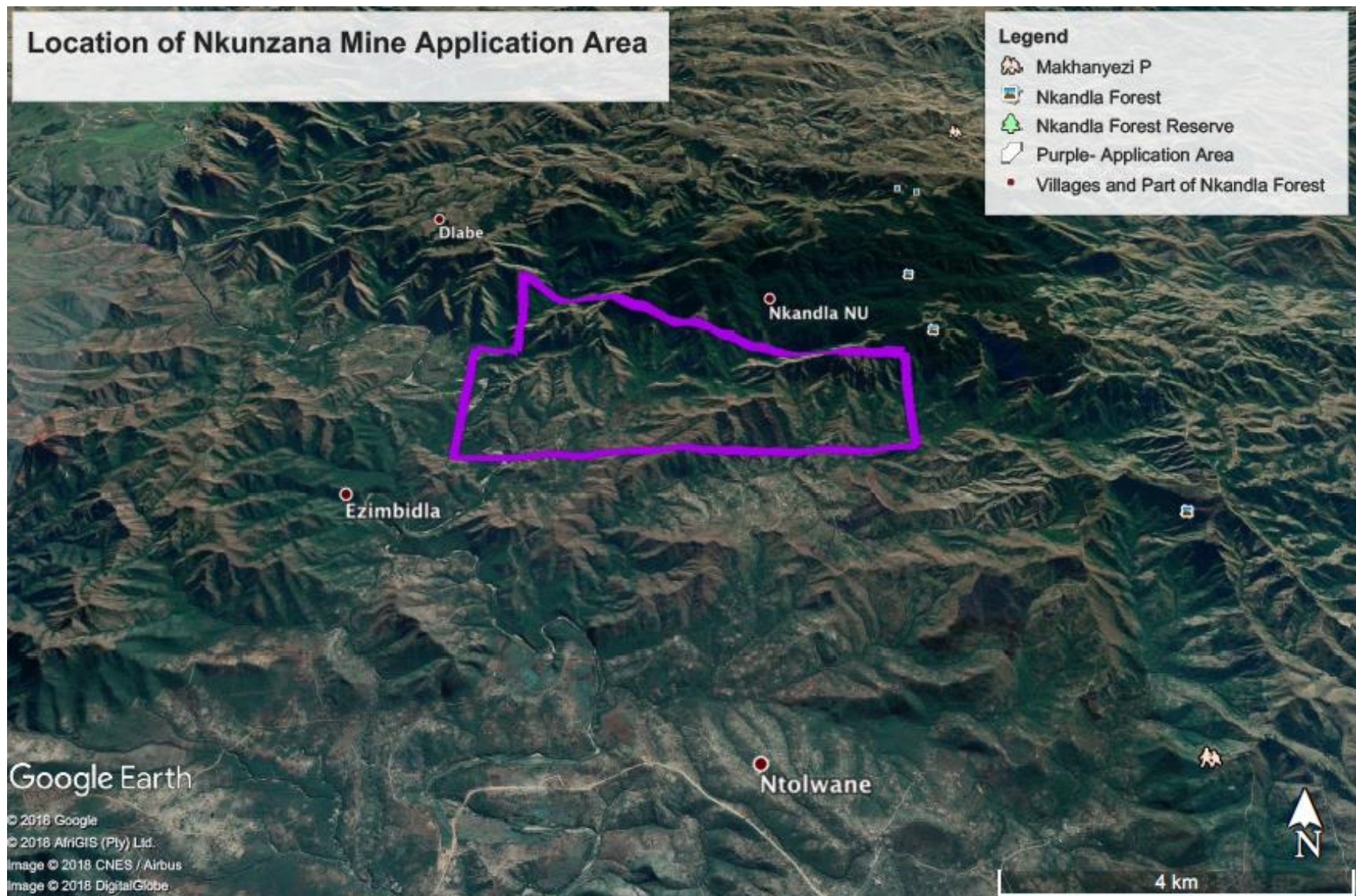


Figure 3-The location of project area in relation to the surrounding villages. Note the terrain characterised by the rugged geology and landscape



Figure 4- Pictures showing the rugged geology and landscape



Figure 5- The ridge that will be affected by the proposed prospecting activities



Figure 6- Example of homesteads south of the affected ridge (note the maize plough fields). Red arrow shows the position of the affected ridge.



Figure 7- Homesteads located south-west of the affected ridge and west of Nkunuzana River



Figure 8- Homesteads located further south of the affected ridge -north and south of the current access road (red arrows)



Figure 9- Example of homesteads along the newly proposed access road to the effected prospecting ridge



Figure 10-Water tanks along the newly proposed road to the affected prospecting ridge

2.3. Geology of the Affected Environment

The surface geology of the project area consists of rocks of the Namaqua-Natal Metamorphic Complex (Figure 11). The metamorphosed rocks underlying the application area belong to the Nkomo and Tugela nappes of the Tugela terrane as well as the Natal Thrust Belt (Shango). The areas outside of the application area comprise of rocks belonging to the Mandleni and Madidima nappes of the Tugela terrane and the Ponogla Supergroup. In addition, there are small areas of the Natal Group and Quaternary sediments. Although the lithologies of the Natal Metamorphic Complex have been interpreted to be an ophiolite complex derived from oceanic rocks which was thrust northwards onto the southernmost edge of the Kaapvaal Craton (Cornell et al., 2006); none of these rocks are found on site (within the application area). The Council of Geoscience South Africa show the receiving environment as less sensitive in terms of palaeo-sensitivity layer of South Africa (Figure 12).

