



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**A SECOND REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR
THE PROPOSED TUMELA 15 EAST DROPDOWN AND DISHABA 62 EAST
RAISE BORE PROJECTS, CLOSE TO NORTHAM, LIMPOPO PROVINCE**

For:

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REPORT NO.: AE01816V

By:

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6 April 2018

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SUBMISSION OF REPORT

Please note that the South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report.

It is the client's responsibility to do the submission via the SAHRIS System on the SAHRA website.

Clients are advised not to proceed with any action before receiving the necessary comments from SAHRA.

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No.	Requirement	Section in report
1	A specialist report prepared in terms NEMA EIA Regulation 982 must contain:	
a)	Details of -	
(i)	The specialist who prepared the report	Title page
(ii)	The expertise of that specialist to compile a specialist report including a curriculum vitae	After contents page
b)	A declaration that the specialist is independent	After contents page
c)	An indication of the scope of, and the purpose for which, the report was prepared	3
cA)	An indication of the quality and age of base data used for the specialist report	9
cB)	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	n/a
d)	The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	8
e)	A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	5
f)	Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives	n/a
g)	An identification of any areas to be avoided, including buffers	10
h)	A map superimposing the activity including the associated structure and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	1
i)	A description of any assumption made and any uncertainties or gaps in knowledge	6
j)	A description the findings and potential implication\s of such findings on the impact of the proposed activity, including identified alternatives on the environment or activities	10
k)	Any mitigation measures for inclusion in the EMPr	10
l)	Any conditions for inclusion in the environmental authorisation	10
m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation	10
n)	A reasoned opinion -	
(i)	As to whether the proposed activity, activities or portions thereof should be authorised	10
(iA)	Regarding the acceptability of the proposed activity or activities	10
(ii)	If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	10
o)	A description of any consultation process that was undertaken during the course of preparing the specialist report	5
p)	A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	5
q)	Any other information requested by the competent authority	4, 7 and 8

EXECUTIVE SUMMARY

Purpose:

In November 2017 Archaetnos cc was requested by SRK Consulting to conduct a cultural heritage impact assessment (HIA) for the proposed Tumela 15 East Dropdown and Dishaba 62 East Raise Bore Project. Due to changes in the project scope, Archaetnos was again requested to do an HIA in April 2018. The project lies to the north-east of Northam in the Limpopo Province. The study forms part of the Final Scoping Report for the environmental authorisation process.

Project description:

The Amandelbult Complex identified two replacement projects to maximise existing infrastructure to supplement the overall declining production profile to sustain production of the existing underground operations. These projects are associated with the existing Tumela and Dishaba operations at Amandelbult. The projects are known as the Tumela 15 East Dropdown and Dishaba 62 East Raise Bore projects. Both projects are planned as short-term production gap fillers for Amandelbult and, will ensure sustainable production.

Methodology:

The methodology for the study includes a survey of literature and a field survey. The latter was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS), while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied. Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage.

All sites, objects, features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the GPS. The information was added to the description in order to facilitate the identification of each locality.

Public consultation:

Public consultation will be done by the EAP.

Findings:

During the survey no sites of cultural heritage significance were identified within the immediate project area.

Recommendations:

- This report is seen as ample mitigation, since nothing of heritage value were identified in both the surveyed areas.

- The proposed development may continue.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.
- In This regards the following 'Chance find Procedure' should be followed:
 1. Upon finding any archaeological or historical material all work at the affected area must cease.
 2. The area should be demarcated in order to prevent any further work there until an investigation has been completed.
 3. An archaeologist should be contacted immediately to provide advice on the matter.
 4. Should it be a minor issue, the archaeologist will decide on future action, which could include adapting the HIA or not. Depending on the nature of the find, it may include a site visit.
 5. SAHRA's APM Unit may also be notified.
 6. If needed, the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
 7. The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.
 8. Work on site will only continue after removal of the archaeological/ historical material was done.

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CURRICULUM VITAE OF SPECIALIST: PROF ANTON CARL VAN VOLLENHOVEN

Tertiary education

- BA 1986, University of Pretoria
- BA (HONS) Archaeology 1988 (cum laude), University of Pretoria
- MA Archaeology 1992, University of Pretoria
- Post-Graduate Diploma in Museology 1993 (cum laude), University of Pretoria
- Diploma Tertiary Education 1993, University of Pretoria
- DPhil Archaeology 2001, University of Pretoria.
- MA Cultural History 1998 (cum laude), University of Stellenbosch
- Management Diploma 2007 (cum laude), Tshwane University of Technology
- DPhil History 2010, University of Stellenbosch

Employment history

- 1988-1991: Fort Klapperkop Military Museum - Researcher
- 1991-1999: National Cultural History Museum. Work as Archaeologist, as well as Curator/Manager of Pioneer Museum (1994-1997)
- 1999-2002: City Council of Pretoria. Work as Curator: Fort Klapperkop Heritage Site and Acting Deputy Manager Museums and Heritage.
- 2002-2007: City of Tshwane Metropolitan Municipality. Work as Deputy Manager Museums and Heritage.
- August 2007 – present – Managing Director for Archætnos Archaeologists.
- 1988-2003: Part-time lecturer in Archaeology at the University of Pretoria and a part-time lecturer on Cultural Resources Management in the Department of History at the University of Pretoria.
- 2014: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- 2015: Appointed extraordinary professor in history at the Mafikeng Campus of the Northwest University

Other

- Published 75 articles in scientific and popular journals on archaeology and history.
- Author and co-author of over 580 unpublished reports on cultural resources surveys and archaeological work. A list of reports can be viewed on www.archaetnos.co.za
- Published a book on the Military Fortifications of Pretoria.
- Contributed to a book on Mapungubwe.
- Delivered more than 50 papers and lectures at national and international conferences.
- Member of SAHRA Council for 2003 – 2006.
- Member of the South African Academy for Science and Art.
- Accredited professional member of Association for South African Professional Archaeologists.
- Accredited professional member of the South African Society for Cultural History (Chairperson 2006-2008; 2012-2014).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2019).

