



PROPOSED CONSTRUCTION OF THE BONISWA SITE 2021, MURUNWA VODACOM TELEMAST, LIMPOPO PROVINCE.

Heritage Impact Assessment (HIA) Report

March 2022

CREDIT SHEET

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***Disclaimer;** Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. G&A Heritage and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

Statement of Independence

As the duly appointed representative of G&A Heritage, I Stephan Gaigher, hereby confirm my independence as a specialist and declare that neither I nor G&A Heritage have any interests, be it business or otherwise, in any proposed activity, application or appeal in respect of which the Environmental Consultant was appointed as Environmental Assessment Practitioner, other than fair remuneration for work performed on this project.

SIGNED BY: STEPHAN GAIGHER



MANAGEMENT SUMMARY

Project Name and Location

Proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast, Limpopo Province.

Consultant

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Date of Report

16 March 2022

MANAGEMENT SUMMARY

The purpose of the management summary is to distil the information contained in the report into a format that can be used to give specific results quickly and facilitate management decisions. It is not the purpose of the management summary to repeat in shortened format all the information contained in the report, but rather to give a statement of results for decision making purposes.

This study focuses on the proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast in Limpopo Province.

This study encompasses the heritage impact investigation. A preliminary layout has been supplied to lead this phase of this study.

Scope of Work

A Heritage Impact Assessment (including Archaeological, Cultural heritage, Built Heritage and Basic Palaeontological Assessment) to determine the impacts on heritage resources within the study area.

The following is required to perform this assessment:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural, historic, built and palaeontological sites within the proposed development area;
- Evaluate the potential impacts of construction and operation of the proposed development on archaeological, cultural, historical resources; built and palaeontological resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural, historical, built and palaeontological importance.

The purpose of this study is to determine the possible occurrence of sites with cultural heritage significance within the study area. The study is based on archival and document combined with fieldwork investigations.

Findings and Recommendations

Boniswa Site 2021, Murunwa Vodacom Telemast, located on the Farm Dwarsspruit 247 MT within the Makhado Local- and Vhembe District Municipalities, Limpopo Province was investigated during a field visit and through archival studies.

The study area was found to be devoid of any heritage sites with significance and severely altered from the natural landscape. It is recommended that obscured, subterranean sites be managed, if they are encountered.

Although the SAHRIS Paleo Sensitivity Map places the site within the “Green” designation (Moderate Significance), it was determined that the footprint of the tele mast would not be bedrock intrusive and would be of such a small size that no impacts on Palaeontological resources could be envisioned. A protocol for finds was included in the unlikely event that any paleontological resources are uncovered.

Fatal Flaws

No fatal flaws were identified.

CONTENTS

Scope of Work	4
Findings and Recommendations	4
Fatal Flaws	4
1. General	10
1.1 Project Description and Location	10
1.2 Technical Scope of HIA	11
1.3 Geographical / Spatial Scope of HIA	13
1.4 GPS Track Path	13
1.5 Temporal Scope	14
2. Legislative Context	15
2.1 National Legislation	15
3. Methodology	18
3.1 Heritage Management	18
3.2 Inventory	18
3.3 Evaluating Heritage Impacts	18
3.4 Site Visit / Fieldwork Details	19
3.5 Assumptions	19
3.6 Gaps / Limitations / Uncertainty	19
3.7 Specialist Specific Methodology	19
3.8 Visual Impact Assessment Methodology	20
4. Findings	21
4.1 Built Environment	21
4.2 Cultural Landscape	22
4.3 Natural Landscape	22
4.4 Battlefields and Concentration Camps	24
5. Measuring Impacts	25
5.1 Magnitude	28
5.2 Duration	29
5.3 Extent ²⁹	
5.4 Probability	30
5.5 Significance	30
5. Description of Affected Environment	32
5.1 Map of Key Features	32
5.2 Results of Fieldwork	32
6. Baseline	33
6.1 Palaeontology	33
Exemption from PIA	33
6.2 Stone Age	34
6.3 Iron Age	34
6.4 Historic Era	34

6.5 Archival Research	35
6.6 SAHRIS Database Studies	36
6.7 Historical Typographical Maps	37
7. Potential Heritage Impacts and Proposed Mitigation	39
7.1 Introduction and scope	39
8. Public Participation	40
9. Conclusions and Recommendations	41
10. Chance Finds Protocol	42
11. References	45

List of Figures

Figure 1. Boniswa Site, Murunwa Vodacom Telemast Location Map (Google Earth).....	10
Figure 2. Telemast Project Layout.....	11
Figure 3. Boniswa, Murunwa GPS Trackpath	14
Figure 4. Modern built dwelling adjacent to study area.....	21
Figure 5. Witvlag Road adjacent to study area	21
Figure 6. Eucalyptus Plantation next to the Witvlag Road at the study area	22
Figure 7. Natural Landscape	22
Figure 8. Paleo Sensitivity Map	33
Figure 9. 2230CC_1966 Topographic Map	37
Figure 10. 2230CC_1999 Topographic Map	38

List of Tables

Table 1. Impacts on the NHRA Sections.....	17
Table 2. NHRA Triggers	17
Table 3. Description of magnitude and assigned numerical values.....	28
Table 4. Description of duration and assigned numerical values.....	29
Table 5. Description of extent and assigned numerical values.....	29
Table 6. Definition of probability ratings	30
Table 7. Application of significance ratings	30
Table 8. Definition of confidence ratings	31
Table 9. Definition of reversibility ratings.....	31
Table 10. Definition of irreplaceability ratings.....	31
Table 11. Palaeontological Sensitivity.....	33

ABBREVIATIONS

Abbreviation	Meaning
BP	Before Present
c.	circa
BCE	Before the Common Era
Bp	Before Present
CE	Common Era
ECO	Environmental Control Officer
EIA	Early Iron Age
ELO	Environmental Liaison Officer
ESA	Early Stone Age
ESMS	Environmental and Social Management System
ESSS	Environmental and Social Safeguard Standards
Fm	Femtometre (10 ⁻¹⁵ m)
GPS	Geographic Positioning System
HIA	Heritage Impact Assessment
ICP	Informed Consultation and Participation
LIA	Late Iron Age
LSA	Late Stone Age
KZN	KwaZulu-Natal
MSA	Middle Stone Age
MYA	Million Years Ago
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
PIA	Palaeontological Impact Assessment
PS	Performance Standard
SAHRA	South African Heritage Resource Agency
SAHRIS	South African Heritage Information System
SAPS	South African Police Service
SHE	Safety, Health and Environment
SHEQ	Safety, Health, Environment and Quality
S&EIR	Scoping and Environmental Impact Reporting
Um	Micrometre (10 ⁻⁶ m)
WGS 84	World Geodetic System for 1984

GLOSSARY OF TERMS

'Archaeological' means:

- a) Material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- b) Rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
- c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- d) Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'Circa' is used in front of a particular year to indicate an approximate date.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

'Paleontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

A **'place'** is defined as:

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

'Structures' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

1. General

1.1 Project Description and Location

G&A Heritage was appointed by *Tekplan* to undertake a Heritage Impact Assessment (HIA) for the proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast in Limpopo Province. The investigation focused on the surveying of the area demarcated for the construction of the approximately 8m x 8m footprint of the proposed telemast located on the Farm Dwarsspruit 247 MT within the Makhado Local- and Vhembe District Municipalities, Limpopo Province. The village of Murunwa is located on the Witvlag Road, roughly 26km east-northeast (70°) of Louis Trichardt.

The exact location of the proposed site for the construction of the mast is indicated on the accompanying location map. The site is located on an underdeveloped plot of land next an existing dwelling.