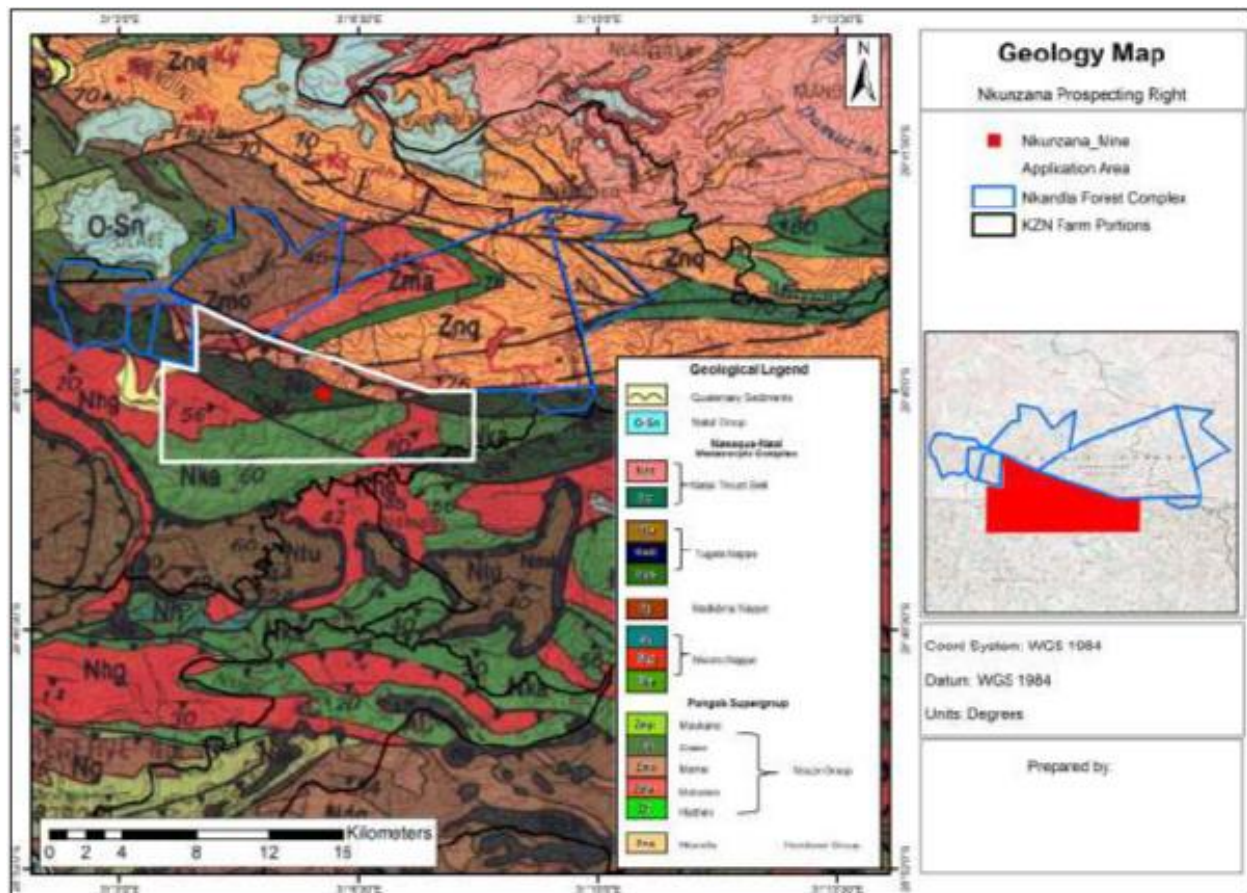


Figure 11- Geology of the study area

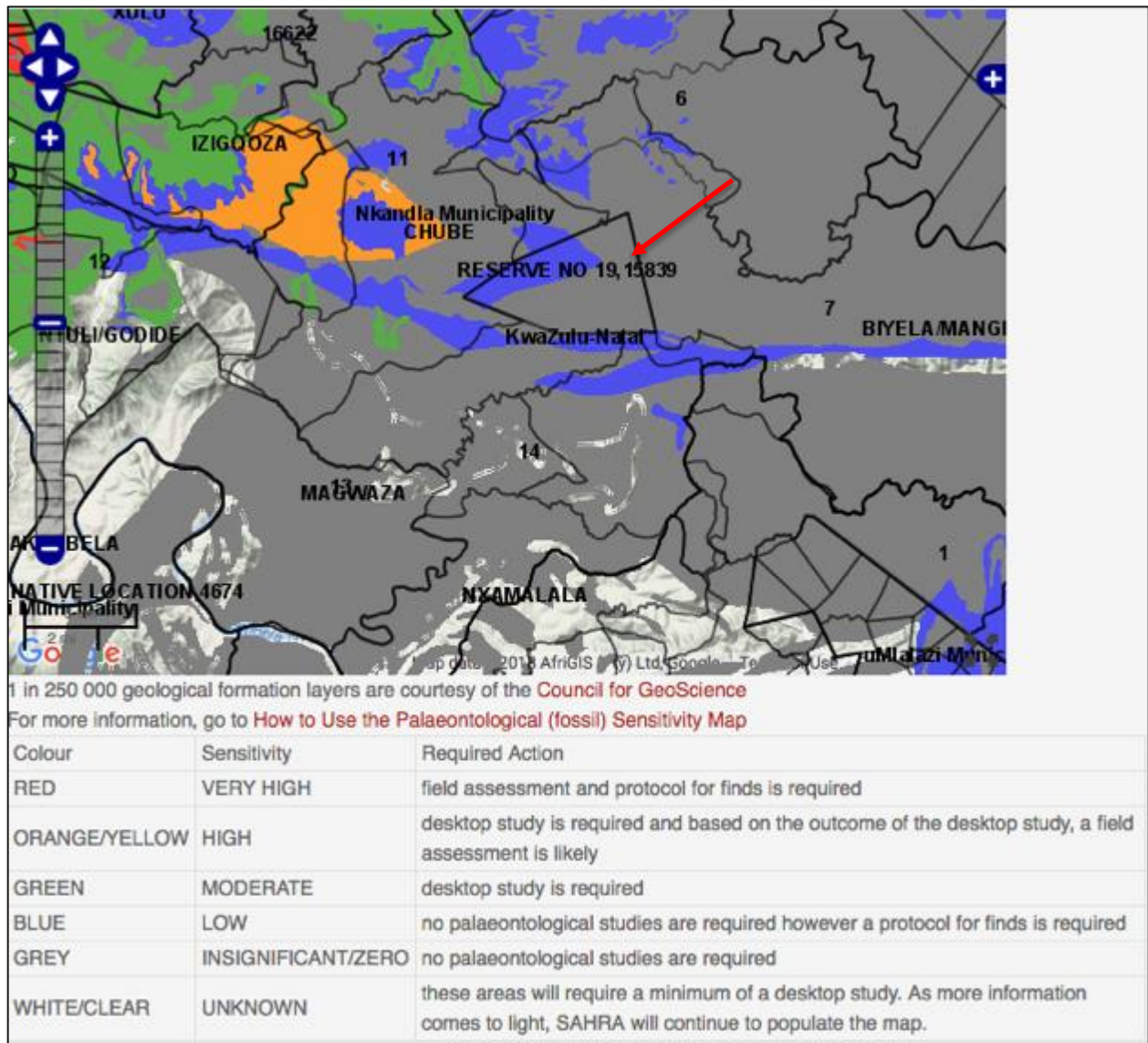


Figure 12- Palaeo-Sensitivity layer of Reserve No. 1915839 which shows that no palaeontological studies are required (red arrow)

The following chapter outline the methodology used to assess the current site impacts and cumulative impacts that will result from the proposed project on the identified heritage resources.

3. METHODOLOGY

3.1. Approach to the Study

Nkosinathi Tomose, is a Director and Principal Archaeologist and Heritage Consultant for NGT. He is responsible for the compilation of the current HIA report. This HIA is conducted for the proposed WRE Nkunzana Prospecting Right with a focus on the ridge that is proposed for prospecting, the trenches, the boreholes as well as the access road.

3.2. Step I – Literature Review (Desktop Phase)

Background information search for the proposed development took place following the receipt of appointment letter from the client. Sources used included, but not limited to published HIA studies, academic books and the internet about the site and the broader area in which it is located. Interpretation of legislation (the NHRA, No. 25 of 1999) and local by-laws forms form the backbone for the study.

3.3. Step II – Physical Survey

- The physical survey of the project area (footprint) was conducted on Friday the 13th and Saturday 14th the April 2018. The walk about of the project area took place on Thursday the 12 of April 2018. The survey was conducted Mr. Nkosinathi Tomose (Principal Archaeologist and Heritage Consultant– NGT) and Ms Zetu Damane (Non-Executive Director-NGT who also specialises in Social and Socio-Economic Studies). The two specialists were assisted by Ms G, Shezi and four local's men some of whom once had household in the ridge proposed for prospecting activities
- The results of the survey resulted to the development of the current report - Revision 01 HIA report and it was conducted by Nkosinathi To.
- The survey of the line was conducted on foot and the site was access using a bakkie.
- The aim of the surveys was to identify archaeological, burial grounds and graves, and built environment heritage sites and resources in and around the ridge proposed for prospecting activities, the proposed access road, the boreholes and trenches.

- To record and document them using applicable tools and technology;
- The various physical surveys were deemed necessary since desktop study yielded information about presence of archaeological and heritage resources within the proposed prospecting rights area and the surrounding environment;
- The following technological tools were used for documenting and recording identified resources on site:
 - Garmin GPS (i.e. Garmin 62s) – to take Lat/Long coordinates of the identified sites and to track the site.
 - Canon SLR – to take photos of the affected environment and the identified sites.
 - The locality map and KML file from the client was used to identify proposed development footprint

3.4. Site Significance Rating

The following site significance classification minimum standards as prescribed by the South African Heritage Resources Agency (SAHRA) (2006) and approved by the Association of Southern African Professional Archaeologists (ASAPA) for the Southern African Developing Community (SADC) region were used to grade the identified heritage resources or sites (*Table 4*).

Table 4-Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	High Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction

Generally Protected C (GP. A)	-	Low Significance	Destruction
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3.5. Step III – Data Consolidation and Report Writing

The final step involved the consolidation of the data collected using the various sources as described above and the results of the evaluation and assessment process:

- This involves the manipulation of Shapefiles/KMZ files through Goggle Earth Pro to develop maps
- Evaluation and grading of sites/resources significance
- Assessing potential impacts of the project on the identified heritage resources
- Discussing the findings and concluding on whether or not the will be negative or positive impacts on the cultural resources resulting from the proposed project
- Making recommendations on management and mitigation measures that should be applied to mitigate or minimise impacts on heritage resources.

3.6. Impact Significance Rating in Accordance to Environmental Requirement (Shango Solutions Methodology) (Table 5, 6 & 7):

Table 5– Table indicating the impact significance rating for the client Shango Solutions.

Alternative No	List Alternative Names	
Proposal	Prospecting Rights	
Alternative 1	Prospecting Rights Area 01	
Alternative 2	Prospecting Rights Area 02	
Nature	-1	Negative
	1	Positive
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),

	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact
Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),

	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),
Public feedback	1	Low: Issue not raised in public responses
	2	Medium: Issue has received a meaningful and justifiable public response
	3	High: Issue has received an intense meaningful and justifiable public response
Cumulative Impact	1	Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	2	Medium: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	3	High: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable loss of resources	1	Low: Where the impact is unlikely to result in irreplaceable loss of resources.
	2	Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	3	High: Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).
Degree of Confidence	Low	<30% certain of impact prediction
	Medium	>30 and < 60% certain of impact prediction
	High	>60% certain of impact prediction

Priority	Ranking	Prioritisation Factor
3	Low	1,00
4	Medium	1,17
5	Medium	1,33
6	Medium	1,50
7	Medium	1,67
8	Medium	1,83
9	High	2,00
Phase		
Planning		
Construction		
Operation		
Decommissioning		
Rehab and closure		

Table 6-Impact Rating table with impact mitigation

IMPACT DESCRIPTION		PRE – MITIGATION							POST – MITIGATION						IMPACT PRIORITISATION				
Impact	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitigation ER	Confidence	Public response	Cumulative Impact	Irreplaceable loss
1. • Heritage Impact Ratings	Planning	-1	3	2	2	2	5	-11,25	-1	3	1	2	2	4	-8	High	1	2	1
								0	-1						0				
								0							0				

Table 7-Risk assessment

1. Select Impact from Dropdown List (C2:H2)	A. 1. Transformation of cultural/heritage resource – Proposal					
2. (C4:H24)	Impact Name	1. • Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	3	3	Reversibility of Impact	2	2
	Duration of Impact	2	1	Probability	5	4
	Environmental Risk (Pre-mitigation)					-11,25
	Mitigation Measures					
	Heritage Risks					
	Heritage Risk (Post-mitigation)					-8,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
Cumulative Impacts					2	

	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,17
	Final Significance	-9,33

4. LITERATURE REVIEW: RESULTS OF BACKGROUND INFORMATION SEARCH

The KwaZulu-Natal Province provides palaeoscientists and cultural scientists alike with a rich canvas of heritage resources varying from natural to manmade or human influenced or altered resources. The man-made environment of KwaZulu-Natal dates from prehistoric to historic times (time of written documents).

This HIA assesses the range of all the manmade or human influenced/altered resources within the proposed development area. Furthermore, it provides recommendations on how to best manage them within the legal framework as stipulated in the NHRA, No. 25 of 1999, KZNHA, No. 10 of 1997 and KZNHB, 2008.

4.1. The Stone Age

In South Africa the Stone Age is divided into three periods. The Early Stone Age (ESA) (2 million to 250 000 years ago), the Middle Stone Age (MSA) (250 000 – 22 000 years ago) and the Later Stone Age (LSA) (25 000 to 200 years ago). The ESA is comprised of the Oldowan stone tool complex (2 and 1.7-1.5 million years ago), and the Acheulean stone tool complex (1.7-1.5 million years ago and 250-200 thousand years ago) (Klein 2000; Mitchell 2002).