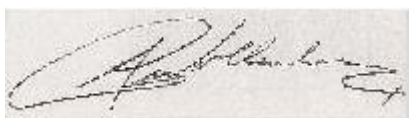
ASAPA Accreditation number: 166

SASCH Accreditation number: CH001

DECLARATION OF INDEPENDENCE

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management.

Signed:



Date: 6 April 2018

LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment
CMP – Cultural Management Plan
EAP – Environmental Assessment Practitioner
EIA – Environmental Impact Assessment
HIA – Heritage Impact Assessment
PIA – Palaeontological Impact Assessment
SAHRA –South African Heritage Resources Agency

1. INTRODUCTION

In November 2017 Archaetnos cc was requested by SRK Consulting to conduct a cultural heritage impact assessment (HIA) for the proposed Tumela 15 East Dropdown and Dishaba 62 East Raise Bore Project. Due to changes in the project scope, Archaetnos was again requested to do an HIA in April 2018. The project lies to the north-east of Northam in the Limpopo Province. The study forms part of the Final Scoping Report for the environmental authorisation process (Figure 1-2).

The Amandelbult complex extends over some 20 km from west to east. The mine is about 15 km north northeast of Northam and 30 km south southwest of Thabazimbi on the northern limb of the Platinum Belt. RPM Amandelbult Complex is the holder of the mining right for the properties within the mine boundary.

The study forms part of the Final Scoping Report for the environmental authorisation process. The client indicated the area to be surveyed. It was surveyed via foot and off-road vehicle.

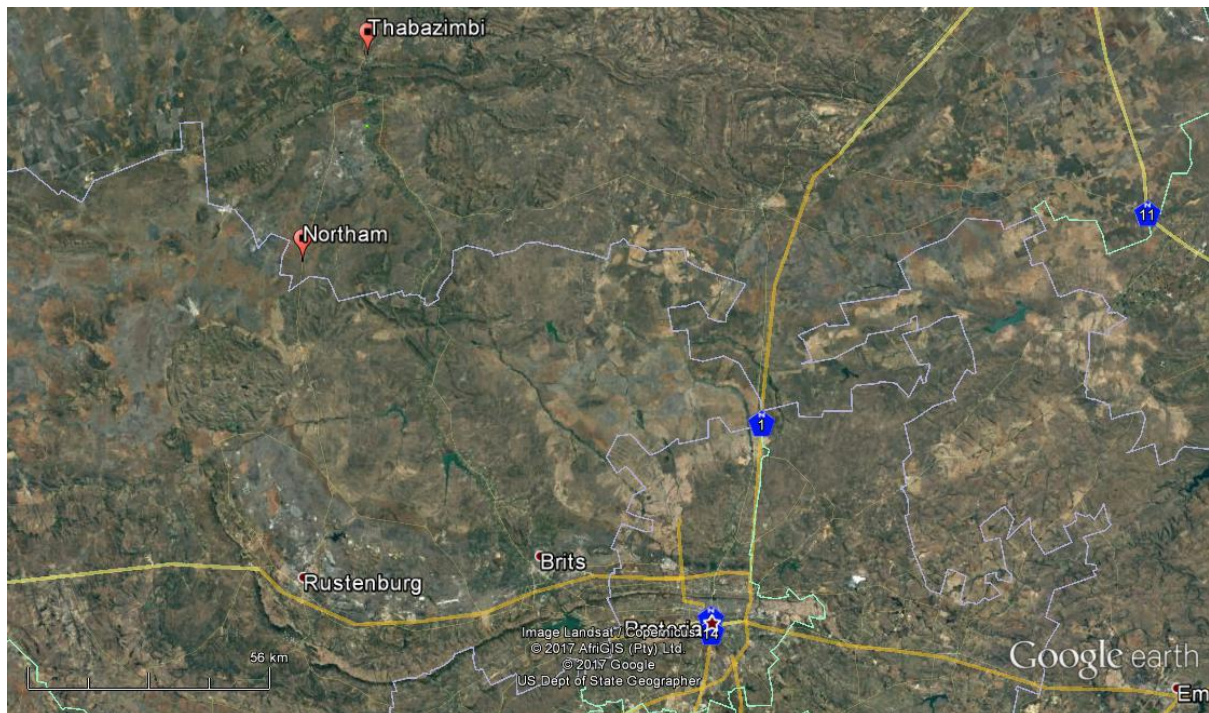


FIGURE 1: LOCATION OF NORTHAM IN THE LIMPOPO PROVINCE.