Figure 1. Boniswa Site, Murunwa Vodacom Telemast Location Map (Google Earth)

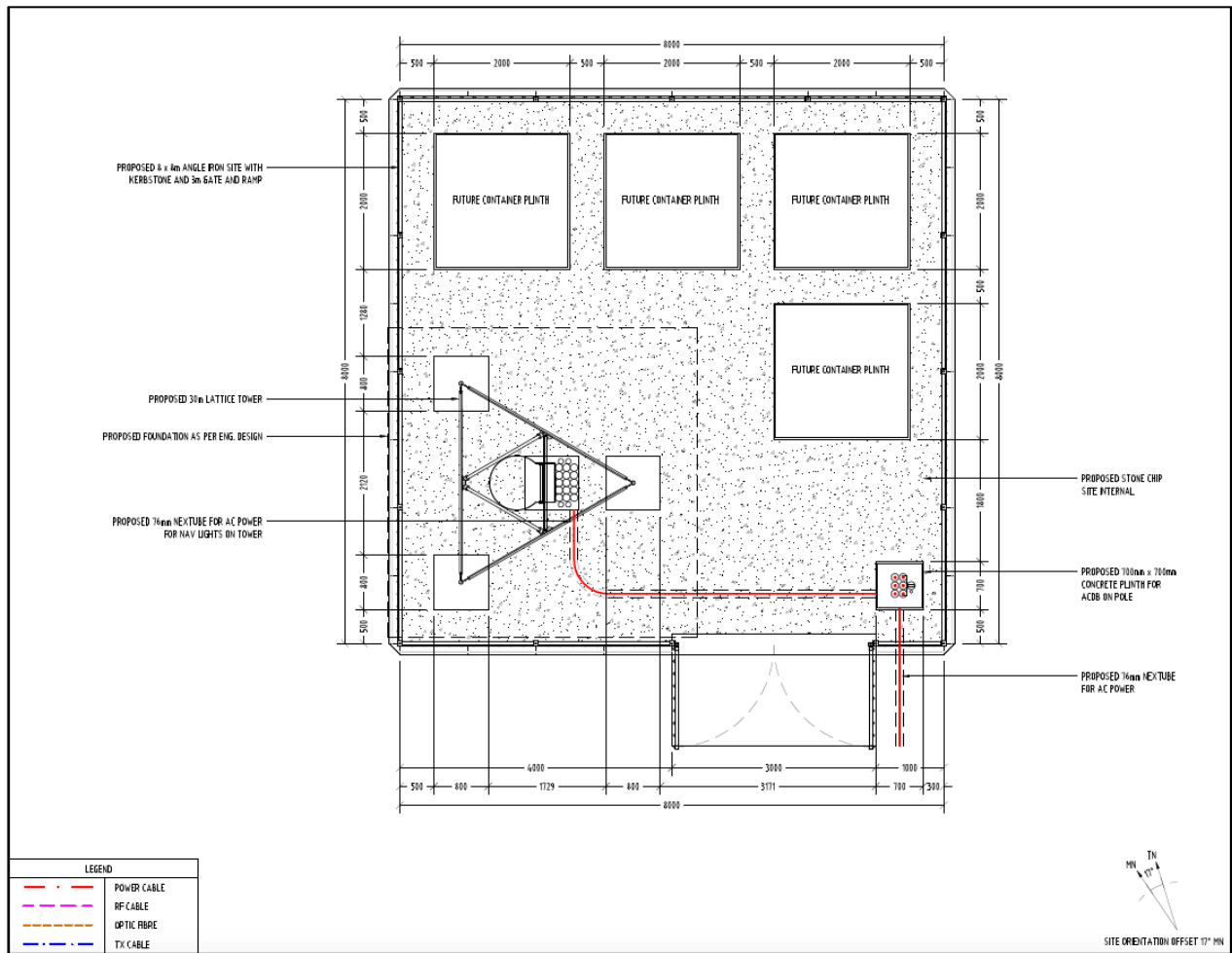


Figure 2. Telemast Project Layout

1.2 Technical Scope of HIA

This HIA focused only on the areas to be directly affected by the proposed development and is meant to deliver, evaluate and inform on the following aspects:

- (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 the relevant legal descriptions, development proponent requirements and as per international best practise approaches and charters;
- (c) An assessment of the impact of the development on such heritage resources;
- (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

The following categories of heritage objects are considered.

Graves: Places of interment including the contents, headstone or other marker of and any other structures on or associated with such place. This may include any of the following:

- 1) Ancestral graves,
- 2) Royal graves and graves of traditional leaders

- 3) Graves of victims of conflict i.e. graves of important individuals
- 4) Historical graves and cemeteries older than 60 years
- 5) Other human remains, buried or otherwise.

The removal of graves is subject to the following procedures:

- Notification of the impending removals (using local language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the relevant controlling body;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

Movable objects: This includes objects such as historic or rare books and manuscripts, paintings, drawings, sculptures, statuettes and carvings; modern or historic religious items; historic costumes, jewellery and textiles; fragments of monuments or historic buildings; archaeological material; and natural history collections such as shells, flora, or minerals. Discoveries and access resulting from a project may increase the vulnerability of cultural objects to theft, trafficking or abuse. This may include any of the following:

- 1) Objects recovered from the soil or water including archaeological and paleontological objects and material, meteorites and rare geological specimens;
- 2) Ethnographic art and objects
- 3) Military objects
- 4) Objects of decorative art
- 5) Objects of fine art
- 6) Objects of scientific or technological interest
- 7) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings
- 8) Any other prescribed categories, but excluding any object made by a living person.

Protection of Historic Battlefields

Heritage “Places”: A ‘place’ is defined as:

- a) A site, area or region;
- b) A building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
- c) A group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and
- d) An open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.
- e) Traditional Buildings used in cultural ceremonies.

Heritage Structures: Refers to single or groups of architectural works found in urban or rural settings providing evidence of a particular civilisation, a significant development or a historic event. It includes groups of buildings, structures and open spaces constituting past or contemporary human settlements that are recognised as cohesive and valuable from an architectural, aesthetic, spiritual or socio-cultural perspective. This may also include any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

Archaeological Sites

Archaeological sites comprise any combination of structural remains, artefacts, human or ecological elements and may be located entirely beneath, partially above, or entirely above the land or water surface. Archaeological material may be found anywhere on the earth’s surface, singly or scattered over large areas. Such material includes burial areas, human remains, artefacts and fossils. Archaeological sites may include:

- a) Material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- b) Rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
- c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked, whether on land or in the maritime cultural zone, and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- d) Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

Paleontological resources: Refers to any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Sacred or Spiritual Sites: Refers to natural features with cultural significance, which may include sacred hills, mountains, landscapes, streams, rivers, waterfalls, caves and rocks; sacred trees or plants, groves and forests; carvings or paintings on exposed rock faces or in caves; and paleontological deposits of early human, animal or fossilised remains. This heritage may have significance to local community groups or minority populations.

1.3 Geographical / Spatial Scope of HIA

The geographic and spatial scope of the HIA centres on the proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast in Limpopo Province.

Any sites within the directly impacted study area that can be affected by the proposed development and, where known, are included in this report. Mitigation or secondary investigations take this footprint as the spatial parameters of the study area.

1.4 GPS Track Path

The following image shows a plotting of the GPS track paths recorded during the fieldwork. Several files were combined, and this does not represent a single uninterrupted recording. GPX Files are available.



Figure 3. Boniswa, Murunwa GPS Trackpath

1.5 Temporal Scope

The proposed project will consist of three phases;

- 1) Planning
- 2) Development / Construction
- 3) Operational

Due to the nature of the proposed development, impacts on heritage sites are only anticipated during the development / construction phase of the proposed project. The operational phase will not result in any further alterations to heritage on any significant scale.

2. Legislative Context

2.1 National Legislation

Section 38(1) of the South African Heritage Resources Act (25 of 1999) requires that a heritage study is undertaken for:

- (a) *Construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;*
- (b) *Construction of a bridge or similar structure exceeding 50 m in length; and*
- (c) *Any development, or other activity which will change the character of an area of land, or water –*
 - (1) *Exceeding 10 000 m² in extent;*
 - (2) *Involving three or more existing erven or subdivisions thereof; or*
 - (3) *Involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or*
- (d) *The costs of which will exceed a sum set in terms of regulations; or*
- (e) *Any other category of development provided for in regulations.*

While the above describes the parameters of developments that fall under this Act., Section 38 (8) of the NHRA is applicable to this development. This section states that;

- (8) *The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.*

In regard to a development such as this that falls under Section 38 (8) of the NHRA, the requirements of Section 38 (3) applies to the subsequent reporting, stating that;

- (3) *The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:*
 - a) *The identification and mapping of all heritage resources in the area affected;*
 - b) *An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7;*
 - c) *An assessment of the impact of the development on such heritage resources;*
 - d) *An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
 - e) *The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
 - f) *If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
 - g) *Plans for mitigation of any adverse effects during and after the completion of the proposed development.*
 - 1) *Ancestral graves,*
 - 2) *Royal graves and graves of traditional leaders,*
 - 3) *Graves of victims of conflict (iv) graves of important individuals,*
 - 4) *Historical graves and cemeteries older than 60 years, and*
 - 5) *Other human remains which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);*
 - h) *Movable objects, including:*
 - 1) *Objects recovered from the soil or waters of South Africa including archaeological and paleontological objects and material, meteorites and rare geological specimens;*

- 2) Ethnographic art and objects;
 - 3) Military objects;
 - 4) Objects of decorative art;
 - 5) Objects of fine art;
 - 6) Objects of scientific or technological interest;
 - 7) Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
 - 8) Any other prescribed categories, but excluding any object made by a living person;
- i) Battlefields;
 - j) Traditional building techniques.