In KwaZulu-Natal MSA sites occur around the greater Durban area and are often located in rock shelters. The MSA stone tool assemblage include blades, flakes, scrapers and pointed tools that could have been hafted and used as spears or arrowheads and is associated with anatomically modern humans (Wadley, 2007). Five MSA sites are located in KwaZulu-Natal, they are Sibudu Cave (Wadley and Jacobs 2004), Umhlatuzana Rock Shelter (Kaplan 1990), Border Cave (Butzer et al. 1978; Cooke et al. 1945), Holley Shelter (Cramb 1961; Bader et al., 2015.) and Umbeli belli (Badar et al., 2016; Bader and Will 2017). Stone tools of the LSA, which is often associated with the San, are smaller and more diverse than the previous periods. During the LSA the first Khoi herders and Nguni-speaking agro-pastoralists started to immigrate into southern Africa from the north. These groups had contact with the Later Stone Age people, which often led to them migrating to the Kalahari Desert or being assimilated into the Nguni speaking cultural groups. Rock art dating to the LSA have also been found in several rock shelters in the

Drakensberg region (Willcox 1990). No evidence of Stone Age archaeology was found in the project area.

In Southern Africa the arrival Nguni speaking farming communities from Western Africa during the first half of the 1st millennium AD marks the end of the Stone Age (Badenhorst 2010:89).

4.2. The Iron Age

Several Iron Age sites have been excavated in the wider region of KwaZulu-Natal. The Iron Age, according to Huffman (2007) can be divided into the Early Iron Age (200 – 900 A.D.); the Middle Iron Age (900 – 1300 A.D.); and the Late Iron Age (1300 – 1840 A.D.). The Iron Age is characterized by the farming communities who domesticated animals, produced of various ceramic vessels, smelted iron for weapons and tools.

The Early Iron Age communities throughout eastern and southern Africa share a similar Iron Age culture called the Chifumbaze complex (Huffman 2007:331; Phillipson 1994:188). The Chifumbaze complex contains evidence of the first farmers who settled in areas, cultivated crops, herded domestic animals, used iron, and who made pots (Phillipson 1994). It can furthermore be divided into the Kalundu and Urewe Traditions (Huffman 2007). These Early Iron Age farming communities originated in the Great Lakes region of East Africa where Urewe ceramics are the earliest form of the Chifumbaze complex (Mitchell 2002; Phillipson 1994). Part of the Urewe tradition was the Kwale branch, which settlements were restricted to relatively well-watered hilly country and can be found along the coast from Kenya to KwaZulu-Natal (Mitchell 2002; Phillipson 1994). Around the second century AD there took place a swift migration of Iron Age farmers of the Chifumbaze complex (Phillipson 1994). This spread is known as the Nkope branch of the Urewe tradition, which spread through a wide area extending southwards towards Tanzania and Mozambique, through Malawi, eastern Zambia and Zimbabwe into the northern parts of South Africa, Swaziland and into KwaZulu-Natal (Mitchell 2002; Phillipson 1994).

During the Early Iron Age, settlements were situated on the valley floors and right next to rivers (Badenhorst 2010:90; Maggs & Ward 1984). Early Iron Age sites which are located near the Lower Thukela Basin in KwaZulu-Natal are Mamba (Van Schalkwyk 1994a), Wosi (Van Schalkwyk 1994b), and Ndondondwane (Loubser 1993). Other Early Iron Age sites include Mpambanyoni (Mitchell 2002) and Nanda (Whitelaw 1993). Ceramic pottery styles of the Early Iron Age including Msuluzi (AD 500-700),

Ndondondwane (AD 700-800), and Ntshekane (AD 800-900) are found in the broader areas around Durban and Richards Bay and is specifically located near the Tugela River (Stoffberg & Loubser 1984; Maggs 1989; Huffman 2007). Apart from Iron Age ceramics found at Ndondondwana, Msuluzi, Mamba and Wosi, evidence of iron production was also found at these sites (Stoffberg & Loubser 1984; Whitelaw 1991; Maggs 1992).

Apart from changes in the ceramic sequence the Later Iron Age is also characterised by stone walled settlements. The oldest form of the Central Cattle Pattern, a means of social organisation in Iron Age settlements, where relationships between people were constructed through the layout of the settlement (Huffman 2000), was found at a site called Moor Park in the midlands of KwaZulu-Natal (Huffman 2007; Mitchell 2002). Moor Park walling dates to the fourteenth and sixteenth century and is located on a hilltop in a defensive position and is characterised by rough stone walling that encloses various cattle kraals and areas in the site (Mitchell 2002). Moor Park walling is associated with Nguni speaking people (Huffman 2007).

The Later Iron Age communities in KwaZulu-Natal were the direct ancestors of the present-day Zulu people (Middleton 1997; Huffman 2007)

4.3. The Historical Period

The Nkandla forest is historically known as an iron production site for the Zulu Kingdom (Hall 1984; Maggs 1992). In the high lying areas of Nkandla, copper occurs along the rivers (Coetzee 1976; Stoffberg & Loubser 1984). The amaCube people were metal workers that had settled in Nkandla before the nineteenth century (Maggs 1992). According to Chirikure (2007) and Maggs (1992) iron smelters and Smits in the Nkandla area could trade freely with the Ndwandwe people, who were rivals of King Shaka. During the early 1800's the Zulu people were ruled by Senzangakhona (Ommer-Cooper, 1993). His son Shaka was born in 1787 and established the Zulu Kingdom in the early 1800's (Greaves 2013).

Bryant (1929), Stuart (1913) and Shezi (1988) have each compiled a list of the Chiefs of the amaCube people who settled at Nkandla. One of these Chiefs was Zokufa Shezi. Zokufa was the son of Mvakele, the Shezi chief and Nandi, who was Shaka's mother sister, which made him the cousin of King Shaka (Stuart 1913; Shezi 1988). Zokufa had an older brother Mnomiya, who was the oldest son of Chief

Mvakela and his senior wife. However, because of King Shaka's interventions Mnomiya did not succeed his father, instead Zokufa became chief. Zokufa was an expert metallurgist who was skilled in manufacturing weapons and tools, he also produced spears for King Shaka (Mkhize 1942; Shezi 1988; Gillings 1989; Maggs 1992). Later in his life he held a senior official position at Prince Cetshwayo's residence (Gillings 1989; Maggs 1992). Zokufa was buried at his home in Ophindweni (Maggs 1992). Zokufa's son, Sigananda was born in 1811 (Gillings 1989)

During the historical period the KwaZulu-Natal Region was often left in turmoil due to wars and conflict between the different cultural groups that settled in the area. During the Mfecane/Difaqane at the end of the 18th and beginning of the 19th centuries communities who had settled in KwaZulu-Natal were displaced and forced to move by wars between the Zulu chiefdoms (Huffman 2007; Ndlovu-Gatsheni 2009; Shillington 2013). Due to political and climate conditions in the 19th century Mzilikazi, one of the generals of King Shaka and his Transvaal Ndebele migrated from KwaZulu-Natal in 1820 and later settled in Zimbabwe (Huffman 2007; Van Warmelo 1930). King Shaka was assassinated by his two half-brothers, King Dingane and Mhlangana in 1828, with King Dingane becoming ruler of the Zulu Kingdom (Laband 1995; Greaves 2013). Dingane was born in 1795 and was the son of Chief Senzangakhona and his 'great wife' (Okoye 1969; Akyeampong & Gates 2012).

During King Dingane's rule Cape merchants moved into the region to colonize Natal, while the Afrikaners and the Boers who became dissatisfied with British rule also started to move to the area (McKenna 2011). In 1837 Piet Retief led the Voortrekkers into Natal, where he met with King Dingane to arrange for permission to settle in Natal (Stapleton 2017). However, in 1838 King Dingane ordered the massacre of Piet Retief and the remaining Voortrekkers (Knight 1998). Sigananda Shezi who was part of King Dingane's inKulutshane Military witnessed the massacre of Piet Retief (Gillings 1989). This later resulted in the Battle of Blood River in December of 1838 where the Zulus fought the Voortrekkers under the command of Andries Pretorius (Stapleton 2017). In 1840 King Dingaan was overthrown by King Mpande and the Boers (Greaves 2013; Meredith 2014). He fled to the Lebombo mountains in Swaziland where he died (Greaves 2013; Meredith 2014). His grave is, however, located in the Hlatikulu forest (Smail 1979). During King Mpande's reign in exchange for medical assistance, the Norwegians were allowed to build a missionary station in Zululand (Sellström 1989; Børresen 2014). A succession dispute arose between the brothers, Prince Cetshwayo and Mbuyazi, the sons of King Mpande (Greaves 2013). In 1856, at the Battle of Ndongakusuka, King Cetshwayo defeated his brother Prince Mbuyazi (Binns 1963;

Greaves 2013). As a result, King Mpande had to share power with King Cetshwayo (Shillington 2013). King Mpande died in 1872 with his son, King Cetshwayo inheriting the Zulu kingdom which he rebuilt while also acquiring firearms and weapons (Sellström 1989; Greaves 2013; Shillington 2013).

In 1879 the British invaded Zululand which resulted in the Anglo-Zulu War, with the Zulus being defeated at Ulundi (Kermode 1882; Greaves 2013). King Cetshwayo was captured by the British in the Ngome Forest and Zululand was divided into 13 districts which each had a chief that was appointed by the British (Russel 1894; Shillington 2013). During the 1883 Cival war, King Cetshwayo stayed at Siganda Shezi residence near the Nkandla Forest (Gillings 1989). Siganda Shezi had fought for him during the Battle of Nondakusuka as well as in the Anglo-Zulu War (Gillings 1989). In 1883 King Cetshwayo travelled to England to plead his case before the British royals (Colenso 1885; Greaves 2013). As such he was restored as king (Great Britain Colonial Office 1884). On his return to Zululand conflict had erupted between his Usuthu party and the anti-royalist rival, Zibhebhu (Greaves 2013). The Usuthu of King Cetshwayo were defeated at Ulundi by rival chiefs (Greaves 2013). King Cetshwayo fled to the Nkandla Forest, a reserve under British control, later moving to Eshowe, the administrative and colonial capital of Zululand, where he sought refuge by the British (Baynes 1891; Chidester et al., 1997; Greaves 2013). King Cetshwayo died in 1884 and his grave is located in the Nkandla Forest which falls into the project area (Colenso 1885; Baynes 1891; Binns 1963; Greaves 2013).