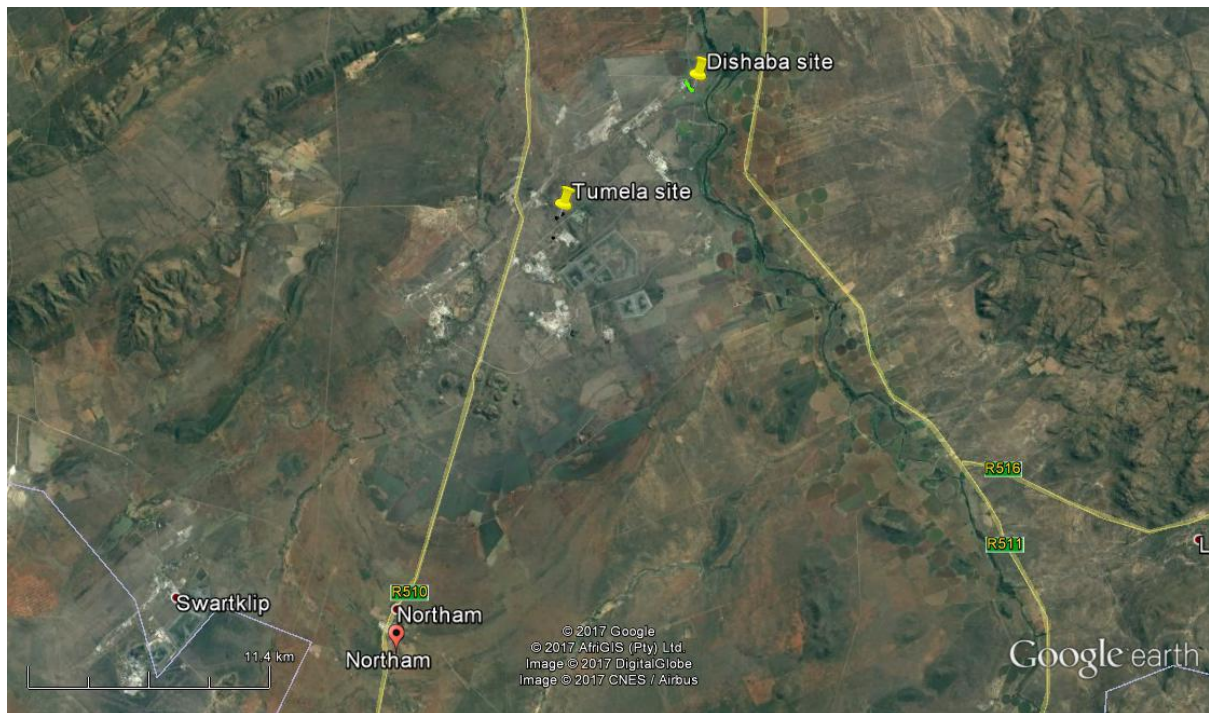


FIGURE 2: LOCATION OF THE INVESTIGATED AREAS IN RELATION TO THE TOWN OF NORTHAM.

2. PROJECT INFORMATION

2.1 Project details

TABLE 1: SUMMARY OF PROJECT SPECIFICS

Type of development	Mining infrastructure
Detail of proposed activities (NHRA section 38 triggers)	Area larger than 5 000m ²
Relevant reference number	LP30/5/1/2/2/48 MR
Size of project	5 Ha
Municipality	Thabazimbi Local Municipality Waterberg District Municipality
1:50 000 topographic map number	2427CD
Farm portions	Tumela: Middellaagte 382 KQ Portion 0 RE Amandelbult 383 KQ Portion 0 Dishaba: Elandskuil 378 KQ Portion 2 Haakdoringdrift 374 KQ Portion 4

The Amandelbult Complex identified two replacement projects to maximise existing infrastructure to supplement the overall declining production profile in order to sustain production of the existing underground operations. These projects are associated with the existing Tumela and Dishaba operations at Amandelbult. The projects are known as the Tumela 15 East Dropdown and Dishaba 62 East Raise Bore projects (Figure 3-5).

Tumela 15 East Dropdown Project:

The Tumela 15 East Shaft is an existing established investment centre. Access into the resource below 15 East Shaft is provided through a Raise Bore from surface to seven level for rock hoisting and three incline shafts. It is proposed that the 15 East Dropdown project will extend the life of the existing 15 East Shaft by using the existing 15 East infrastructure to extend the footprint and mining two additional levels below the current 10 level using the current infrastructure.

The existing 15 East Shaft infrastructure will be used to access the deeper areas; however, new surface ventilation infrastructure is required. Surface infrastructure associated with this project includes the following:

- Two intake ventilation shafts (Initially an upcast (EAST) and downcast (WEST) operation of ventilation fans for the first \pm 5 years (after which, both will then both become Upcast Shafts).
- fridge plant; and
- Diesel storage.

It is envisaged that the current 15 East Shaft underground infrastructure, including a rock hoisting Raise Bore and rock and material declines will be used. An alternate will be considered, to utilise the downcast shaft and equip it for rock hoisting and conveying the ore to the existing 15E raise bore shaft. Co-extraction of both the UG2 and Merensky will be undertaken through a mechanised mining method.

All production from the production gap filler 15 East project will be handling through the existing 15 East Shaft infrastructure, the existing platform will be used for the early conventional development for mechanised workshops and other underground development.