A **'place'** is defined as:

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

'Structures' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

'Archaeological' means:

- a) Material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- b) Rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
- c) Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- d) Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'Paleontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency (SAHRA) will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned.

The removal of graves is subject to the following procedures as outlined by the SAHRA:

- Notification of the impending removals (using English, Afrikaans and local language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from the SAHRA;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

The limitations and assumptions associated with this heritage impact assessment are as follows;

- Field investigations were performed on foot and by vehicle where access was readily available.
- Sites were evaluated by means of description of the cultural landscape, direct observations and analysis of written sources and available databases.
- It was assumed that the site layout as provided by Tekplan is accurate.
- We assumed that the public participation process performed as part of the Basic Assessment process was sufficiently encompassing not to be repeated in the Heritage Assessment Phase.

Table 1. Impacts on the NHRA Sections

Act	Section	Description	Possible Impact	Action
National Heritage Resources Act (NHRA)	34	Preservation of buildings older than 60 years	No impact	None
	35	Archaeological, paleontological and meteor sites	No impact	None
	36	Graves and burial sites	No impact	None
	37	Protection of public monuments	No impact	None
	38	Does activity trigger a HIA?	Yes	HIA

Table 2. NHRA Triggers

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	No	N/A
Construction of a bridge or similar structure exceeding 50m in length.	No	N/A
Development exceeding 5000 m ²	No	N/A
Development involving more than 3 erven or sub divisions	No	N/A
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	N/A
Re-zoning of site exceeding 10 000 m ²	No	N/A
Any other development category, public open space, squares, parks or recreational grounds	Yes	High Biodiversity Area

3. Methodology

3.1 Heritage Management

This study defines the heritage component of the EIA process being undertaken for the proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast in Limpopo Province.

It is described as a first phase (HIA). This report attempts to evaluate both the accumulated heritage knowledge of the area and information derived from direct physical observations.

3.2 Inventory

Inventory studies involve the in-field survey and recording of archaeological resources within a proposed development area. The nature and scope of this type of study is defined primarily by the results of the overview study. In the case of site-specific developments, direct implementation of an inventory study may preclude the need for an overview.

There are several different methodological approaches to conducting inventory studies. Therefore, the proponent, in collaboration with the archaeological consultant, must develop an inventory plan for review and approval by the SAHRA prior to implementation (*Dincause, Dena F., H. Martin Wobst, Robert J. Hasenstab and David M. Lacy 1984*).

3.3 Evaluating Heritage Impacts

A combination of document research as well as the determination of the geographic suitability of areas and the evaluation of aerial photographs determined which areas could and should be accessed.

After plotting of the site on a GPS the areas were accessed using suitable combinations of vehicle access and access by foot.

Sites were documented by digital photography and geo-located with GPS readings using the WGS 84 datum. An aerial drone was used to evaluate the site from different heights and to improve coverage of the area.

Further techniques (where possible) included interviews with local inhabitants, visiting local museums and information centers and discussions with local experts. All this information was combined with information from an extensive literature study as well as the result of archival studies based on the SAHRA (South African Heritage Resource Agency) provincial databases.

This Heritage Impact Assessment relies on the analysis of written documents, maps, aerial photographs and other archival sources combined with the results of site investigations and interviews with effected people. Site investigations are not exhaustive and often focus on areas such as river confluence areas, elevated sites or occupational ruins.

The following documents were consulted in this study;

- South African National Archive Documents
- SAHRIS (South African Heritage Resources Information System) Database of Heritage Studies
- Historic Maps
- 1966 and 1999 Surveyor General Topographic Map series
- Google Earth 2021 imagery
- Published articles and books
- JSTOR Article Archive

3.4 Site Visit / Fieldwork Details

Fieldwork for the HIA was done on the 16th of February 2022. The area was found to be accessible by vehicle and areas of possible significance were investigated on foot. The survey was tracked using GPS and a track file in GPX format is available on request.

The study area was surveyed using standard archaeological surveying methods. The area was surveyed using directional parameters supplied by the GPS and surveyed by vehicle and on foot. This technique has proven to result in the maximum coverage of an area.

Standard archaeological documentation formats were employed in the description of sites. Using standard site documentation forms as comparable medium, it enabled the surveyors to evaluate the relative importance of sites found. Furthermore, GPS (Global Positioning System) readings of all finds and sites were taken. This information was then plotted using a **Garmin Colorado** GPS (WGS 84- datum).

Indicators such as surface finds, plant growth anomalies, local information and topography were used in identifying sites of possible archaeological importance. Test probes were done at intervals to determine sub-surface occurrence of archaeological material. The importance of sites was assessed by comparisons with published information as well as comparative collections.

Test excavation is that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location, which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development. It may also be referred to as archaeological testing' (DAHGI 1999a, 27).

'Test excavation should not be confused with, or referred to as, archaeological assessment which is the overall process of assessing the archaeological impact of development. Test excavation is one of the techniques in carrying out archaeological assessment which may also include, as appropriate, documentary research, field walking, examination of upstanding or visible features or structures, examination of aerial photographs, satellite or other remote sensing imagery, geophysical survey, and topographical assessment' (DAHGI 1999b, 18).

3.5 Assumptions

It was assumed that the impacted areas will be limited to the proposed development. It is furthermore assumed that the *PalaeoSensitivity* Map provided on the SAHRIS platform is comprehensive enough to inform on actions in this regard and the intrusive effects of the development would be sufficiently limited not to impact on any palaeontological resources.

3.6 Gaps / Limitations / Uncertainty

None.

3.7 Specialist Specific Methodology

The scope of work includes:

- the identification and assessment of archaeological, cultural, historic and built sites within the study area.
- Archival study of existing data and information for the study area.
- Site inspection and fieldwork.
- This site work includes communicating with local inhabitants to confirm possible locations of heritage and cultural sites.
- Impact assessment has been performed according to the methodology as described in the relevant Impact Evaluation.

This HIA Methodology assists in evaluating the overall effect of a proposed activity on the heritage environment. The determination of the effect of a heritage impact on a heritage parameter is determined

through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the heritage practitioner through the process of heritage impact assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts.

3.8 Visual Impact Assessment Methodology

Visual impacts of developments result when sites that are culturally celebrated are visually affected by a development. The exact parameters for the determination of visual impacts have not yet been rigidly defined and are still mostly open to interpretation. CNdV Architects and The Department of Environmental Affairs and Development Planning (2006) have developed some guidelines for the management of the visual impacts of wind turbines in the Western Cape, although these have not yet been formalised. In these guidelines they recommend a buffer zone of 1km around significant heritage sites to minimise the visual impact.

Visual impacts to scenic routes and sense of place are considered to be low as the proposed telecommunications mast will have a very small footprint and its height will be mitigated by the surrounding mountain sides.

4. Findings

4.1 Built Environment

Some structures associated with rural living were identified in the area surrounding the study area and across the road from the study area, however no structures were noted on the site itself;

- Modern built dwelling
- Dirt and tar roads
- Fences
- Power lines
- Residential dwellings
- Business premises
- Footpaths

Mitigation

These structures are not historically significant.



Figure 4. Modern built dwelling adjacent to study area



Figure 5. Witvlag Road adjacent to study area

4.2 Cultural Landscape

The cultural landscape is strongly associated with forestry, agriculture, urban and rural living.



Figure 6. Eucalyptus Plantation next to the Witvlag Road at the study area

4.3 Natural Landscape

The natural landscape the study area can be described as Soutpansberg Cloud Forest but has been severely altered by human activities. The area is considered to be a high biodiversity area of high value.