He was succeeded by his son, Dinuzulu, the last Zulu King that was recognised by the British (Binns 1963). In 1889 King Dinuzulu was found guilty of treason and sent to the British island of St Helena (Barber 2006). King Dinuzulu returned to Zululand in 1898 and died in 1913 (Smail 1979; Akyeampong & Gates 2012). He was buried, upon his request at eMakhosini in the broader Ulundi area (Smail 1979).

4.4. Literature Review Conclusions

In conclusion the background information search has shown that the KwaZulu-Natal region has a long history with many different people migrating and settling in the area. As such there are several archaeological and heritage sites located in the KwaZulu-Natal Province that provide evidence of past people's daily activities and the interactions and relationships they had with the people around them. These sites are of historical and cultural importance to the South African people. The area under consideration is where Shezi was based and he played a pivotal role as a blacksmith for King Shaka. Old

iron ore mines are also known to occur in the area in which Shezi had mine ore for spears used by some of Shaka amabutho.

5. STATEMENT OF HERITAGE SIGNIFICANCE OF THE AFFECTED ENVIRONMENT

5.1. Importance of General Notes

The literature review used in this report focused on published and peer reviewed scholar documents with only one HIA report used. The justification of consulting this type of literature is that the project area is situated in the area known to be the establishment of the present-day Zulu nation through unification of various tribes. It is also situated in the area known to be the hub of battle fields and one needed to consult literature that has gone through a process of scientific scrutiny. In the light of information yielded through such publication, a ground survey of the study area which focused on the affected ridge for the proposed prospecting activities was deemed necessary. The report HIA is used a reference to KZN ethno-historic account burial practices and to highlight the significance of some households within certain homesteads; for example, rondaval that may be dedicated to carrying out tradition and cultural practices (Tomose, 2016).

5.2. Context

This document is fundamentally informed by the NHRA, No. 25 of 1999 and is consistent with the various United Nations Educational, Scientific and Cultural Organization (UNESCO), International Council on Monuments and Sites (ICOMOS) characters for places of cultural significance. At the provincial level, the KZNHA, No. 10 of 1997 and legislations and bills such as the KZNHB of 21 February 2008 are applicable.

5.3. Extent of Application

This Statement of Heritage Significance does not imply exemption from any national, provincial or local authority legal or other regulatory requirements, including any protection or management or general

provisions in terms of the NHRA, No. 25 of 1999, the KZNHA, No. 10 of 1997 and legislations and bills such as the KZNHB of 21 February 2008.

5.4. Assumptions

Due to input constraints, certain assumptions are contained in this document, which are qualified as such in the text to convey confidence levels. One of the assumptions is that the information provided by the client regarding the proposed development is correct and will remain consistent throughout the project. Furthermore, it is the understanding that the BAR Public Participation process will address issues of heritage consent and Interested and Affected Parties (I&APs) will be allowed space to provide inputs towards the strengthening of this HIA document should there be such requirements from the I&APs. It is also assumed that the identified heritage resources represent the total number of heritage resources within the development footprint with exception to those resources that are subterranean in nature such as the unmarked burial grounds and graves. It is also assumed that the area that is marked as potential cemetery sites which could not be properly surveyed due to thick vegetation cover does represent a place of a former homestead and will definitely contain graves. In the case of subterranean resources, if any such resources, not visible to the earth surface are discovered during construction activities they will be treated as chance finds. However, it is generally assumed that the EAP will ensure that it implements all heritage specialist recommendations which include appointing an archaeologist to monitor construction activities for the proposed new access road as well as site clearing in the eastern portion of the affected ridge.

5.5. Limitation of Liability

NGT assumes no responsibility whatsoever for any loss or damages that may be suffered as a direct or indirect result of information contained in this report. Any claim that however arises is limited to the amount paid to NGT for services rendered to compile this report.

6. SURVEY RESULTS

The background information search yield information about known archaeological and heritage resources in the KwaZulu-Natal region of South Africa. It also yielded information about the history of the Zulu nation with specifics been given to the development of the royal house and Zulu Kings that settled the affected environment one of which is buried within the proposed mining application area i.e. King Cetshwayo. Also significant about the receiving environment is that it was the territory of Chief Zokufa Shezi was a metallurgist and a blacksmith for King Shaka the son of King Senzangakhona and Queen Nandi. The tale of old iron ore mines is shared by some of the local chiefs in the area.

The survey focused on the ridge that is going to be affected by the proposed prospecting activities as well as the area with boreholes, trenches and proposed access road (*Figure 11*). The grave of King Cetshwayo was also surveyed although situated away from the current proposed prospecting area; this was done due to its heritage significance as a Provincial Heritage Site (Grade II Heritage Site).

The affected ridge for the proposed prospecting rights yielded a total of four cemeteries and one possible cemetery site, namely:

- Nku-Cem 01:
 - 28°45'18.00"S 31° 5'30.10"E
 - Shezi Family
- Nku-Cem 02:
 - 28°45'14.90"S 31° 5'30.80"E
 - Dilamuka Family
- Nku-Cem 03:
 - 28°45'12.20"S 31° 5'56.80"E
 - Mkhwanazi Family
- Nku-Posible-Cem 04:
 - 28°45'15.50"S 31° 6'4.10"E
 - Nzuza Family
- Nku-Cem 05:
 - 28°45'30.20"S 31° 6'19.40"E
 - Shezi Family

West of the proposed prospecting ridge and across the Nkunzana River is the grave belonging to the Zulu Royal House, the grave of King Cetshwayo

- Nku-Cem 06:
 - 28°45'27.54"S
 - 31° 4'47.92"E Zulu Family

All graves in South Africa are of High Heritage Significance regardless of the association or grave markings.

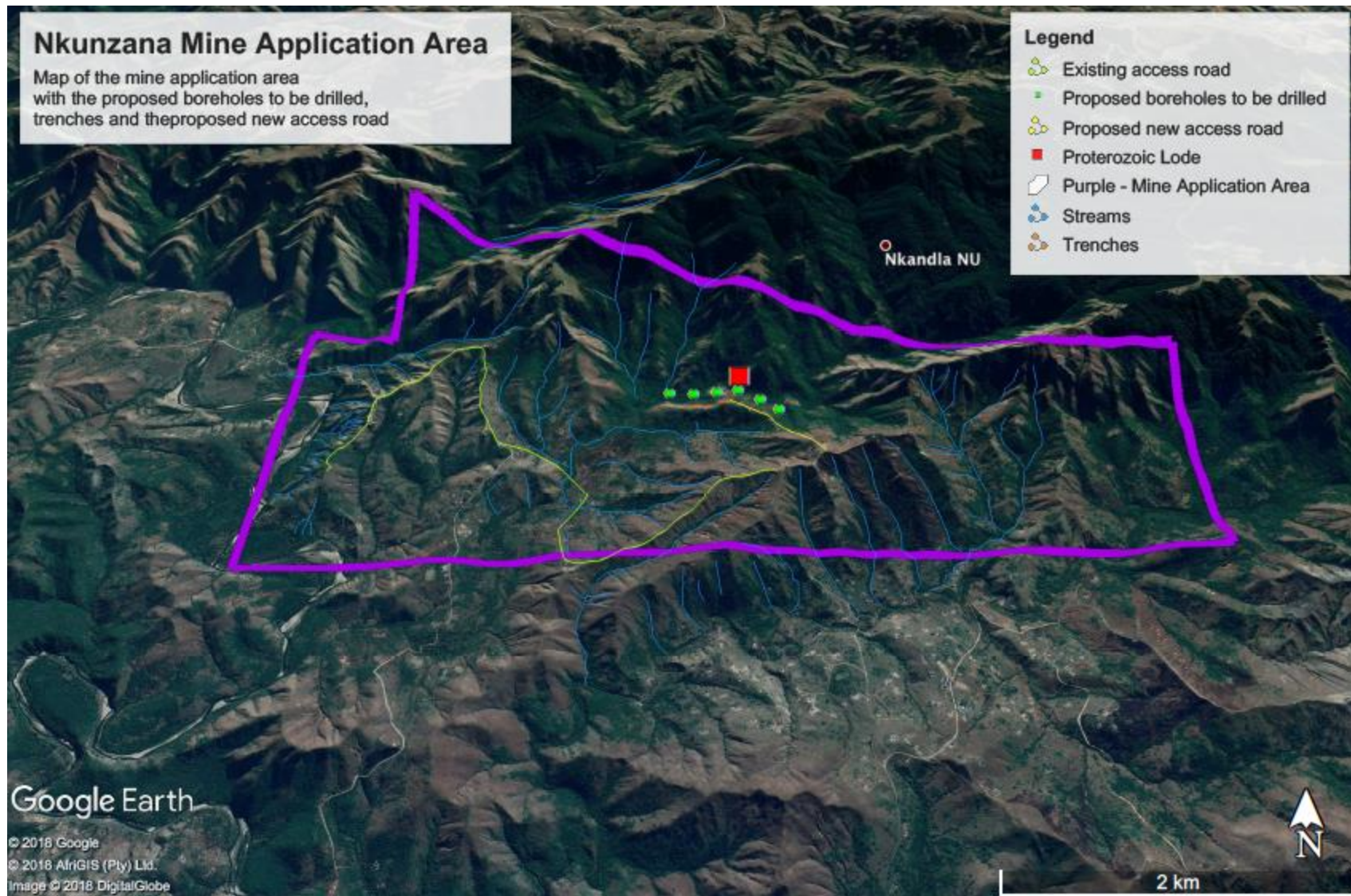


Figure 13-Mine application area with the existing and proposed infrastructure e.g. new access road. It also shows area with the proposed boreholes and trenches (below the red square)

Below is the description of the affected cemeteries and impact assessment of the proposed prospecting activities on them.