Dishaba 62 East Raise Bore:

The Dishaba 62 Shaba footwall area is serviced by an existing incline shaft with a single drum winder and a chairlift from surface to 5 level. The winder is used for both material and rock hoisting, currently hoisting 15ktpm. The Upper mine of Dishaba, levels 6 to 9 are mined from the adjacent 50 East and 44 East infrastructure. The lower levels, from 10 to 19 level, are mined from Dishaba 2 vertical shaft.

The proposed 62 East Raise Bore Project is being considered as a production gap filler over the next 10 years, until larger Amandelbult Projects are required. The 62 East Raise Bore project will accelerate ounces from the existing Dishaba 62 East area,

with personnel to be deployed from the Tumela Upper Section that is coming to the end of its economic life.

Co-extraction of both the UG2 and Merensky will be undertaken through conventional mining methods as per the current 62 East mining area method. The existing Dishaba 62 East infrastructure will be utilised as the platform for the early development to the Raise Bore position/s, station cutting and other underground development.

It is proposed that the project will consist of the following infrastructure:

- A 5m diameter vertical Raise Bore, including:
 - Designed capacity of 90ktpm from surface to shaft bottom at 6 Level (about 340m in length).
 - The double rail Sub-Incline, 6m wide x 3m high, with a designed rock handling capacity of 90ktpm will be conventionally developed from 4 Level to 9 Level.
 - A chairlift, 3.5m wide by 3m high will be conventionally developed in the footwall from 5 Level to 9 Level, of the UG2 reef at a rate of 15m per month.
- Surface conveyor and/ or surface rail extension;
- Batch plant;
- Terrace;
- Headgear;
- Mini substation; and
- Winder house



FIGURE 3: DETAIL OF THE TUMELA 15 EAST DROPDOWN.



FIGURE 4: DETAIL OF THE DISHABA 62 EAST RAISEBORE.

4. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
5. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
6. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.
7. Review applicable legislative requirements.

4. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. The first of these are the National Heritage Resources Act (Act 25 of 1999) which deals with the cultural heritage of the Republic of South Africa. The second is the National Environmental Management Act (Act 107 of 1998) which inter alia deals with cultural heritage as part of the Environmental Impact Assessment process.

4.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate (see Appendix D) includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery

- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources.

A Palaeontological Impact Assessment (PIA) is an assessment of palaeontological heritage. Palaeontology is a different field of study, and although also sometimes required by the South African Heritage Resources Agency (SAHRA)¹, should be done by a professional palaeontologist.

The different phases during the HIA process are described in Appendix E. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

¹ Please consult SAHRA to determine whether a PIA is necessary.

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Human remains that are less than 60 years old are subject to provisions of the **National Health Act (Act 61 of 2003)** and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **National Health Act (Act 61 of 2003)**.

4.2 The National Environmental Management Act

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4.3 The International Finance Corporations' performance standard for cultural heritage

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g. archaeologists and cultural historians). Any possible chance finds, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This includes the possible maintenance of such sites in situ, or when not possible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed, this should be done by professionals and by abiding to the applicable legislation. The removal of cultural heritage resources may, however, only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the affected

communities. Again, professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be conducted. This entails that such communities should be granted access to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances.

Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the affected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

5. METHODOLOGY

5.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

5.2 Reference to other specialist desktop studies

The Amandelbult Complex lease area and surroundings are generally flat, featureless and covered by a thin layer of black turf soil. An exception to this is a group of small conical hills rising about 150 m above the surrounding countryside and forming part of the Main Zone of the Bushveld Complex. The depth of weathering is approximately 30 m with the majority of the area covered by a black turf soil.

The Bushveld Complex is the world's largest layered intrusion, and because of its unique character most other layered intrusions are compared with it. The Bushveld Complex, as exposed at current levels of erosion, consists of eastern, western and northern limbs. The Amandelbult complex is located within the north-west limb of the geological Bushveld Complex. The upper Critical Zone of the Bushveld Complex hosts the largest concentration of PGEs in the world. Although the Merensky Reef is generally regarded as a uniform reef type, large variations occur in reef thickness, reef composition, as well as the position of the mineralisation. The UG-2 Reef is developed some 20 to 400 metres below the better known Merensky Reef.

Other specialist studies commissioned are still in process. A few heritage reports are known from previous studies in the Northam area of which one was done for this project before changes was made to the layout (see later).

5.3 Public consultation and stakeholder engagement

Public consultation will be done in by the EAP. This will be handled during the Impact Assessment Phase.

5.4 Physical field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. One regularly looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS)², while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied. Since certain sections were surveyed during the previous site visit for the first report, only the new areas were now surveyed (Figure 6-10).

At the Dishaba site, the entire area could not be accessed due to safety concerns (locked gates and high fences). However, the entire area here is disturbed giving it an extremely low chance of concealing heritage sites. The three areas investigated at Tumela is very small, the largest approximately the size of a rugby field. It was therefore possible to see from one side to the opposite, except where vegetation prevented it.

Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance the under footing was extremely dense at the Dishaba area and the vegetation cover medium to high in certain areas. Accordingly, both the vertical and horizontal visibility was influenced negatively. However, it needs to be stated this area is deemed to be a low risk area for containing heritage sites. At all three areas at Tumela, the vegetation was low and the under footing open, making visibility easy. The survey took 5 hours to complete.