Figure 7. Natural Landscape

Landscape Type	Description	Occurrence still possible?	Likely occurrence?
1 Paleontological	Mostly fossil remains. Remains include microbial fossils such as found in Baberton Greenstones	No	No
2 Archaeological	Evidence of human occupation associated with the following phases – Early-, Middle-, Late Stone Age, Early-, Late Iron Age, Pre-Contact Sites, Post-Contact Sites	No	No

3 Historic Built Environment	<ul style="list-style-type: none"> - Historical townscapes/streetscapes - Historical structures; i.e. older than 60 years - Formal public spaces - Formally declared urban conservation areas - Places associated with social identity/displacement 	No	No
4 Historic Farmland	<p>These possess distinctive patterns of settlement and historical features such as:</p> <ul style="list-style-type: none"> - Historical farm yards - Historical farm workers villages/settlements - Irrigation furrows - Tree alignments and groupings - Historical routes and pathways - Distinctive types of planting - Distinctive architecture of cultivation e.g. planting blocks, trellising, terracing, ornamental planting. 	No	No
5 Historic rural town	<ul style="list-style-type: none"> - Historic mission settlements - Historic townscapes 	No	No
6 Pristine natural landscape	<ul style="list-style-type: none"> - Historical patterns of access to a natural amenity - Formally proclaimed nature reserves - Evidence of pre-colonial occupation - Scenic resources, e.g. view corridors, viewing sites, visual edges, visual linkages - Historical structures/settlements older than 60 years - Pre-colonial or historical burial sites - Geological sites of cultural significance. 	No	No
7 Relic Landscape	<ul style="list-style-type: none"> - Past farming settlements - Past industrial sites - Places of isolation related to attitudes to medical treatment - Battle sites - Sites of displacement, 	No	No
8 Burial grounds and grave sites	<ul style="list-style-type: none"> - Pre-colonial burials (marked or unmarked, known or unknown) - Historical graves (marked or unmarked, known or unknown) - Graves of victims of conflict - Human remains (older than 100 years) - Associated burial goods (older than 100 years) - Burial architecture (older than 60 years) 	No	No
9 Associated Landscapes	<ul style="list-style-type: none"> - Sites associated with living heritage e.g. initiation sites, harvesting of natural resources for traditional medicinal purposes - Sites associated with displacement & contestation - Sites of political conflict/struggle - Sites associated with an historic event/person - Sites associated with public memory 	No	No
10 Historical Farmyard	<ul style="list-style-type: none"> - Setting of the yard and its context - Composition of structures 	No	No

	<ul style="list-style-type: none"> - Historical/architectural value of individual structures - Tree alignments - Views to and from - Axial relationships - System of enclosure, e.g. defining walls - Systems of water reticulation and irrigation, e.g. furrows - Sites associated with slavery and farm labour - Colonial period archaeology 		
11 Historic institutions	<ul style="list-style-type: none"> - Historical prisons - Hospital sites - Historical school/reformatory sites - Military bases 	No	No
12 Scenic visual	<ul style="list-style-type: none"> - Scenic routes 	No	No
13 Amenity landscape	<ul style="list-style-type: none"> - View sheds - View points - Views to and from - Gateway conditions - Distinctive representative landscape conditions - Scenic corridors 	No	No

4.4 Battlefields and Concentration Camps

There are no battlefields or related concentration camp sites located within the study area.

5. Measuring Impacts

In 2003 the SAHRA (South African Heritage Resources Agency) compiled the following guidelines to evaluate the cultural significance of individual heritage resources:

- **Type of Resource**
 - Place
 - Archaeological Site
 - Structure
 - Grave
 - Palaeontological Feature
 - Geological Feature

- **Type of Significance**
 - Historic Value
 - Important in the community, or pattern of history
 - Important in the evolution of cultural landscapes and settlement patterns
 - Important in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, province, region or locality.
 - Important for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, province, region or community.
 - Important as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period.
 - It has strong or special association with the life or work of a person, group or organisation of importance in history
 - Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, province, region or community.
 - It has significance relating to the history of slavery
 - Importance for a direct link to the history of slavery in South Africa.

 - Aesthetic Value
 - It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
 - Important to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
 - Importance for its creative, design or artistic excellence, innovation or achievement.
 - Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
 - In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

 - Scientific Value
 - It has potential to yield information that will contribute to an understanding of natural or cultural heritage
 - Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
 - Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.

- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period
- Importance for its technical innovation or achievement.

a) Does the site contain evidence, which may substantively enhance understanding of culture history, culture process, and other aspects of local and regional prehistory?

- internal stratification and depth
- chronologically sensitive cultural items
- materials for absolute dating
- association with ancient landforms
- quantity and variety of tool type
- distinct intra-site activity areas
- tool types indicative of specific socio-economic or religious activity
- cultural features such as burials, dwellings, hearths, etc.
- diagnostic faunal and floral remains
- exotic cultural items and materials
- uniqueness or representativeness of the site
- integrity of the site

b) Does the site contain evidence which may be used for experimentation aimed at improving archaeological methods and techniques?

- monitoring impacts from artificial or natural agents
- site preservation or conservation experiments
- data recovery experiments
- sampling experiments
- intra-site spatial analysis

c) Does the site contain evidence which can make important contributions to paleo environmental studies?

- topographical, geomorphological context
- depositional character
- diagnostic faunal, floral data

d) Does the site contain evidence which can contribute to other scientific disciplines such as hydrology, geomorphology, pedology, meteorology, zoology, botany, forensic medicine, and environmental hazards research, or to industry including forestry and commercial fisheries?

o Social Value / Public Significance

- It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
- Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
- Importance in contributing to a community's sense of place.

a) Does the site have potential for public use in an interpretive, educational or recreational capacity?

- integrity of the site
- technical and economic feasibility of restoration and development for public use

- visibility of cultural features and their ability to be easily interpreted
- accessibility to the public
- opportunities for protection against vandalism
- representativeness and uniqueness of the site
- aesthetics of the local setting
- proximity to established recreation areas
- present and potential land use
- land ownership and administration
- legal and jurisdictional status
- local community attitude toward development

b) Does the site receive visitation or use by tourists, local residents or school groups?

o Ethnic Significance

Does the site presently have traditional, social or religious importance to a particular group or community?

- ethnographic or ethno-historic reference
- documented local community recognition or, and concern for, the site

o Economic Significance

What value of user-benefits may be placed on the site?

- visitors' willingness-to-pay
- visitors' travel costs

o Scientific Significance

a) Does the site contain evidence, which may substantively enhance understanding of historic patterns of settlement and land use in a particular locality, regional or larger area?

b) Does the site contain evidence, which can make important contributions to other scientific disciplines or industry?

o Historic Significance

a) Is the site associated with the early exploration, settlement, land use, or other aspect of southern Africa's cultural development?

b) Is the site associated with the life or activities of a particular historic figure, group, organization, or institution that has made a significant contribution to, or impact on, the community, province or nation?

c) Is the site associated with a particular historic event whether cultural, economic, military, religious, social or political that has made a significant contribution to, or impact on, the community, province or nation?

d) Is the site associated with a traditional recurring event in the history of the community, province, or nation, such as an annual celebration?

o Public Significance

a) Does the site have potential for public use in an interpretive, educational or recreational capacity?

- visibility and accessibility to the public
- ability of the site to be easily interpreted
- opportunities for protection against vandalism
- economic and engineering feasibility of reconstruction, restoration and maintenance
- representativeness and uniqueness of the site
- proximity to established recreation areas
- compatibility with surrounding zoning regulations or land use
- land ownership and administration
- local community attitude toward site preservation, development or destruction
- present use of site

- b) Does the site receive visitation or use by tourists, local residents or school groups?
- o Other
 - Is the site a commonly acknowledged landmark?
 - Does, or could, the site contribute to a sense of continuity or identity either alone or in conjunction with similar sites in the vicinity?
 - Is the site a good typical example of an early structure or device commonly used for a specific purpose throughout an area or period of time?
 - Is the site representative of a particular architectural style or pattern?

For each predicted impact, criteria are described. These criteria include the **magnitude** (size or degree scale), which also includes the **type** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale), as well as the **probability** (likelihood). The methodology is quantitative and generated through a spreadsheet but requires professional judgement in the application of the criteria.

When assessing impacts, broader considerations are also considered, these include the **confidence** with which the assessment was undertaken, the **reversibility** of the impact and the resource **irreplaceability**.

Calculations

(as applied in the excel spreadsheet 'Boniswa Murunwa Telemast.xls') – Available on request.

