



AGES OMEGA: PROPOSED CLUSTER 6 MNYOLO & JALISA BULK RETICULATION PROJECT, MNYOLO AREA, CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

Archaeological Impact Assessment

A 3D rendering of a globe with water splashing over it, set against a white background with a reflection below. A large, faint infinity symbol is overlaid on the globe.

**Innovation in
Sustainability**

Prepared for: **AGES Omega**

Prepared by: **Exigo Sustainability**

ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF AREAS DEMARCTED FOR THE PROPOSED CLUSTER 6 MNYOLO & JALISA BULK RETICULATION PROJECT, MNYOLO AREA, CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

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DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



Signature of specialist

Company: Exigo Sustainability

Date: 22 February 2021

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EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) for the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project in Mnyolo in the Chris Hani District Municipality, Eastern Cape Province. The project entails the construction of bulk water supply infrastructure for the Upper Mnyolo Area in Cluster 6. The report includes background information on the area’s archaeology, its representation in Southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed.

Project Title	Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project
Project Location	S31.46444° E28.26261° (Northern Offset) S31.57296° E28.30889° (Southern Offset)
1:50 000 Map Sheet	3128AD, 3128CB
Farm Portion / Parcel	Mnyolo Commonage
Magisterial District / Municipal Area	Chris Hani District Municipality
Province	Eastern Cape Province

The cultural landscape of the Eastern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. As such, the history and archaeology of the larger Eastern Cape Province is relatively well known but in the Mnyolo region little systematic archaeological research has been conducted and, as such the heritage landscape is somewhat of an enigma. A careful analysis of historical aerial imagery and archive maps of Mnyolo – and particularly areas subject to this assessment – indicate a landscape that has been altered extensively by recent and historical ruralisation, potentially sterilising surfaces and subsurface of heritage remains. Sites of heritage potential and significance were nonetheless noted in the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project areas.

The following recommendations are made based on general observations in these proposed development zones in terms of heritage resources management.

- According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map, portions of the project area fall within a potentially sensitive fossiliferous zone and a Palaeontological Assessment is recommended for the project, subject to review and recommendations by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- The remains of a number of poorly preserved possible Historical Period stone enclosures and structures in the project area (**Site Exigo-C6UM-HP01, Site Exigo-C6UM-HP02**) occur in close

proximity of pipeline routes but the sites are of low significance due to the loss of historical context as a result of poor preservation. No further mitigation or management actions are required for the sites.

- Graves and burials identified within close proximity of the pipeline construction alignments (**Site Exigo-C6UM-BP01 - Site Exigo-C6UM-BP09**) are of high significance and these sites might be impacted on by the proposed project. In most of these cases, the graves and cemeteries are situated near roads or within settlements, often around or very close to homesteads and homestead buildings, roads and other infrastructure. These locations of human burials along the proposed alignment present challenges in terms of the conservation and management of these sensitive heritage receptors. As a primary measure, Heritage Authority (SAHRA) guidelines require a 100m conservation buffer for all burials but the implementation of this guideline might prove problematic and impractical in a number of instances considering the locations of many of the burials, as noted above. It is therefore recommended that a heritage conservation buffer of at least 10m be implemented around all graves. Where construction or digging risk encroaching on this conservation buffer, a temporary construction barricade should be erected around burials at risk in order to clearly demarcate the locations of the burials. A site management plan detailing strict site management conservation measures should be compiled for all burials in the project area. All burials should be monitored on a bi-monthly basis by an informed ECO or by the heritage Specialist in order to detect any impact on the resource at the earliest opportunity.
- **Should impact on any human burial prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum B).**
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

Heritage resources occur in close proximity of the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project zone and these heritage receptors might be impacted on by the proposed project. However, these impacts can be mitigated and in the opinion of the author of this Archaeological Impact Assessment Report, the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project may proceed from a culture resources management

perspective, provided that mitigation measures are implemented where applicable, and provided that no subsurface heritage remains are encountered during any phase of development.