5.5 Documentation

All sites, objects, features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the GPS. The information was added to the description in order to facilitate the identification of each locality.

5.6 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features

² A Garmin Oregon 550 with an accuracy factor of a few meters.

- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.



FIGURE 6: TRACK ROUTE³ AT TWO OF THE SITES OF TUMELA 15 EAST DONE IN NOVEMBER 2017.

³ Two people did the survey, but only one GPS instrument was available. The track therefore only shows the movement of one person.

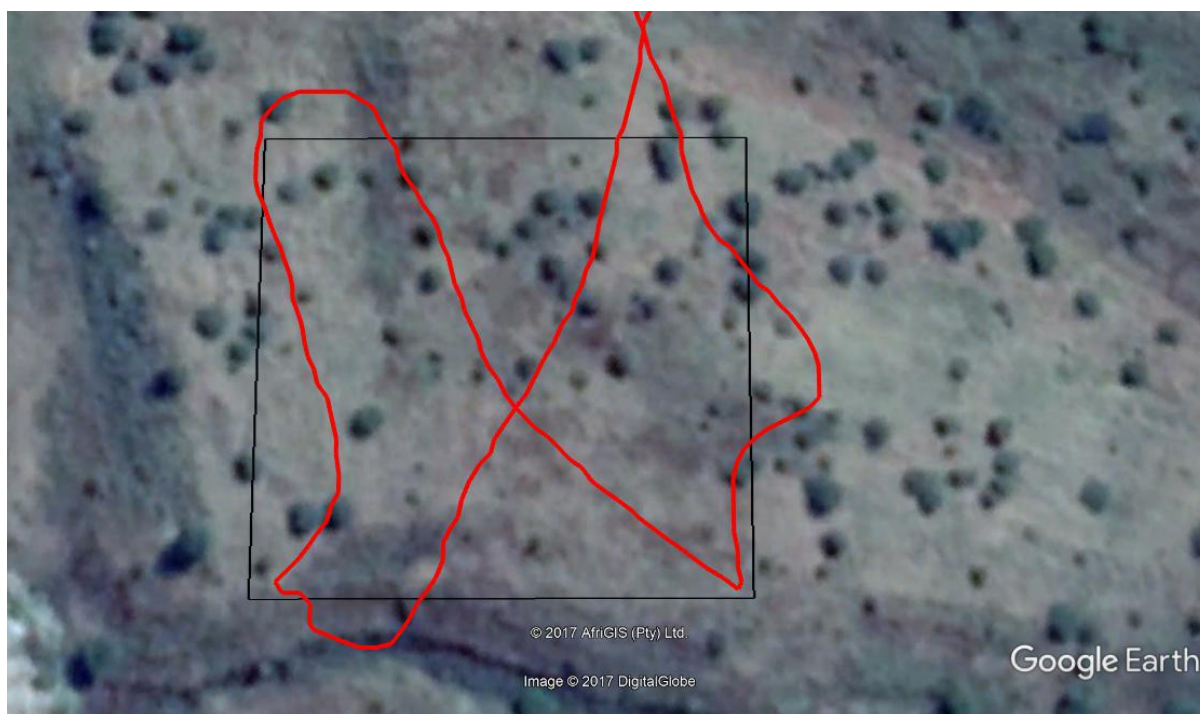


FIGURE 7: TRACK ROUTE⁴ AT THE THIRD SITE OF TUMELA 15 EAST DONE IN NOVEMBER 2017.