For each predicted impact, certain criteria are applied to establish the likely **significance** of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the **magnitude** (size or degree scale), which also includes the **type** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale). These numerical ratings are used in an equation whereby the **consequence** of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (magnitude + duration + extent).

To calculate the significance of an impact, the **probability** (or likelihood) of that impact occurring is applied to the consequence.

Significance = consequence x probability

Depending on the numerical result, the impact would fall into a significance category as negligible, minor, moderate or major, and the type would be either positive or negative.

The following tables show the scales used to classify the above variables and define each of the rating categories.

5.1 Magnitude

The magnitude refers to the degree of alteration of the affected environmental receptor. The relevant descriptor for magnitude is selected by the user (refer to Table).

Table 3. Description of magnitude and assigned numerical values

Numerical Rating	Magnitude	
	Category	Descriptors
1	Negligible	Natural and/ or social functions and/ or processes are negligibly altered

2	Very low	Natural and/ or social functions and/ or processes are slightly altered
3	Low	Natural and/ or social functions and/ or processes are somewhat altered
4	Moderate	Natural and/ or social functions and/ or processes are moderately altered
5	High	Natural and/ or social functions and/ or processes are notably altered
6	Very high	Natural and/ or social functions and/ or processes are majorly altered
7	Extremely high	Natural and/ or social functions and/ or processes are severely altered

*NOTE: Where applicable, the magnitude of the impact is related to a relevant standard or threshold or is based on specialist knowledge and understanding of that particular field.

5.2 Duration

The duration refers to the length of permanence of the impact on the environmental receptor. The relevant descriptor for duration is selected by the user (refer to Table).

Table 4. Description of duration and assigned numerical values

Numerical Rating	Duration	
	Category	Descriptors
1	Immediate	Impact will self-remedy immediately
2	Brief	Impact will not last longer than 1 year
3	Short term	Impact will last between 1 and 5 years
4	Medium term	Impact will last between 5 and 10 years
5	Long term	Impact will last between 10 and 15 years
6	On-going	Impact will last between 15 and 20 years
7	Permanent	Impact may be permanent, or in excess of 20 years

5.3 Extent

The extent refers to the geographical scale of impact on the environmental receptor. The relevant descriptor for extent is selected by the user (refer to Table).

Table 5. Description of extent and assigned numerical values

Numerical Rating	Extent	
	Category	Descriptors
1	Very limited	Impacts very limited / felt in isolated areas of the study area
2	Limited	Impacts limited to specific parts of the study area
3	Local	Impacts felt mostly throughout the study area

4	Municipal area	Impacts felt outside the study area, at a municipal level
5	Regional	Impacts felt outside the study area, at a regional / provincial level
6	National	Impacts felt outside the study area, at a national level
7	International	Impacts felt outside the study area, at an international level

5.4 Probability

To calculate the significance of an impact, the probability (or likelihood) of that impact occurring is also taken into account. (Refer to Table).

Table 6. Definition of probability ratings

Numerical Rating	Probability	
	Category	Descriptors
1	Highly unlikely / None	Expected never to happen
2	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
3	Unlikely	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
4	Probable	Has occurred here or elsewhere and could therefore occur
5	Likely	The impact may occur
6	Almost certain / Highly probable	It is most likely that the impact will occur
7	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur

5.5 Significance

These are auto-calculated in the spreadsheet as described above and includes the following categories in Table 11. This table is for illustration only.

Table 7. Application of significance ratings

Range		Significance rating
-147	-109	Major (-)
-108	-73	Moderate (-)
-72	-36	Minor (-)
-35	-1	Negligible (-)
0	0	Neutral
1	35	Negligible (+)
36	72	Minor (+)

73	108	Moderate (+)
109	147	Major (+)

The following, broader considerations will also be considered. These include the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in Tables 12, 13 and 14 respectively.

Table 8. Definition of confidence ratings

Rating	Descriptor
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 9. Definition of reversibility ratings

Rating	Descriptor
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention
High	The affected environmental will be able to recover from the impact

Table 10. Definition of irreplaceability ratings

Rating	Descriptor
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere
High	The resource is irreparably damaged and is not represented elsewhere

5. Description of Affected Environment

5.1 Map of Key Features

No key features were identified within the study area.

5.2 Results of Fieldwork

The area was accessed by vehicle and investigated on foot. The area has been mostly disturbed from green field condition and is strongly associated with forestry, agriculture, semi-urban and rural living. The study area was found to be devoid of any heritage sites of significance and severely altered from the natural landscape.

6. Baseline

Context Relevant to Project Location, Design, Operation, or Mitigation Decisions

6.1 Palaeontology

The area falls within the “Green” demarcation on the *PalaeoSensitivity* Map. SAHRA states that in this case a Desktop Palaeontological Study would be required.

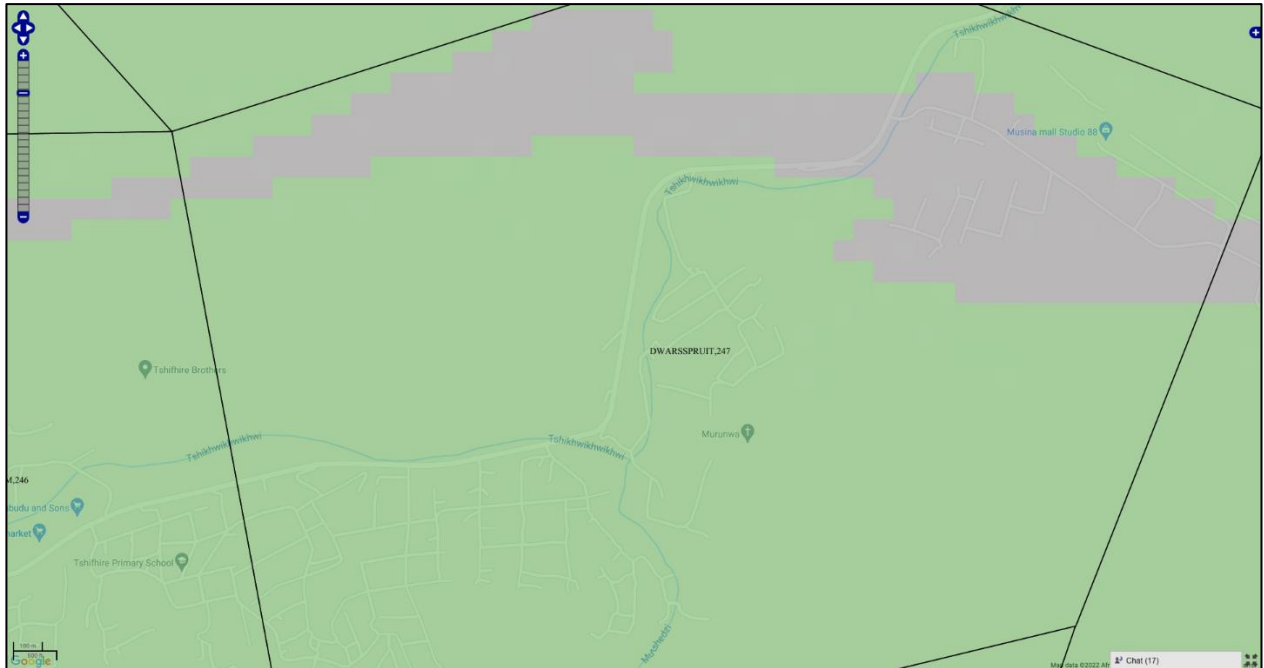


Figure 8. Paleo Sensitivity Map

Table 11. Palaeontological Sensitivity

Colour	Sensitivity	Action Required
RED	VERY HIGH	Field assessment and protocol for finds is required.
ORANGE / YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely.
GREEN	MODERATE	Desktop study is required.
BLUE	LOW	No Palaeontological studies are required however, a protocol for finds is required.
GREY	INSIGNIFICANT / ZERO	No Palaeontological studies are required.
WHITE / CLEAR	UNKNOWN	These area will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Exemption from PIA

Due to the small footprint of the proposed development (64 m²) and the fact that the proposed development would have little if any intrusion into bedrock it is recommended that it is exempt from a stand-alone, desktop PIA and that the provided Protocol for Finds in this report will be sufficient mitigation for the unlikely event that any palaeontological resources are found.