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project Heritage Sites Locations

Site Code	Coordinate S E	Short Description	Mitigation Action
EXIGO-C6UM-BP01	-31.52714518 28.29475785	Burial Site	Site monitoring, avoidance, 10m conservation buffer, site management. Grave relocation subject to authorisations and permitting if impacted on.
EXIGO-C6UM-BP02	-31.52727971 28.29439114	Burial Site	
EXIGO-C6UM-BP03	-31.52768615 28.29385034	Burial Site	
EXIGO-C6UM-BP04	-31.533787 28.33899703	Burial Site	
EXIGO-C6UM-BP05	-31.53532231 28.32183148	Burial Site	
EXIGO-C6UM-BP06	-31.53539448 28.3215786	Burial Site	
EXIGO-C6UM-BP07	-31.53651531 28.31928757	Burial Site	
EXIGO-C6UM-BP08	-31.56561837 28.29549327	Burial Site	
EXIGO-C6UM-BP09	-31.53890926 28.27263281	Burial Site	
EXIGO-C6UM-HP01	-31.53944084 28.27004808	Historical Period Feature	General Site monitoring.
EXIGO-C6UM-HP02	-31.54154101 28.26836432	Historical Period Feature	

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating: Absolute dating provides specific dates or range of dates expressed in years.

Archaeological record: The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact: Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage: A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

Context: An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

Cultural Heritage Resource: The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape: A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM): A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Feature: Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Lithic: Stone tools or waste from stone tool manufacturing found on archaeological sites.

Matrix: The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Midden: Refuse that accumulates in a concentrated heap.

Microlith: A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith: A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Phase 1 CRM Assessment: An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study: In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure: A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Provenience: Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling: A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Scoping Assessment: The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Site (Archaeological): A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Stratigraphy: This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Systematic Sampling: A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
GPR	Ground Penetrating Radar
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability was commissioned by AGES Omega for an Archaeological Impact Assessment (AIA) study for the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project in the Chris Hani District Municipality, Eastern Cape Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

1.2 Project Direction

Exigo Sustainability's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

1.3 Project Brief and Previous HIA

The author was contracted to undertake a heritage assessment in the Mnyolo area for the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project located in the Chris Hani District Municipality, Eastern Cape Province. The scope of works for the project is detailed below:

Water Supply Mains

- Gravity Main from a Command Reservoir
 - o Pipe Diameter: varies between 200 mm and 350 mm

Water Reticulation

- Connecting to 1MI Reservoirs:
 - o Nominal Diameter: varies between 50 mm and 110 mm