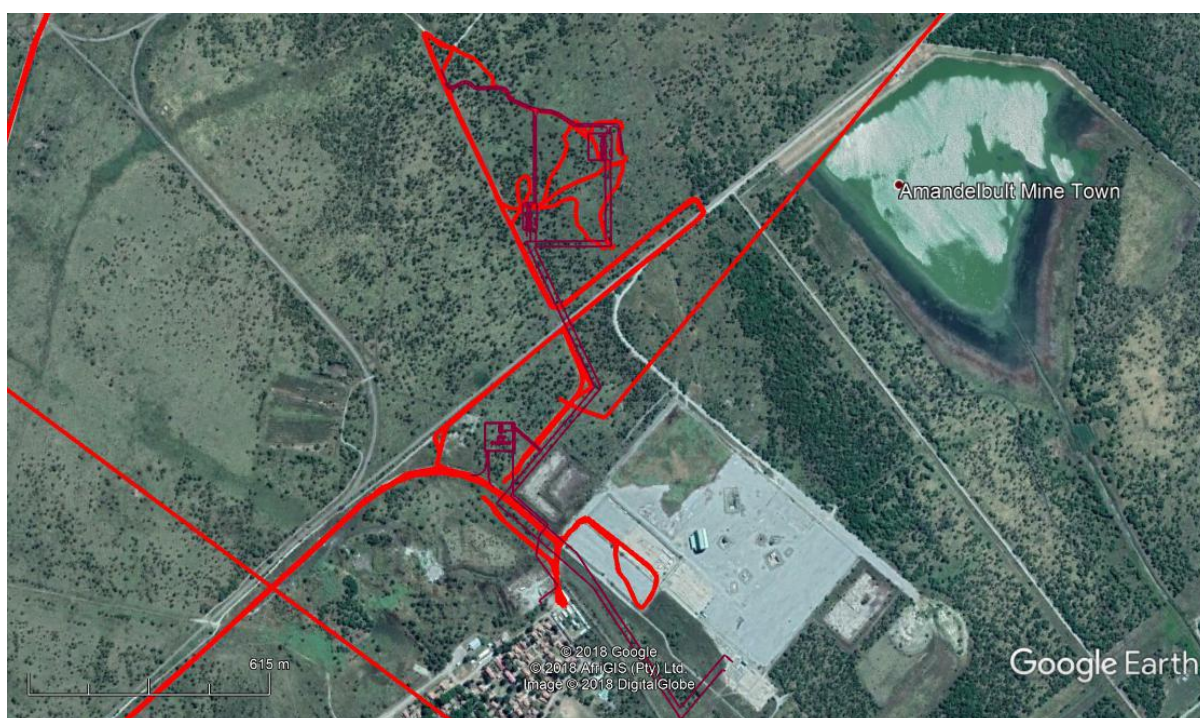


FIGURE 8: TRACK ROUTE⁵ AT TUMELA 15 EAST DONE IN APRIL 2018.

⁴ Two people did the survey, but only one GPS instrument was available. The track therefore only shows the movement of one person.

⁵ Two people did the survey, but only one GPS instrument was available. The track therefore only shows the movement of one person.



FIGURE 9: TRACK ROUTE⁶ AT THE DISHABA 62 EAST SITE DONE IN NOVEMBER 2017.

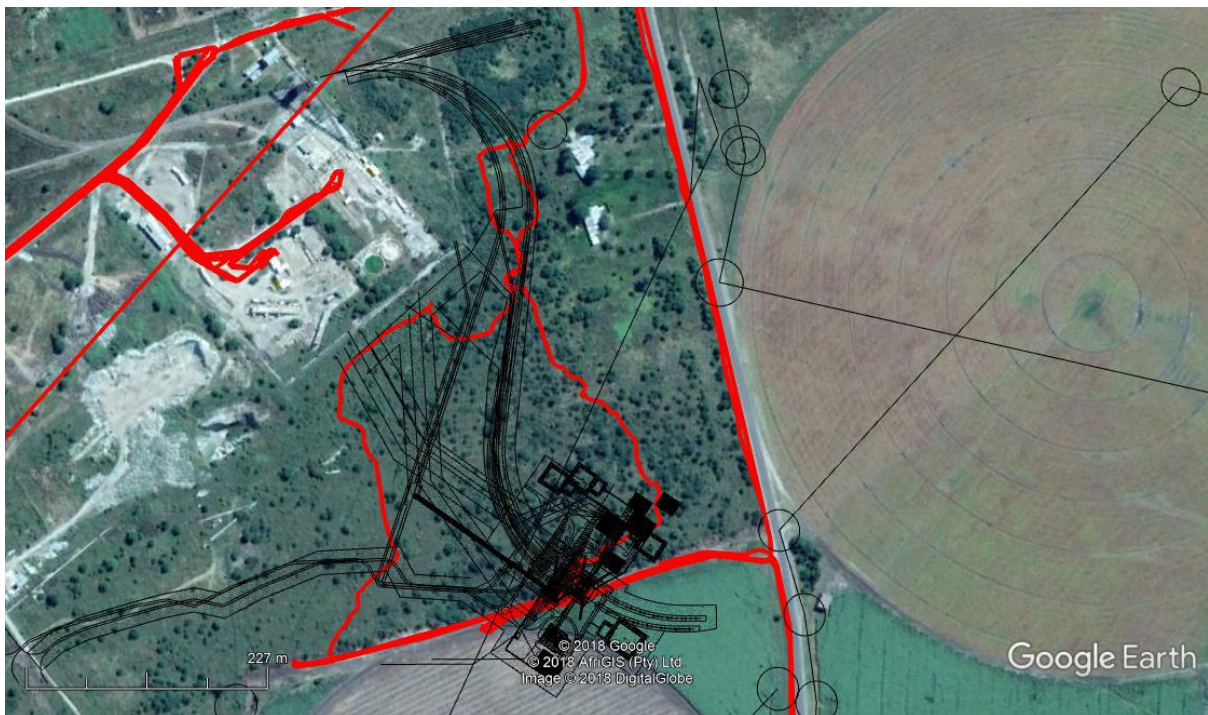


FIGURE 10: TRACK ROUTE⁷ AT THE DISHABA 62 EAST SITE DONE IN APRIL 2018.

⁶ Two people did the survey, but only one GPS instrument was available. The track therefore only shows the movement of one person.

⁷ Two people did the survey, but only one GPS instrument was available. The track therefore only shows the movement of one person.

6. ASSUMPTIONS, GAPS, RESTRICTIONS, CONDITIONS AND LIMITATIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structures and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.
2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.
3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).
4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur.
7. In this particular case the entire surveyed area has been disturbed by recent human activities. Accordingly, these areas are seen as low risk areas to reveal heritage sites due to it being almost entirely disturbed.
8. The vegetation cover in certain areas was reasonably dense and high, which had a negative effect on both the horizontal and the vertical archaeological visibility.
9. At both sites the entire area could not be accessed due to safety concerns (locked gates and high fences). However, the entire area here is disturbed giving it an extremely low chance of concealing heritage sites.

7. DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

The project site is located in the Thabazimbi Local Municipality in the Limpopo Province. The area consists mainly of commercial farms and game farming while a few towns and villages are also found in the area. These settlements include Thabazimbi/Regorogile, Northam, Dwaalboom, Rooiberg, smaller settlements such as Leeupoort, Kromdraai, Koedoeskop, Makoppa and Sentrum and formal mining settlements such as Setaria (Northam Platinum Ltd), Swartklip and Amandelbult (Anglo Platinum Ltd).

The major land use presence in the area is different mines which also provides employment to many inhabitants. These mines operate in the north-western section of the Bushveld Igneous Complex, which is considered to be a rich source of PMG.

The Thabazimbi area is characterised by three prominent east-west trending mountain ranges. The majority of the mining operations take place in these mountains where the deposits occur. The altitude of these ranges varies between 905m (on the valley floor) to 1 280m above mean sea level.

There are 85 234 people residing in the municipality, of which 84,3% are black African, 14,4% are white, with other population groups making up the remaining 1,3%. Amongst those aged 20 years and above, 26,1% have completed matric, 8,2% have some form of higher education, and 8,8% have no form of schooling. Thabazimbi has a low population density of 0,08 people per hectare, largely due to 98,92% of the municipality not being developed.

8. DESCRIPTION OF THE PHYSICAL ENVIRONMENT

Tumela 15 East:

During the November 2017 survey all three the areas investigate were reasonably open. It may have been used for agricultural fields in the past. The northern two are now inside of a game camp. The vegetation is between medium and low in height with various open patches in between. A few trees are also visible (Figure 11-13). Pioneer species such as weeds and regrowth are visible. Both the horizontal and the vertical archaeological visibility was good during the survey. All three areas are also reasonably small and could therefore easily be viewed from one side to the opposite.

No drainage lines are visible in any of these three areas. The topography is relatively even with no outstanding features.

During April 2018 the only difference was that due to the good rainfall, the vegetation in the area consisted of dense medium high to high grass as well as pioneer species such as sickle bush (Figure 14-15). The latter is a clear indication of the area having been disturbed before. A railway line cuts through the surveyed area. To the south thereof, the area is entirely disturbed by mine infrastructure and a marshy area, the latter which also shows signs of disturbance (Figure 16-17).



FIGURE 11: GENERAL VIEW OF THE SOUTHERN OF THE TUMELA SURVEYED AREAS.



FIGURE 12: GENERAL VIEW OF VEGETATION IN THE NORTH-EASTERN OF THE SURVEYED AREAS AT TUMELA.



FIGURE 13: GENERAL VIEW OF VEGETATION IN THE NORTH-WESTERN OF THE SURVEYED AREAS AT TUMELA.



FIGURE 14: VIEW OF VEGETATION DURING APRIL 2018.



FIGURE 15: PIONEER PLANT SPECIES IN THE SURVEYED AREA.



FIGURE 16: INFRASTRUCTURE ON SITE.



FIGURE 17: MARSHY AREA.

Dishaba 62 East:

Conditions were similar during both site surveys. This area has been disturbed entirely by recent human activities. This include former mining activities such as a plant and dams, as well as agricultural fields towards the south (Figure 18-21). This plant will be closed down as part of the proposed development. The section between the plant and the agricultural field, mainly consist of medium to high vegetation with a dense under footing (Figure 22-23). However, this mostly are pioneer species such as sickle bush, weeds and grass, indicating the former disturbance. A few trees are also visible. The horizontal visibility was reasonably good during the survey, but the vertical visibility was affected negatively.

No drainage lines are visible in the Dishaba area. The topography is relatively even with no outstanding features.



FIGURE 18: GENERAL VIEW OF THE NORTHERN PART OF THE DISHABA AREA.



FIGURE 19: VIEW OF THE PLANT AREA.



FIGURE 20: SUNFLOWER FIELD IN THE SURVEYED AREA.



FIGURE 21: SOYA BEAN FIELD IN THE SURVEYED AREA.



FIGURE 22: GENERAL VIEW OF VEGETATION TOWARDS THE SOUTH IN THE DISHABA AREA.



FIGURE 23: VEGETATION DURING THE SECOND SITE SURVEY.

9. HISTORICAL CONTEXT

No sites of cultural heritage significance were located during the survey. Some background information is given in order to place the surveyed area in a broad

historical and geographical context and to contextualize possible finds that could be unearthed during construction activities.

A few heritage reports were written in the Northam area. Most of these indicated that no sites were identified. The exception are two reports, one done at the nearby Northam Platinum Mine and one at the Northam Magnetite Mine (SAHRIS database; Archaetnos' database). The information is included below. During the 2017 survey on site no heritage sites were identified (Van Vollenhoven 2017).

9.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is, however, important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

The closest known Stone Age site in the vicinity of Northam is a number of Late Stone Age sites in the Magaliesberg Mountains, which lies approximately 100 km to the south. A rock art site is known to the northeast. Rock engravings are found to the south and east of Rustenburg (the latter lying about 100 km to the south of the surveyed area). These date back to the Late Stone Age (Bergh 1999: 4-5).

No natural shelter exists in the surveyed area, but the mountains to the north-east may have sheltered Stone Age people. The low hills in and around the surveyed area also may have provided shelter. The area probably provided good grazing and the abundance of water make it very likely that Stone Age people may have utilized the surroundings for hunting purposes.