Table 8- Nku-Cem 01

Site Name:	Nku-Cem 01
Type:	Burial Ground and Grave Site
Density:	Low Density
Location/GPS Coordinates:	28°45'18.00"S 31° 5'30.10"E
Approximate Age:	Less than 10 years
Applicable Sections of the Relevant Acts:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA), No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The cemetery belongs to the Shezi family, a dominant surname in the area. The cemetery contains three graves all in soil mound with no grave markers such as headstone or dressing. It is situated on the western side of Nkunzana River and on the south-western slope of the affected ridge for the proposed prospecting activities. According to the family representative who showed the NGT team the location of the cemetery, they moved their homestead from the area with the cemetery approximately 10 years ago to their new settlement. All three graves in the cemetery are covered in thick vegetation (<i>Figure 14</i>). According to Mr Shezi who pointed the graves, the graves are facing the homestead which is located north of them. From this we deduced that the grave orientation is south-north. The cemetery is situated south of Dilamuka Khumalo cemetery (Nku-Cem 02) (<i>Figure 16</i>).</p>	



Figure 14-A member of the Shezi family pointing to the position of the grave

Table 9- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 01)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	1	Probability	1	1
	Environmental Risk (Pre-mitigation)					2,00
	Mitigation Measures					
	It is proposed that the cemetery should be demarcated and be treated as a No-Go-Area. Due to the fact that it situated away from the construction activities associated with prospecting it can be condoned off from the rest of the project through the emergency tape.					
	Heritage Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 10- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 01)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	2
	Extent of Impact	2	2	Reversibility of Impact	3	3
	Duration of Impact	5	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-7,00
	Mitigation Measures					
	It is proposed that a 10m buffer should be maintained around the cemetery and no construction material should be placed near the cemetery. The construction camp should also be constructed away from the cemetery site.					
	Heritage Risk (Post-mitigation)					4,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2
Issue has received a meaningful and justifiable public response						

	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	6,00

Table 11-Impact and risk assessment rating for project operational phase in relation to the identified cemetery site (Nku-Cem 01)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	All special purpose vehicles working on site either through resampling or maintaining infrastructure – should always maintain the proposed 10m buffer from the cemetery.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	2
	<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>	
	Prioritisation Factor	1,50
	Final Significance	2,63

Table 12- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 01)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					3,50
	Mitigation Measures					
	During the decommission phase, no machinery or construction material that has been removed from the site camp should be placed in the area with graves. The 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,75

Table 13-Impact and risk assessment rating for project rehabilitation and closure phase in relation to the identified cemetery site (Nku-Cem 01)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Rehab and closure				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-3,00
	Mitigation Measures					
	There is less likelihood of impacts at this stage of the project. To be on the safe side, the proposed 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,50
	Degree of confidence in impact prediction:					Low
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,50

Table 14-Nku-Cem 02

Site Name:	Nku-Cem 02
Type:	Burial Ground and Grave Site
Density:	Medium Density
Location/GPS Coordinates:	28°45'14.90"S 31° 5'30.80"E
Approximate Age:	Less than 60 years
Applicable Sections of Relevant Legislations:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA), No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The cemetery is covered in thick vegetation similar to Nku-Cem 01. It belongs to Dilamuka Khumalo family. Based on what the team of locals that accompanied the NGT team on site, the cemetery should contain approximately nine graves. The family was not present on site to verify the number. The cemetery was also situated in a land where there was Khumalo family homestead. Similar to the Shezi cemetery, the graves had no grave markers – only soil mounds that have been colonised by thick vegetation cover (Figure 15). The cemetery is situated north of the Shezi family graves on the south-western slope of the affected ridge (Figure 16).</p>	



Figure 15- Area with Dilamuka family graves - its covered by the same weed species that covered the Shezi cemetery.



Figure 16- Location of the Shezi and Khumalo graves on the southern and western slope of the affected ridge

Table 15- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 02)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	1	Probability	1	1
	Environmental Risk (Pre-mitigation)					2,00
	Mitigation Measures					
	It is proposed that the cemetery should be demarcated and be treated as a No-Go-Area. Due to the fact that it situated away from the construction activities associated with prospecting it can be condoned off from the rest of the project through the emergency tape.					
	Heritage Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 16- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 02)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	2
	Extent of Impact	2	2	Reversibility of Impact	3	3
	Duration of Impact	5	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-7,00
	Mitigation Measures					
	It is proposed that a 10m buffer should be maintained around the cemetery and no construction material should be placed near the cemetery. The construction camp should also be constructed away from the cemetery site.					
	Heritage Risk (Post-mitigation)					4,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2
	Issue has received a meaningful and justifiable public response					

	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	6,00

Table 17-Impact and risk assessment rating for project operational phase in relation to the identified cemetery site (Nku-Cem 02)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	All special purpose vehicles working on site either through resampling or maintaining infrastructure – should always maintain the proposed 10m buffer from the cemetery.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	2
	<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>	
	Prioritisation Factor	1,50
	Final Significance	2,63

Table 18- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 02)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					3,50
	Mitigation Measures					
	During the decommission phase, no machinery or construction material that has been removed from the site camp should be placed in the area with graves. The 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,75

Table 19-Impact and risk assessment rating for project rehabilitation and closure phase in relation to the identified cemetery site (Nku-Cem 02)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Rehab and closure				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-3,00
	Mitigation Measures					
	There is less likelihood of impacts at this stage of the project. To be on the safe side, the proposed 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,50
	Degree of confidence in impact prediction:					Low
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,50

Table 20-Nku-Cem 03

Site Name:	Nku-Cem 03
Type:	Burial Ground and Grave Site
Density:	Low Density
Location/GPS Coordinates:	28°45'12.20"S 31° 5'56.80"E
Approximate Age:	Less than 60
Applicable Sections of Relevant Legislations:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA, No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The Mkhwanazi family cemetery is situated on the crest of the affected ridge. It contains two graves with east-west orientation; typical burial orientation. One grave has cement brick dressing and the other is a soil mound with no markers such as headstone or dressing (<i>Figure 17</i>). The graves are partially covered in vegetation. The cemetery is situated west and approximately 41m from the access road to the ridge and borehole number 04 and 37m from trench number 04 (<i>Figure 18</i>).</p>	



Figure 17- Mkhwanazi family graves



Figure 18- Location of the Mkhwanazi family graves in relation to the proposed access road

Table 21- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 03)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	1	Probability	1	1
	Environmental Risk (Pre-mitigation)					2,00
	Mitigation Measures					
	It is proposed that the cemetery should be demarcated and fenced off. A 10m buffer be developed around the cemetery. It should be treated as a No-Go-Area.					
	Heritage Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2
Issue has received a meaningful and justifiable public response						

	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 22- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 03)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	2
	Extent of Impact	2	2	Reversibility of Impact	3	3
	Duration of Impact	5	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-7,00
	Mitigation Measures					
	The cemetery should be treated as a No-Go-Area and no construction machinery should be placed near the grave site. The construction camp should also be placed away from the area with graves.					
	Heritage Risk (Post-mitigation)					4,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2
Issue has received a meaningful and justifiable public response						

	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	6,00

Table 23-Impact and risk assessment rating for project operational phase in relation to the identified cemetery site (Nku-Cem 03)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The special purpose vehicles should always maintain a 10m buffer from the grave site during either resampling of the prospecting area or road maintenance.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	2
	<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>	
	Prioritisation Factor	1,50
	Final Significance	2,63

Table 24- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 03)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					3,50
	Mitigation Measures					
	During the decommission phase, no machinery or construction material that has been removed from the site camp should be placed in the area with graves. The 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,75

Table 25-Impact and risk assessment rating for project rehabilitation and closure phase in relation to the identified cemetery site (Nku-Cem 03)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Rehab and closure				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-3,00
	Mitigation Measures					
	There is less likelihood of impacts at this stage of the project. To be on the safe side, the proposed 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,50
	Degree of confidence in impact prediction:					Low
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,50

Table 26-Nku-Cem 04

Site Name:	Nku-Cem 04
Type:	Possible Burial Ground and Grave Site
Density:	Not known
Location/GPS Coordinates:	28°45'15.50"S 31° 6'4.10"E
Approximate Age:	Less than 60 years (based on known time of the Nzuza family settlement of the area)
Applicable Sections of Relevant Legislations:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA), No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The site is known to have been settled by the Nzuza family who relocated to a new settlement site over 10 years ago. The team of locals who accompanied the NGT team on the survey confirmed that the Nzuza did bury in the area but they did not know the exact location of the burials. As such the area has be marked as a potential burial site. It is covered in the same vegetation that covered the Shezi and Khumalo family graves (<i>Figure 19</i>). This possible cemetery site is situated 18.3m from borehole number 05 and 10.6m from the proposed access road (<i>Figure 20</i>).</p>	



Figure 19- Location of the area with potential to yield graves belonging to the Nzuza family