6.2 Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, Middle Stone Age and Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding the characteristics and time ranges. The three main phases can be divided as follows;

- Later Stone Age: associated with Khoi and San societies and their immediate predecessors. Recent to 30 000 years ago.
- Middle Stone Age: associated with Homo sapiens and archaic modern humans. 30 000 to 300 000 years ago.
- Earlier Stone Age: associated with early Homo groups such as Homo habilis and Homo erectus. 400 000 to 2 million years ago.

Stone Age sites are usually associated with stone artefacts found scattered on the surface or as part of deposits in caves and rock shelters.

No substantial number of Stone Age sites from any period of the Stone Age is known to exist in this area – primarily as a result of a lack of research and general ignorance amongst the layman in recognizing stone tools that often may occur. However, it is possible that the first humans in this area may have been preceded by Homo erectus, who roamed large parts of the world during the Acheulian period of the Early Stone Age, 500 000 years ago.

During the Middle Stone Age, 200 000 years ago, modern man or Homo sapiens emerged, manufacturing a wider range of tools, with technologies more advanced than those from earlier periods. This enabled skilled hunter-gatherer bands to adapt to different environments. From this time onwards, rock shelters and caves were used for occupation and reoccupation over very long periods of time (Mitchell 2002).

The Late Stone Age, considered to have started some 20 000 years ago, is associated with the predecessors of the San and Khoi Khoi.

6.3 Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both pre-historic and historic periods. It can be divided into three distinct periods:

- Early Iron Age: most of the first millennium AD.
- Middle Iron Age: 10th to 13th centuries AD.
- Late Iron Age: 14th century to colonial periods.

The Iron Age prehistory of southern Africa has traditionally been divided into two periods, the Early Iron Age, and the Later Iron Age. Chronologically, the division was put at the year 1000. Culturally, it was based on several changes' observable in the archaeological record, including economic, social, and political organization. Because of this, the two periods were seen as bracketing separate cultural phenomenon and interpreted as reflecting new population movements into southern Africa from the north. In fact, no new population movements into the region took place. The cultural changes that took place around the turn of the millennium and the origins of the Later Iron Age in southern Africa are seen mainly because of local developments, although scholars offer different explanations.

The Iron Age is characterized by the ability of these early people to manipulate and work iron ore. Very few archaeological studies have been conducted in the area.

6.4 Historic Era

Louis Johannes Tregard was born on the 10th of August 1783 in Oudtshoorn in the Karoo. Very little is known of his upbringing, but the diaries he kept of these endeavours, show him to be a reasonably well-educated man. Tregard later wrote his name as Tregardt, but it must be noted that there are several variants of the name, i.e., Trigardt, Triegardt and the most common, Trichardt. The latter form has been used for towns named in his honour.

Tregardt started farming in Boschberg and later at Somerset East. He moved across the Fish River in 1834 and rented land near the Kei River from the Xhosa chief, Hintsá. Here, in Xhosa country, he was acknowledged as a leader among the exiled Boer community of approximately 30 families. There exists evidence to suggest that Tregardt had shown overt hostility towards the British regime, and he was even accused of inciting the Xhosa to begin the frontier war of 1834-5. When he learned that the authorities had issued a warrant for his arrest, Tregardt slipped away from this farm in Hintsá's country and crossed the Orange River. There he received support and assistance from Hendrik Potgieter and Johannes van Rensburg.

Tregardt and his family, as well as Hans van Rensburg's group, started the trek into the far north and arrived at the foot of the Soutpansberg Mountain range in 1836 in two separate parties, as they had parted ways en route due to a disagreement. Van Rensburg's party continued east towards Inhambane, but his entire group was exterminated en route. Tregardt's group was joined by the first group to arrive in the area under the leadership of Coenraad De Buys (the progenitor of the De Buys / Buys people who still live in Buysdorp – a settlement west of Louis Trichardt), who came to the area in 1821. They formed an alliance and aided the Ramabulana to replace the western Venda Chief, Ramavhoya assuming control of the salt plan north of the Soutpansberg Mountain. Tregardt remained in the area for about one year, before leading reconnaissance missions into current day Zimbabwe and towards Mozambique in search of the van Rensburg clan, they made their way to Delagoa Bay 7 months after setting off in September 1837. The trek claimed the lives of many in the party, including Tregardt, who succumbed from malaria in October of 1838.

After his death other Voortrekkers settled in the area as ivory hunters but left after Chief Makhado and his vhaVenda people defeated them in 1867. Only in 1898 did the Zuid-Afrikaansche Republiek take control of the region and established the town Louis Trichardt the following year in February 1899.

Along with other towns in Limpopo Province, Louis Trichardt was renamed Makhado in 2003, after the Venda King Makhado who ruled in the region from the mid-1800s until his death in 1887. However, there was local objection to the new name, and it was claimed less than 1% of the town's population had been consulted on the change. It was not only the Afrikaans people who were opposed to the name change, many Shangaan people regarded Chief Makhado as an oppressor. A residents' association applied to Pretoria's High Court in 2005 to have the name overturned. They were rejected but appealed in South Africa's Supreme Court and won, and the name was changed back to Louis Trichardt in 2007.

6.5 Archival Research

Three main sources of information regarding the heritage sensitivity of this area could be identified. These were;

- Scientific publications on heritage related research in the area
- Previous heritage studies in the area as per the SAHRIS database
- Historic maps and figures as available in the National Archive

Scientific publications

Several publications on heritage related work in this area could be sourced. These include, but are not limited to;

- DE VAAL, J. B. 1943. 'n Soutpansbergse Zimbabwe. *South African Journal of Science* 40: 303–327.
- ELOFF, J. F. & DE VAAL, J. B. 1965. Makahane. *Koedoe* 8: 67–74.
- HANISCH, E. O. M. 1994. *Legends, Traditions and Archaeology: A Look at Early Venda History*. Luvhona vol. 3, no. 1 April 1994. Venda: Department of Education and Culture.
- HUFFMAN, T. N. 1996. Snakes and Crocodiles: Power and Symbolism in Ancient Zimbabwe. Johannesburg. Witwatersrand University Press. 12 ARCHAEOLOGY
- HUFFMAN, T. N. & HANISCH, E. O. M. 1987. Settlement Hierarchies in the Northern Transvaal: Zimbabwe Ruins and Venda History. *African Studies* 46: 79–116.
- LOUBSER, J. H. N. 1992. The Ethnoarchaeology of Venda-speakers in Southern Africa. *Navorsing van die Nasionale Museum Bloemfontein* vol 7: part 8. Bloemfontein. National Museum.
- MITCHELL, P. 2002. *The Archaeology of Southern Africa*. Cambridge World Archaeology. University Press: Cambridge.

- RALUSHAI, N. M. N. & GRAY, J. R. 1977. Ruins and Traditions of the Ngoni and Mbedzi among the Venda of the Northern Transvaal. Rhodesian History 8.
- VAN WARMELLO, N. J. 1940. The Copper Miners of Musina and early History of the Zoutpansberg. Ethnological Publication 8. Pretoria: Government Printer.

6.6 SAHRIS Database Studies

An extensive search into the SAHRIS database resulted in the identification of the following heritage related studies that have been performed over the last two decades in the study area. Only studies within a radius of 50km from the study area were considered.