9.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however, indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

Many Late Iron Age sites have been identified in the area around the towns of Rustenburg, Koster and Groot Marico as well as in the Waterberg Mountains. This however excludes the surveyed area (Bergh 1999: 7-8). During earlier times the area was inhabited by Tswana groups, namely the Fokeng and Kwena. These people fled from Mzilikazi during the Difaquane, but later on returned (Bergh 1999: 9-11).

Three large Iron Age sites were found at the Northam Zondereinde mine during an earlier survey. This lies towards the north of the surveyed area (Archaeos database). This however falls outside of the current study area.

This coupled with a suitable environment proves that these people utilized this area as it would have provided good grazing and water for livestock. There also is ample building material.

9.3 Historical Age

The Historical Age started with the first recorded oral histories in the area. It includes the in-migration of people that were able to read and write. It includes the moving into the area of people that were able to read and write. This era is sometimes called the Colonial era or the recent past.

Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore, and because less time has passed, much more cultural heritage resources from this era have been left on the landscape. It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed in order to determine whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

Early travelers have moved through this part of the Northwest and Limpopo Provinces. The first of these was the expedition of Dr. Andrew Cowan and Lt. Donovan in 1808. They were followed by Robert Scoon and William McLuckie in 1827 and 1829 and Dr. Robert Moffat and Reverend James Archbell in 1829 (Bergh 1999: 12, 117-119).

Hume again moved through this area in 1830 followed by the expedition of Andrew Geddes Bain in 1831. After them came Dr. Andrew Smith in 1835 (Bergh 1999: 13, 120-121). Hume again moved through the area with Scoon in 1835. In 1836 William Cornwallis Harris visited the area. The well-known explorer Dr. David Livingston passed through this area in 1847 (Bergh 1999: 13, 119-122).

In 1837 the Voortrekkers also moved through the Swaruggens area (Bergh 1999: 11). During this year a Voortrekker commando moved out against Mzilikazi and was engaged in a battle with his impi to the north of Swaruggens. The area surveyed was inhabited by white settlers between 1841 and 1850 (Bergh 1999: 14-15).

Historical structures, such as farm houses and infrastructure relating to these times, may therefore be found in the area. It also is possible to find graves from this era. In fact, two grave sites were identified at the Northam Zondereinde Mine and others at the Northam Magnetite Mine. At the latter remains of historical dwellings and a farm yard with heritage significance were also identified (Archaetnos' database), but again this is outside of the current development.

10. CONCLUSION AND RECOMMENDATIONS

The survey of the indicated areas was completed successfully. As indicated no sites of cultural heritage significance were identified.

The following is recommended:

- This report is seen as ample mitigation, since nothing of heritage value were identified in the surveyed area.
- The proposed development may continue.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.
- In This regards the following 'Chance find Procedure' should be followed:
 1. Upon finding any archaeological or historical material all work at the affected area must cease.
 2. The area should be demarcated in order to prevent any further work there until an investigation has been completed.
 3. An archaeologist should be contacted immediately to provide advice on the matter.
 4. Should it be a minor issue, the archaeologist will decide on future action, which could include adapting the HIA or not. Depending on the nature of the find, it may include a site visit.
 5. SAHRA's APM Unit may also be notified.
 6. If needed, the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
 7. The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.
 8. Work on site will only continue after removal of the archaeological/ historical material was done.

11. REFERENCES

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APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

Historic value:	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Aesthetic value:	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Scientific value:	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Social value:	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
Rarity:	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
Representivity:	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Negligible – The site has no heritage significance, although it may be older than 60 years.
- Low - A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings. A site with minimal importance which is decreased by its bad state of decay.
- Low-Medium - A site of lesser importance, which is increased by a good state of preservation and contextual importance (e.g. a specific community).
- Medium - Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- Medium-High - A site that has high importance due to its age or uniqueness, but which decreases due to its bad state of decay.
- High - Any site, structure or feature regarded as important because of its age or uniqueness. Also any important object found within a specific context.
- Very High - A site of exceptional importance due to its age, uniqueness and good state of preservation.

Heritage significance:

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

Field ratings:

National Grade I significance: The site should be managed as part of the national estate, should be nominated as Grad I site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score above 50.

Provincial Grade II significance: The site should be managed as part of the provincial estate, should be nominated as Grade II site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 40 and 50.

Local Grade IIIA: The site should be included in the heritage register and not be mitigated (high significance), should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 37 and 40.

Local Grade IIIB: The site should be included in the heritage register and may be mitigated (high/ medium significance). Mitigation is subject to a permit application lodged with the relevant heritage authority. Score between 6 and 36.

Local Grade IIIC: The description in the phase 1 heritage report is seen as sufficient recording (low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation. Score below 5.

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – grade I and II

Protected areas - an area surrounding a heritage site

Provisional protection – for a maximum period of two years

Heritage registers – listing grades II and III

Heritage areas – areas with more than one heritage site included

Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or scoping phase – establishment of the scope of the project and terms of reference.
2. Baseline assessment – establishment of a broad framework of the potential heritage of an area.
3. Phase I impact assessment – identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – if there is no likelihood that any sites will be impacted.
5. Phase II mitigation or rescue – planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III management plan – for rare cases where sites are so important that development cannot be allowed.