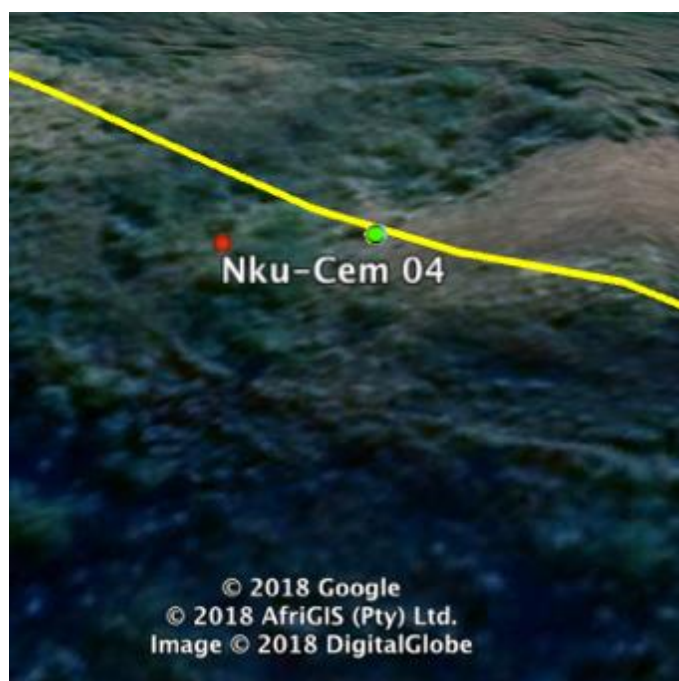


Figure 20- Location of the potential cemetery belonging to the Nzuza family in relation to the borehole and the proposed access road

Table 27- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 04)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	1	Probability	1	1
	Environmental Risk (Pre-mitigation)					2,00
	Mitigation Measures					
	It is proposed that during the site clearance for the access road, the Nzuza family representatives should be called on site and an archaeologist should be present to mark and demarcate the area with graves. Once marked, the cemetery should be fenced off and a 10m buffer be developed. It should be treated as a No-Go-Area.					
	Heritage Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
Public Response					2	

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 28- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 04)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	2
	Extent of Impact	2	2	Reversibility of Impact	3	3
	Duration of Impact	5	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-7,00
	Mitigation Measures					
	The cemetery should be treated as a No-Go-Area and no construction machinery should be placed near the grave site. The construction camp should also be placed away from the area with graves.					
	Heritage Risk (Post-mitigation)					4,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2
	Issue has received a meaningful and justifiable public response					
Cumulative Impacts					2	

	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	6,00

Table 29-Impact and risk assessment rating for project operational phase in relation to the identified cemetery site (Nku-Cem 04)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The special purpose vehicles should always maintain a 10m buffer from the grave site during either resampling of the prospecting area or road maintenance.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					2

	<i>Issue has received a meaningful and justifiable public response</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	2
	<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>	
	Prioritisation Factor	1,50
	Final Significance	2,63

Table 30- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 04)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					3,50
	Mitigation Measures					
	During the decommission phase, no machinery or construction material that has been removed from the site camp should be placed in the area with graves. The 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,75

Table 31-Impact and risk assessment rating for project rehabilitation and closure phase in relation to the identified cemetery site (Nku-Cem 04)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Rehab and closure				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	1	1
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-3,00
	Mitigation Measures					
	There is less likelihood of impacts at this stage of the project. To be on the safe side, the proposed 10m buffer should be maintained at all times.					
	Heritage Risk (Post-mitigation)					1,50
	Degree of confidence in impact prediction:					Low
	Impact Prioritisation					

	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,00
	Final Significance	1,50

Table 32-Nku-Cem 05

Site Name:	Nku-Cem 05
Type:	Burial Ground and Grave Site
Density:	Medium Density
Location/GPS Coordinates:	28°45'30.20"S 31° 6'19.40"E
Approximate Age:	Less than 60 years
Applicable Sections of Relevant Legislations:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA), No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The Shezi family is situated along the proposed access road to the ridge proposed for prospecting. It contains eight graves with east west orientation. All graves in the cemetery have soil mounds with most soil being washed away. The graves like most graves in the area are covered in vegetation, two three have grown on two graves (<i>Figure 21</i>).</p> <p>The graves are on a separate ridge/hill from the one proposed for prospecting. The ridge is where the proposed access road is going to be constructed.</p>	



Figure 21-Location of the Shezi graves



Figure 22- Location of the Shezi family grave in relation to the proposed access road

Table 33- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 05)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	1. Heritage Impact Assessment	1. Heritage Impact Assessment				
	Proposal	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	1
	Extent of Impact	2	2	Reversibility of Impact	4	1
	Duration of Impact	4	1	Probability	4	1
	Environmental Risk (Pre-mitigation)					-14,00
	Mitigation Measures:					
	The proposed access road should be diverted away from the cemetery for approximately 20m. The cemetery should be demarcated, fenced off and a 10m buffer be developed. It should be treated as a No-Go-Area.					
	Environmental Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High

	Impact Prioritisation	
	Public Response	3
	<i>Issue has received an intense meaningful and justifiable public response</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 34- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 05)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. Copy and Paste Impact Table into Report (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	4	1
	Extent of Impact	2	2	Reversibility of Impact	4	1
	Duration of Impact	4	1	Probability	5	1
	Environmental Risk (Pre-mitigation)					-17,50
	Mitigation Measures					
	The cemetery should be demarcated from construction activities and treated as a No-Go-Area. No construction machinery should be parked within 10m from the site and the construction team should ensure that no site camp or construction related infrastructure is constructed within a 10m zone from the identified graves.					
	Environmental Risk (Post-mitigation)					1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					

	Public Response	3
	<i>Issue has received an intense meaningful and justifiable public response</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	1,67

Table 35- Impact and risk assessment rating for project operation phase in relation to the identified cemetery site (Nku-Cem 05)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	4	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	The cemetery site should always be demarcated from the access road to site during road maintenance and upgrades. It is proposed that special markers be place in the area with the cemetery as means of mitigating impacts.					
	Environmental Risk (Post-mitigation)					2,00
	Degree of confidence in impact prediction:					Medium
	Impact Prioritisation					
	Public Response					3
Issue has received an intense meaningful and justifiable public response						

	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	2,67

Table 36- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 05)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	2	2
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	There is less likelihood of impacts at the decommissioning stages of the project. However, to mitigate any potential risk no machinery or construction material should be placed near the graves or within a 10m buffer.					
	Environmental Risk (Post-mitigation)					4,00
	Degree of confidence in impact prediction:					Medium
	Impact Prioritisation					
	Public Response					3

	<i>Issue has received an intense meaningful and justifiable public response</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	5,33

	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	5,33

Table 38-Nku-Cem 06

Site Name:	Nku-Cem 06
Type:	Burial Ground and Grave Site
Density:	Low Density
Location/GPS Coordinates:	28°45'27.54"S 31° 4'47.92"E
Approximate Age:	Older than 60 years (134 year)
Applicable Sections of Relevant Legislations:	<ul style="list-style-type: none"> • Section 36 of the NHRA, No. 25 of 1999 • Section 26 (3 & 4) of the KZNHA), No. 10 of 1997 • Special protection in terms Section 40 of the KZNHA), No. 10 of 1997 • Section 38 as Heritage Landmarks and Section 39 as Provincial Landmarks of the KZNHA), No. 10 of 1997 • Chapter 8 and Section 40 and 41 of the KZNHB of 21 February 2008
Description:	
<p>The grave of King Cetshwayo is fenced off from the surrounding using a palisade fence with an access gate (<i>Figure 23</i>). The grave has a granite dressing with two slabs of granite cover inscribed on (<i>Figure 24</i>). It is further fenced off using a total of eight granite plinth linked together by a chain (Figure. The area around the grave and the associated plinth and chain fence, it is paved using pieces of granite, stone and cement. The grave is in a good state of preservation with only a brass plate removed or stolen (<i>Figure 25</i>). The grave of 'Isilo' King Cetshwayo is found across Nkunzana River, on the western side of the river and along an existing road to Dlabé (<i>Figure 26</i>).</p>	



Figure 23- The grave of Isilo u'Cetshwayo



Figure 24- Two granite slabs with inscriptions



Figure 25- The red arrow shows an area where there was a brass plate which has been removed or stolen



Figure 26- Location of the grave of King Cetshwayo in relation to the existing road

Table 39- Impact and risk assessment rating for project planning phase in relation to the identified cemetery site (Nku-Cem 06)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Planning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	5	5
	Extent of Impact	5	5	Reversibility of Impact	4	4
	Duration of Impact	4	4	Probability	5	5
	Environmental Risk (Pre-mitigation)					-22,50
	Mitigation Measures					
	Although the grave site is situated a distance from the ridge proposed for prospecting activity, it has a high-risk impact. To mitigate the risks – the project proponent to should develop a form written letter to Amafa and the Royal House to guarantee that there will be no prospecting in the area with the grave of King Cetshwayo and that the prospecting will only be limited to the ridge located east of Nkunzana River. This letter will ensure that during the assessment of the current HIA document, the project is not taken out of context and be equated to mining in the area with the Royal House grave with a potential to impact it. It will also ensure that the issue of prospecting is not politicised.					
	Environmental Risk (Post-mitigation)					22,50

	Degree of confidence in impact prediction:	High
	Impact Prioritisation	
	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	3
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	2
	<i>The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.</i>	
	Prioritisation Factor	1,50
	Final Significance	33,75

Table 40- Impact and risk assessment rating for project construction phase in relation to the identified cemetery site (Nku-Cem 06)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of natural vegetation/ habitat – Proposal					
2. Copy and Paste Impact Table into Report (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Construction				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	2
	Extent of Impact	5	3	Reversibility of Impact	1	3
	Duration of Impact	2	3	Probability	5	2
	Environmental Risk (Pre-mitigation)					-13,75
	Mitigation Measures					
	It is recommended that no construction machinery should be placed near the grave of ‘Isilo’ King Cetshwayo site. The site is situated very far from the current proposed prospecting activities. However, to avoid any false alarms, no machinery should be place near the grave site of Isilo or site camp be established near the burial site of Isilo.					
	Environmental Risk (Post-mitigation)					5,50
	Degree of confidence in impact prediction:					High

	Impact Prioritisation	
	Public Response	1
	<i>Low: Issue not raised in public responses</i>	
	Cumulative Impacts	2
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,17
	Final Significance	6,42