- Gaigher, S. 2010. Heritage Impact Assessment for the proposed extension of the existing Tabor Substation as well as the Proposed Re-alignment of the Tabor Louis Trichardt 132 kV Line.
- Hutten, M., Gaigher, S. 2007. Heritage Impact Assessment for a Proposed Mandala Shopping Complex near Siloam at Nzhelele area in the Limpopo Province.
- Hutten, M. 2001. Heritage Impact Assessment for the Proposed Development of a Cellular Base Station at the Village of Dzwerani, Northern Province.
- Hutten, M. 2008. Heritage Impact Assessment for the Proposed Development of a Wood Processing Factory East of Louis Trichardt, Limpopo Province.
- Roodt, H.M. 2002. Phase 1 Archaeological Impact Assessment – Proposed Filling Station and Overnight Accommodation, Louis Trichardt, Portion 4 of Rondebosch 287 LS.
- Van Schalkwyk, J. 1999. A Survey of Cultural Resources at the Mampakuil Base Station, Louis Trichardt Area.
- Roodt, F. 2002. Phase 1 Heritage Impact Assessment (Scoping and Evaluation) Subdivision on the Farm BEJA 39LT (±150ha): Albasini Dam Limpopo Province.
- Roodt, F. 2007. Phase 1 Heritage Impact Assessment (Scoping and Evaluation) Black Hawk Golf and Spa: Phase 2 Residential Development Albasini Dam, Louis Trichardt, Limpopo.
- Hutten, M. 2014. Proposed Development of a Residential Lifestyle Estate on Portion 46 of the Farm Vondeling 285 LS, east of Louis Trichardt, in the Makhado Municipality, Vhembe District, Limpopo Province.
- Hine, P. 2012. Phase 1 Heritage Impact Assessment Report: Proposed Makhado Colliery.
- Roodt, F. 2011. Eskom Power Line Paradise Substation to the Proposed Makhado Colliery.
- Roodt, F. 2012. Phase 1 Heritage Impact Assessment Report: Proposed Makhado Colliery Integrated Report for the 1. Open Cast Mine and Infrastructure, 2. Bulk Power Supply and 3. Off Site Transport – Railway Line and Siding.
- Smith, K. 2017. Heritage Impact Assessment for the Proposed New Mutsho Power Project near Makhado.
- Mathoho, E. 2009. An Archaeological Investigation for the Proposed new Waste Disposal Facility on Portion 1 of the Farm Rietvly 276 LS, within the Makhado Local Municipality of Vhembe District, Limpopo Province, South Africa.
- Murimbika, McEdward. 2008. Cultural and Archaeological Heritage Assessment Study for the Proposed Construction of 1021km Powerline at Sereni Village in Makhado Local Municipality of Vhembe District, Limpopo Province.
- Roodt, F. 2003. Phase 1 Heritage Impact Assessment: Portion 7 of the Farm Bergvliet 288 LS – Makhado Municipality, Limpopo Province.
- Roodt, F., Munyai, R. 2008. Phase 1 Heritage Impact Assessment: An Archaeological Investigation of a Proposed Existing Borrow Tshiozwi Borrow Pit, Makhado Municipality, Limpopo.
- Butler, E. 2017. Palaeontological Impact Assessment of the Proposed Development of the new Coal-fired Power Plant and Associated Infrastructure near Makhado, Limpopo Province.
- Murimbika, McEdward. 2008. Cultural and Archaeological Heritage Assessment Study for the Proposed Construction of 2133.37km of 16 kV at Tshino/Ndlitwani Village in Makhado Local Municipality of Vhembe District, Limpopo Province.
- Murimbika, McEdward. 2006. Archaeological Impact Assessment Study for the Proposed Construction of Electricity Distribution Powerlines, Limpopo Province.
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Relevance of Listed Heritage Studies for the Study Area

Of specific value for this project are the 2007 reports from M. Hutten and S. Gaigher “Heritage Impact Assessment for a Proposed Mandala Shopping Complex near Siloam at Nzhelele area in the Limpopo Province” and the 2006 McEdward Murimbika “Archaeological Impact Assessment Study for the Proposed Construction of Electricity Distribution Powerlines, Limpopo Province” as these are geographically very close to the areas under investigation in this report. Neither study identified any sites of historical, cultural, or archaeological significance.

6.7 Historical Typographical Maps

Especially during the evaluation of historic structures, the availability of archived historic maps is useful. These give a direct chronological reference for such sites and lead the investigation on the ground.

The following historic map sets are relevant for this study (in chronological order).

- 2230CC_1966
- 2230CC_1999

The historic maps show no heritage significant site indicators within the study area.

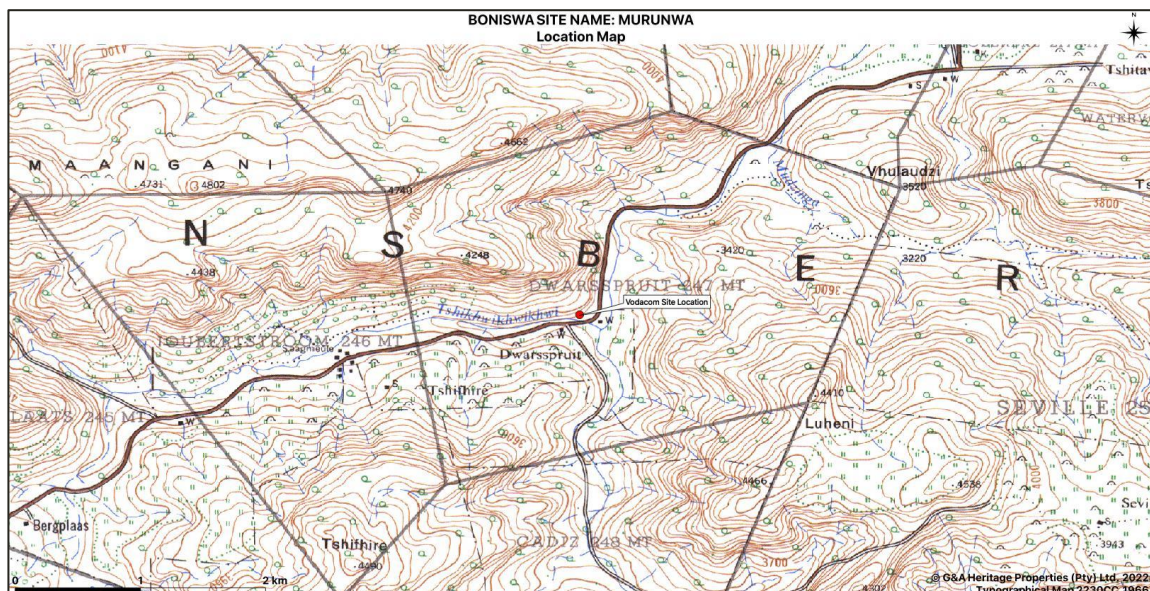


Figure 9. 2230CC_1966 Topographic Map

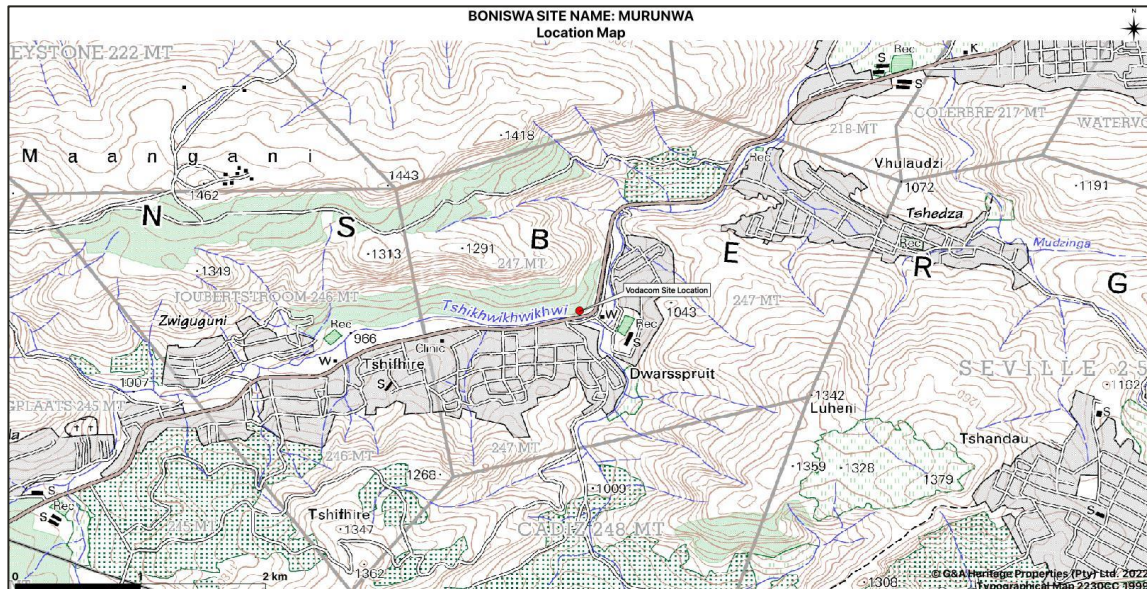


Figure 10. 2230CC_1999 Topographic Map

7. Potential Heritage Impacts and Proposed Mitigation

Heritage Impact Assessment

7.1 Introduction and scope

This component will evaluate the potential impact that the proposed development could have on heritage sites and objects of community, cultural or scientific value. This includes archaeological, cultural heritage, built heritage and basic paleontological assessments to determine the impacts on heritage resources within the study area.