Table 41- Impact and risk assessment rating for project operation phase in relation to the identified cemetery site (Nku-Cem 06)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Operation				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	4	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	The cemetery site should always be demarcated from the access road to site during road maintenance and upgrades. It is proposed that special markers be place in the area with the cemetery as means of mitigating impacts.					
	Environmental Risk (Post-mitigation)					2,00
	Degree of confidence in impact prediction:					Medium
	Impact Prioritisation					
	Public Response					3
Issue has received an intense meaningful and justifiable public response						

	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	2,67

Table 42- Impact and risk assessment rating for project decommissioning phase in relation to the identified cemetery site (Nku-Cem 06)

1. Select Impact From Dropdown List (C2:H2)	A. 1. Transformation of cultural/ heritage resources- Proposal					
2. (C4:H24)	Impact Name	1. Heritage Impact Assessment				
	Alternative	Proposal				
	Phase	Decommissioning				
	Environmental Risk					
	Attribute	Pre-mitigation	Post-mitigation	Attribute	Pre-mitigation	Post-mitigation
	Nature of Impact	-1	1	Magnitude of Impact	2	2
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	2	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	There is less likelihood of impacts at the decommissioning stages of the project. However, to mitigate any potential risk no machinery or construction material should be placed near the graves or within a 10m buffer.					
	Environmental Risk (Post-mitigation)					4,00
	Degree of confidence in impact prediction:					Medium
	Impact Prioritisation					
	Public Response					3

	<i>Issue has received an intense meaningful and justifiable public response</i>	
	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	5,33

	Cumulative Impacts	1
	<i>Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.</i>	
	Degree of potential irreplaceable loss of resources	1
	<i>The impact is unlikely to result in irreplaceable loss of resources.</i>	
	Prioritisation Factor	1,33
	Final Significance	5,33

6. DISCUSSION

The survey of the proposed prospecting activities resulted to the identification of a total of five cultural heritage sites in form of burial grounds and graves or cemetery sites and an area known to have been settled by the Nzuza family who are known to have had a burial while they resided in the area. This area is recorded as a potential cemetery site status. Together with the five cemeteries it forms the fifth cemetery on site. The cemeteries are all accorded a high heritage status whilst the Zulu Royal Grave (Nku-Cem 06) is of Provincial Heritage Significance (Level II Heritage Site) in terms of Section 7 (1) (b) of the NHRA, No. 25 of 1999; as Heritage Landmarks in terms of Section 38; Provincial Landmark in terms of in terms of Section 38; and a special protection in terms of Section 40 of the KZNHA), No. 10 of 1997 (*Figure 23*). Its significance therefore transcends the local significance accorded to the four other cemetery sites such as Nku-Cem 01 (*Figure 14*), Nku-Cem 02 (*Figure 15*), Nku-Cem 03 (*Figure 17*), Nku-Cem 05 (*Figure 21*) and the possible cemetery site Nku-Cem 04 (*Figure 19*).

In terms of site distribution pattern, Nku-Cem 01 and Nku-Cem 02 are situated on the south-western slope of the ridge propose for prospecting activities. Site Nku-Cem 03 and Nku-Cem 04 are situated on the crest of the ridge and site Nku-Cem 05 on the northern slope of another ridge where the proposed access road is located. The grave of King Cetshwayo is located on the western side of the Nkunzana River and far from the ridge with the proposed prospecting activities and associated infrastructure such as the proposed access road (*Figure 31*). *Figure 32* shows the distribution of all the identified graves according to family names of the deceased (Dilamuka belongs to Khumalo family). Based on information provided on site during the survey, it will be easy to track down the descendants of the deceased should the need arise due to the fact that they are known (e.g. the Mkhwanazi, Nzuza and Khumalo family). The Shezi family was on site and they were able to point their family graves (e.g. *Figure 14 and Figure 21*).

In terms of the impact of the proposed project on the identified heritage resources; the only cemetery that is at high risk is the second Shezi family cemetery with eight graves in total. The road is located within a meter from the cemetery. If not mitigated the cemetery will negatively be impacted by the proposed construction of the access road. Although, *Figure 33* shows the graves have been very close to the test trenches and the proposed boreholes – in actual fact they are situated some distance away

from 10m and above. For example, Nku-Cem 03 is situated 42m from the proposed access road and borehole number 04 and 37m from trench number 04. Nku-Cem 04 is situated 18.23m from borehole number 05 and 10.6m from the proposed access road. With on Nku-Cem 05 situate a 1m from the proposed access road and within the road servitude (*Figure 33*).

The areas proposed for trenches and boreholes were also assess, including the area in red for historic mine. All areas assessed did not yield any heritage resources and below are the images taken in some of the borehole points and test trenches (*Figures 27-30*).



Figure 27-Area proposed for borehole drilling



Figure 28- Area proposed for test trench



Figure 29- Area proposed for borehole drilling



Figure 30-Area proposed for test trench

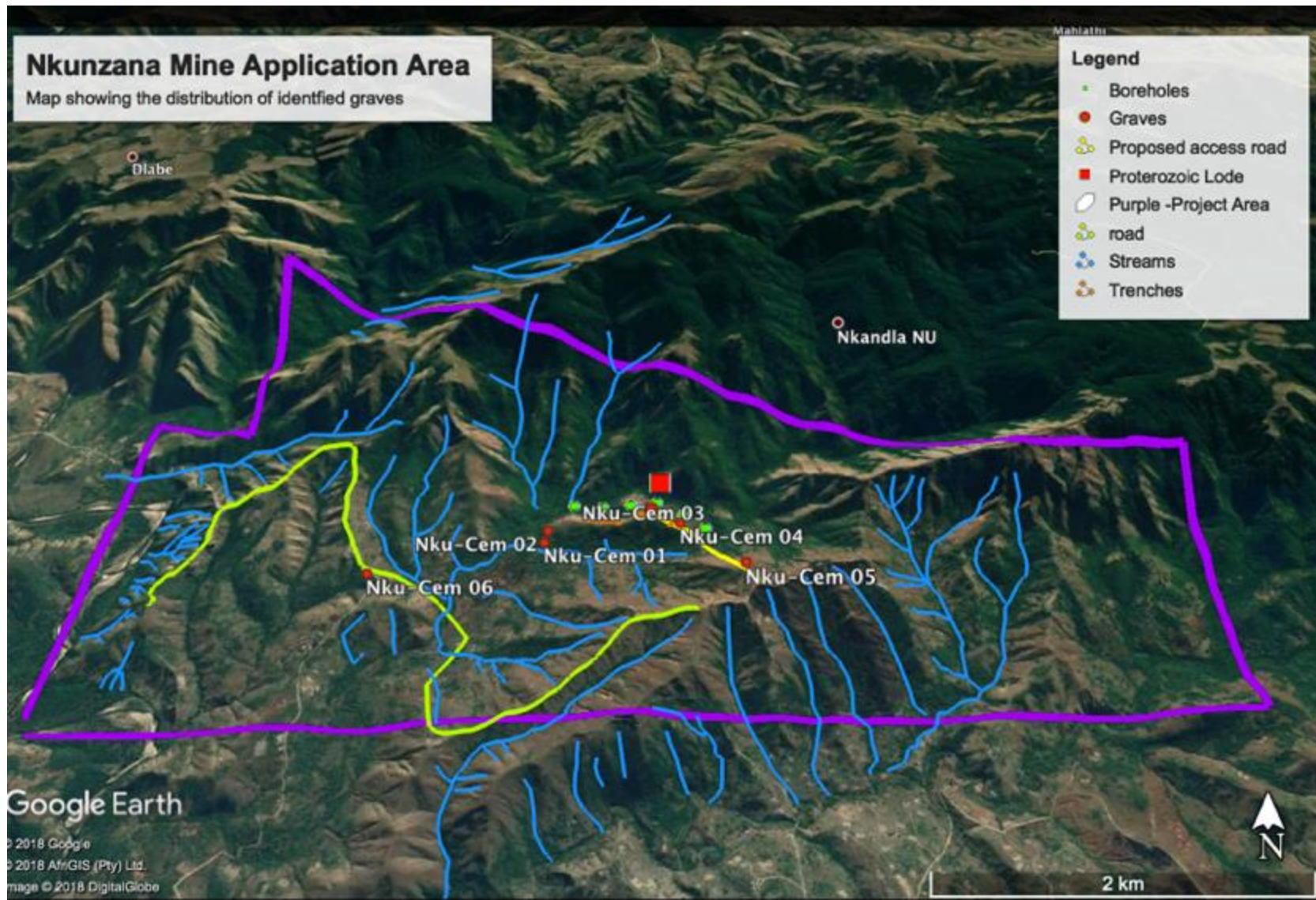


Figure 31- Google Earth map showing the distribution of the identified cemeteries within Nkunzana Mine Application area. Note the concentration of cemeteries in a small ridge

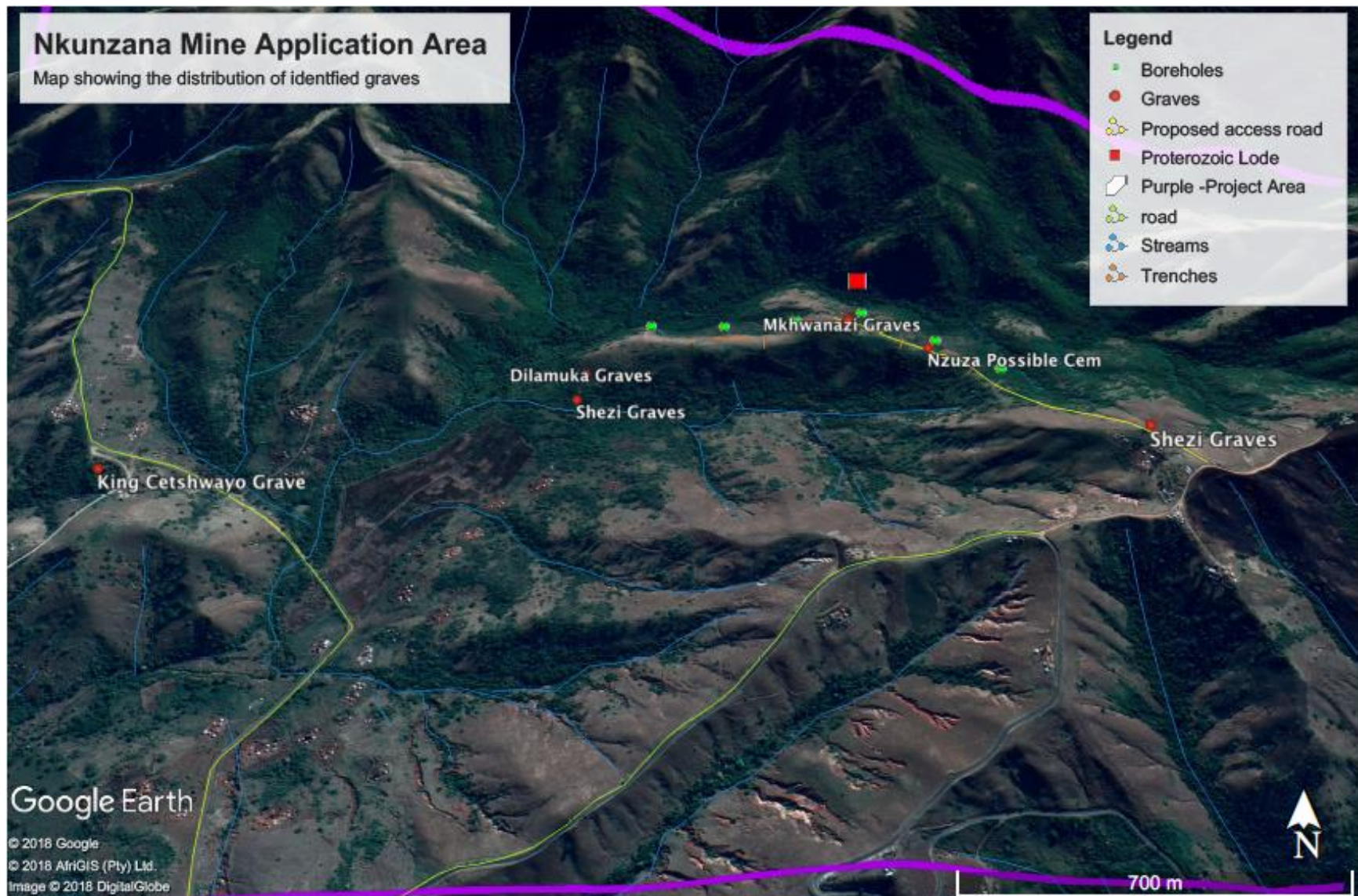


Figure 32- Distribution of the identified graves. The graves are marked using family names



Figure 33- Close up distribution pattern view of the identified graves in relation to the proposed road, trenches and the boreholes

7. CONCLUSION

Based on the results of literature review and the survey results the following conclusions are made:

Based on the results of literature review and the survey results the following conclusions are made:

- It is concluded that the proposed Nkunzana Mine is situated in a rich cultural landscape in terms of the historic period as per the desktop study.
 - It is an area known to have been the based Zokufa Shezi a metallurgist for King Shaka.
 - It is also situated in the land where King Cetshwayo is buried.
 - The area has also been settled by various groups over time.
 - The proposed activities have high potential of disturbing marked and unmarked burial grounds and graves.
 - Burial grounds and graves are some of the resources that have been identified in the current study some of which could not be easily recognised by an outsider without knowing the people who resided in the area and the people buried.
- It is concluded that the fact that King Cetshwayo grave is situated in close proximity to the area proposed for prospecting and within the Nkunzana Mine Application area might raise alarms to both Amafa KwaZulu Natali and the Royal House; royal burial grounds are accorded a significant status in the province and the matter will have to be dealt with in a very sensitive, socio-culturally and political manner even though the cemetery will not be impacted by the proposed prospecting activities.
- Although the grave of King Cetshwayo falls outside of the current prospecting area and will not be directly impacted by prospecting; it falls within the proposed Nkunzana Mine Application Area which means that it is at high risk from future mining activities depending on the nature and type of mining that will be conducted within the application area.
- Graves of Royal Family are accorded special protection in terms of the heritage laws of the country; for example, it is protected as a Provincial Heritage Site (Level II Heritage Site) in terms of Section 7 (1) (b) of the NHRA, No. 25 of 1999; as Heritage Landmarks in terms of Section 38; Provincial Landmark in terms of in terms of Section 38; and a special protection in terms of Section 40 of the KZNHA), No. 10 of 1997.
- On the ridge proposed for prospecting four cemeteries and one possible cemetery site have been identified (Nku-Cem 01, Nku-Cem 02, Nku-Cem 03, Nku-Cem 05 and possible cemetery Nku-Cem 04E), two of these cemeteries are located on the south-western slope of the affected ridge and away from the proposed activities (Nku-Cem 01 and Nku-Cem 02).

- The other two cemeteries, including the possible cemetery site, are located in in close proximity to the development activities and the associated infrastructure such as the access road (Nku-03, Nku-05 and possible cemetery Nku-Cem 04)
- The four identifiable cemeteries (Nku-Cem 01, 02, 03 and Nku-Cem 05) on the ridge (as well as access road) have a combined total of 22 graves.
- The cemetery with eight graves (Nku-Cem 05) is identified to be at high risk from the proposed construction of the access road to site as it is within 1m from the proposed road and will fall within the road servitude.
- Nku-Cem 04 (possible cemetery) is also located in close proximity to the access road; it is only 10m away.
- The nature of the underlying geology in the receiving environment consists of “Hekpoort and Timeball Hill formations and within these areas Malmani, Mokolian and Quaternary sections” (Bootsma, 2017). These are rocks are not known to contain palaeontological fossils, meaning that there is no need to conduct any other palaeontological studies or have a monitoring programme to rescue palaeontological resources during the trenching and drilling process associated with the proposed prospecting activities. The Council of Geoscience has also mapped the area as a non-sensitive in terms of the South African palaeontological sensitivity layer.

8. RECOMMENDATIONS

- It is recommended that the four cemeteries and the one potential cemetery site situated on the affected ridge and the area earmarked for the construction of access for the proposed prospecting activities should be avoided and be treated as No-Go-Areas from all stages of the project:
 - Planning
 - Construction
 - Operation
 - Decommission
 - Rehabilitation and closure
- These cemeteries should be fenced off from construction activities and a 10m buffer be established from each of the cemeteries.
- A Cemetery Management Plans (CeMPs) should be developed to manage and monitor the cemeteries during the prospecting and construction phase of the access road associated with the project.
- The project Environmental Control Officer (ECO) should report of the conditions of the cemeteries during Environmental Management Programme (EMPr) reporting associated with his/her activities.
- No machinery placed near the graves or site camp should be established in the area with cemeteries (including the possible cemetery) to avoid any potential impacts to these resources.
- Of the four cemeteries, Nku-Cem 05 will be directly affected because it falls within a meter from the proposed access road - but can be mitigated by moving the road approximately 15m from the cemetery.
- No cemetery will be impacted if the above recommendations are fully implemented; therefore, it is recommended that the Amafa Burial Grounds and Graves (BGG) Unit grants the project a Positive Review Comment (PRC) and allow the proposed prospecting activities to proceed as planned.
- From a built environment perspective, there were no historic buildings or structures that are older than 60 years on site. The Amafa Built Environment Unit should grant the project a PRC.
- No archaeological resources were identified in and along the project area and the Amafa Archaeology, Palaeontology and Meteorite (APM) Unit should grant the project a PRC.

- The study area is located in an area with non-fossiliferous rocks, it is therefore recommended that no further palaeontological studies are required; Amafa Archaeology, Palaeontology and Meteorite (APM) Unit should grant the project a PRC to proceed from a palaeontological perspective.
- Once the environmental process for the proposed prospecting has been approved by the relevant authority in terms of all compliance requirements such as issuance of Environmental Authorisation (EA) and associated specialist permits, the following should be implemented from a heritage perspective:
 - The project proponent contractor on site should appoint an archaeologist or heritage specialist to monitor all construction related activities on site during bush clearing, to pegging and construction of the access road to the affected ridge.
 - The appointed archaeologist of heritage consultant will also have to assess the area for the proposed site camp and give advice on its suitability based on whether or not it is to be established within an area with graves.
- The royal graves are accorded a significant status in KwaZulu-Natal and are protected as a Provincial Heritage Site (Level II Heritage Site) in terms of Section 7 (1) (b) of the NHRA, No. 25 of 1999; as Heritage Landmarks in terms of Section 38; Provincial Landmark in terms of in terms of Section 38; and a special protection in terms of Section 40 of the KZNHA), No. 10 of 1997. It is recommended that although the grave of King Cetshwayo is located a distance away from the current prospecting activities and will not be impacted, that no machinery or site camp associated with the proposed prospecting activities should be established near the grave.
- It is also recommended that the project proponent should pen a letter that should accompany this HIA submission to Amafa and clearly state that there will be no prospecting activities on the ridge in which the grave is situated. The letter will take Amafa and the representative of the Zulu Royal House (who sit on Amafa committees) into confidence that the Royal Grave will not be impacted.
- A long terms strategy on how the Royal Grave will be dealt with during the actual mining activities should be discussed between the project proponent, the Zulu Royal House, Amafa KwaZulu Natali facilitated by an appointed archaeologist and heritage consultant.
- It is advisable that the project proponent should start the heritage consultative process on the matter (how to deal with the royal grave) now to avoid any potential false alarms socio-culturally and politically that may risk the project on a long-term basis.

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