The scope of work includes:

- Identification and assessment of archaeological, cultural, historic, built and paleontological sites within the study area
- Archival study of existing data and information for the study area
- Site inspection and fieldwork: 16 February 2022. This site work includes communicating with local inhabitants to confirm possible locations of heritage and cultural sites.
- Compilation of a Heritage Impact Assessment (HIA) Report.

8. Public Participation

Public participation will be included in the larger environmental study stakeholder engagement process.

9. Conclusions and Recommendations

The site for the proposed construction of the Boniswa Site 2021, Murunwa Vodacom Telemast, located on the Farm Dwarsspruit 247 MT within the Makhado Local- and Vhembe District Municipalities, Limpopo Province, was investigated during a field visit and through archival studies.

The study area was found to be devoid of any heritage sites with significance and severely altered from the natural landscape. It is recommended that obscured, subterranean sites be managed, if they are encountered.

Although the palaeontological sensitivity of the area is designated as Moderate on the Paleo-Sensitivity Map published by SAHRIS the development footprint will be so small and the bedrock intrusion so insignificant that it is requested that the development be exempt from a stand-alone, desktop PIA.

Provided the recommendations in this report is followed there is no reason, from a heritage point of view, why this development cannot continue.

10. Chance Finds Protocol

It is important to note that, although unlikely, sub-surface remains of heritage sites could still be encountered during construction of the project. Such sites would offer no surface indication of their presence due to the high state of alterations in some areas as well as heavy vegetation cover in other areas. The following indicators of unmarked sub-surface sites could be encountered:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human;
- Ceramic fragments such as pottery shards either historic or pre-contact;
- Stone concentrations of any formal nature.

The following recommendations are given should any sub-surface remains of heritage sites be identified as indicated above:

- All operators of excavation equipment should be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures should they be encountered.
- All construction in the immediate vicinity (50m radius of the site) should cease.
- The heritage practitioner should be informed as soon as possible.
- Mitigation measures (such as refilling etc.) should not be attempted.
- The area in a 50m radius of the find should be cordoned off with hazard tape.
- Public access should be limited.
- The area should be placed under guard.
- No media statements should be released until such time as the heritage practitioner has had enough time to analyze the finds.

Should any archaeological, palaeontological, or cultural heritage resources, including graves or human remains (as defined and protected by the NRA 1999) be identified during the vegetation cleaning, surface scraping, trenching, excavation or construction phases of the development, it is recommended that the process as described below is followed.

On-site Reporting Process:

- The identifier should immediately notify his / her supervisor of the find(s).
- The identifier's supervisor should report the incident to the on-site SHE / SHEQ officer within 24hours of the find(s).
- Should the find(s) relate to human remains, the on-site SHE / SHEQ officer should immediately notify the nearest SAPS station of the find(s).
- The on-site SHE / SHEQ officer should report the find(s) to the appointed ECO / ELO officer within 24 hours after the find(s) was / were reported by the relevant supervisor.
- Within 72 hours of the find(s) being reported to the SHE / SHEQ officer, the ECO / ELO officer should ensure that the find(s) is reported on the SAHRIS Database, and the relevant heritage specialist is contacted to make arrangements for a heritage inspection.
- Should the find(s) relate to human remains, the ECO/ ELO officer should ensure that the heritage inspection coincides with the SAPS inspection, to verify if the find(s) is / are of forensic, authentic (informal / older than 60 years) or archaeological (older than 100 years) origin.
- The heritage specialist should compile a heritage site inspection report based on the site-specific findings. The report should make recommendations for the destruction, conservation or mitigation of the find(s) and prescribe a recommended way forward for the development. The report should be submitted to the ECO / ELO officer, who should ensure submission thereof on the SAHRIS database.
- SAHRA / the relevant PHRA will state legal requirements for the development to proceed in the SAHRA / PHRA comments on the heritage inspection report.
- The developer should proceed with implementation of the SAHRA / PHRA comment requirements, which may well stipulate permit specifications to proceed.
 - Should the permit specifications stipulate further Phase 2 archaeological investigations (including grave mitigation), a suitable accredited heritage specialist should be appointed to conduct the work according to the applicable SAHRA / PHRA process.

- The heritage specialist should apply for the permit.
- Upon issue of the SAHRA / PHRA permit, the Phase 2 heritage mitigation program may commence.
- Should the permit specifications stipulate destruction of the find(s) under a SAHRA / PHRA permit, the developer should immediately proceed with the permit application.
- Upon the issue of the SAHRA / PHRA permit, the developer may legally proceed with the destruction of the archaeological, palaeontological or cultural heritage resource(s).
- Upon completion of the Phase 2 heritage mitigation program, the heritage specialist will submit a Phase 2 report to the ECO / ELO officer, who should in turn ensure the submission thereof on the SAHRIS database.
- Report recommendations may include that the remainder of a heritage site be destroyed under a SAHRA / PHRA permit.
- Should the find(s) relate to human remains of forensic origin, the matter will be directly addressed by SAPS. A SAHRA / PHRA permit will not be applicable.

NOTE: the SAHRA / PHRA permit and process requirements relating to the mitigation of human remains requires suitable advertising of the find(s), consultation, mitigation and re-internment / deposition process.

Duties of the Supervisor:

1. The supervisor should ensure that all activities in the vicinity of the find(s) are ceased immediately upon the reporting thereof by the identifier.
2. The supervisor should ensure that the location of the find(s) is secured within 24 hours of the reporting thereof by means of a temporary fence allowing for a 5 – 10m heritage conservation buffer zone around the find(s). The temporary conserved area should be sign-posted as a “No Entry – Heritage Site” zone.
3. Where development was impacted on the resource, no attempt should be made to remove artefacts / objects / remains further from their context and should any artefacts / objects / remains that has / have been removed should be collected and placed within the conservation area or kept for safekeeping with the SHE / SHEQ officer.
4. It is imperative that where development has impacted on any archaeological, palaeontological or cultural heritage resources, the context of the find(s) be preserved as much as possible for interpretive and sample testing purposes.
5. The supervisor should record the name, company and capacity of the identifier and compile a brief report describing the events surrounding the find(s).
6. The report should be submitted to the SHE / SHEQ officer at the time of the incident report.

Duties of the SHE / SHEQ officer:

1. The SHE / SHEQ officer should ensure that the location of the find(s) is recorded with a GPS. A photographic record of the find(s), including implementation of temporary conservation measures, should be compiled. Where relevant a scale bar, or object that can indicate the scale, should be inserted in the photographs for interpretive purposes.
2. The SHE / SHEQ officer should ensure that the supervisor’s report, GPS co-ordinate and photographic record of the find(s) are submitted to the ECO / ELO officer.
3. Should the find(s) relate to human remains, the SHE / SHEQ officer should ensure that the mentioned reporting be made available to the SAPS at the time of the incident report.
4. Any retrieved artefacts / objects / remains should, in consultation with the ECO / ELO officer, be kept in a safe place (preferable on site).

Duties of the ECO / ELO officer:

1. The ECO / ELO officer should ensure that the incident is reported on the SAHRIS Database. (The ECO / ELO officer should ensure that he / she is registered on the relevant SAHRIS case with SAHRIS authorship to the case at the time of appointment to enable heritage reporting.)
2. The ECO / ELO officer should ensure that the incident report is forwarded to the heritage specialist for interpretive purposes at his / her soonest opportunity and prior to the heritage site inspection.
3. The ECO / ELO officer should facilitate appointment of the heritage specialist by the developer / construction consultant for the heritage inspection.
4. The ECO / ELO officer should facilitate access by the heritage specialist to any retrieved artefacts / objects / remains that have been kept in safekeeping.

5. Should the find(s) relate to human remains, the SHE / SHEQ officer should facilitate coordination of the heritage site inspection and the SAPS site inspection.
6. The ECO / ELO officer should facilitate heritage reporting and heritage compliance requirements by SAHRA / the relevant PHRA, between the developer / construction consultant, the heritage specialist, the SHE / SHEQ officer (where relevant) and the SAPS (where relevant).

Duties of the Developer / Construction Consultant:

1. The developer / construction consultant should ensure that an adequate heritage contingency budget is accommodated within the project budget to facilitate and streamline the heritage compliance process in the event of identification of incidental archaeological, palaeontological and / or cultural heritage resources during the course of the vegetation cleaning, surface scraping, trenching, excavation or construction phases of the development, when resources not visible at the time of the surface assessment may be exposed.

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