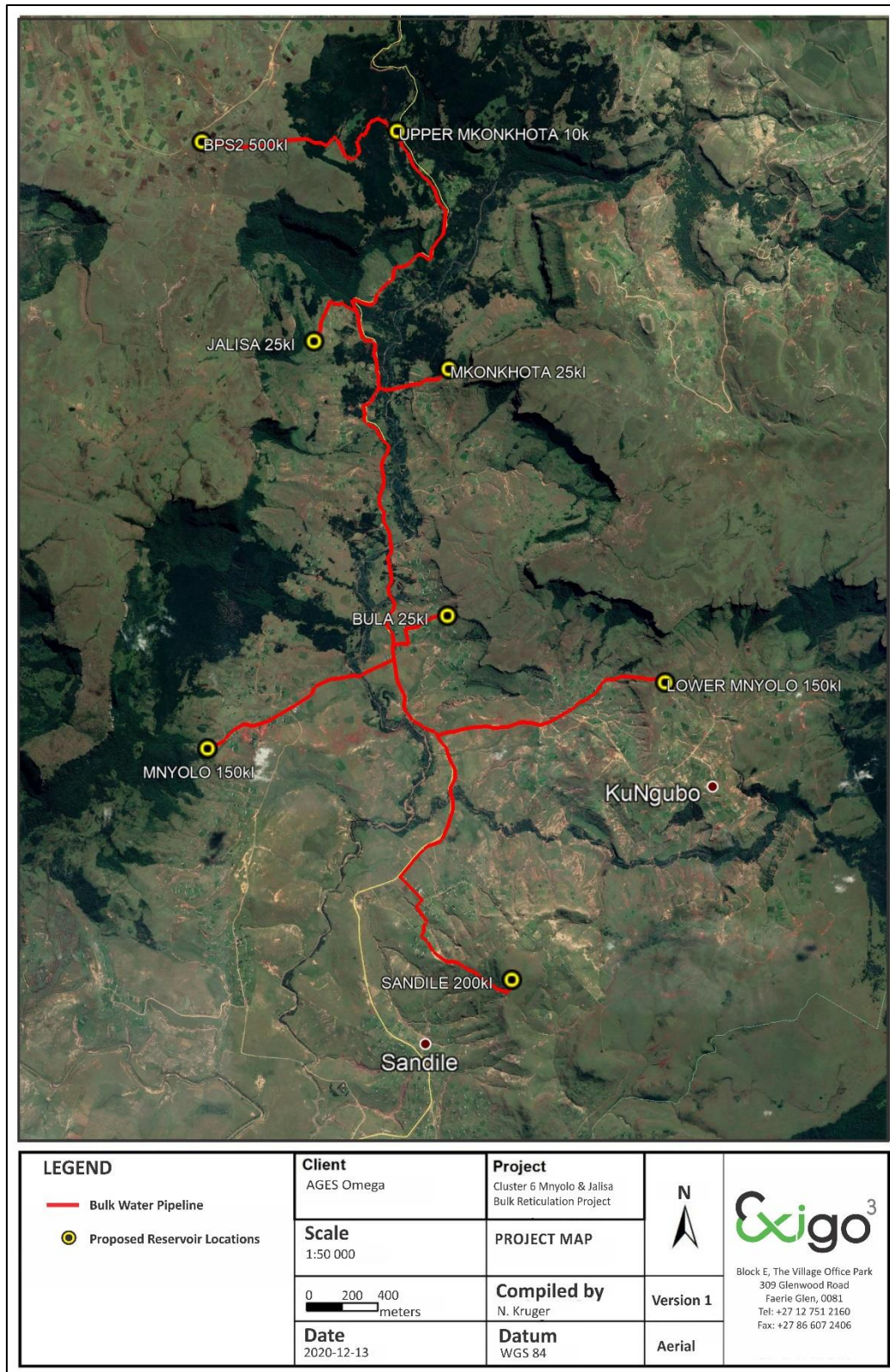


Figure 1-1: Aerial map indicating the respective components subject to the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project.

1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA).*

1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and its provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are 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.

In addition, the national estate 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.)

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“No person may, without a permit issued by the responsible heritage resources authority-

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological 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 palaeontological material or object, or any meteorite; or*
- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”*

and

“No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (a) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*

- (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves and burial grounds are commonly divided into the following subsets:

- 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

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments.

c. National Heritage Resources Act No 25 of 1999, section 35

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.

1.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

A detailed guideline of statutory terms and requirements is supplied in Addendum 1.

2 REGIONAL CONTEXT

2.1 Area Location

The proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project is located on portions of communal land in the former Transkei region of the Chris Hani District Municipality, Eastern Cape Province. The large town of Mthatha is situated more or less 45km east of the project area and a number of small villages, notably Mnyolo occur around the proposed project. The project footprints appear on 1:50 000 map sheets **3128AD, 3128CB** (see Figure 2-1).

Key geographical points for the project locations are:

- **S31.46444° E28.26261° (Northern Offset)**
- **S31.57296° E28.30889° (Southern Offset)**

2.2 Area Description: Receiving Environment

The Mnyolo region is situated on the hills of the Eastern Cape grasslands south of the Drakensberg. The ecological landscape is defined as a combination of mixed grasslands and forest / scrub forest, typically dominated by mixed grassveld and forests at differing altitudes. The annual rainfall ranges between 1150 to over 1300mm per annum. The geology of the larger region is constituted by mudstones and sandstones of the Beaufort group and towards the coast, shales, mudstones and sandstones of the Ecca group, with exposures of dolerite intrusions mostly in the higher lying areas, are found. Soils in the area are moderate to deep and vary between sandy loams in the upper half to clayey loam in the downstream half. The Mnyolo River flows along the project landscape from north to south and several perennial and non-perennial streams and drainage lines, most of them originating in the surrounding hills, transect the area.

2.3 Site Description

The project areas subject to this assessment are situated along gradually rolling hills and plains within the rural Eastern Cape landscape. The terrain consists predominantly of deep valleys interrupted by flatter parcels of developable land with areas that have been altered where informal and formal housing, homesteads, crop fields, roads and other infrastructure have been established. Original vegetation remains intact along the Mnyolo River in the project zone, and along water courses but disturbance agents such as ploughing and grazing cause severe surface erosion and decomposition of low-lying geomorphological deposits in places. A number of villages and settlements form part of the Mnyolo landscape:

- Mkonkota
- Jalisa
- Mnyolo
- Nqala
- Bula
- KuCibi
- Komkhulu
- Mboleni

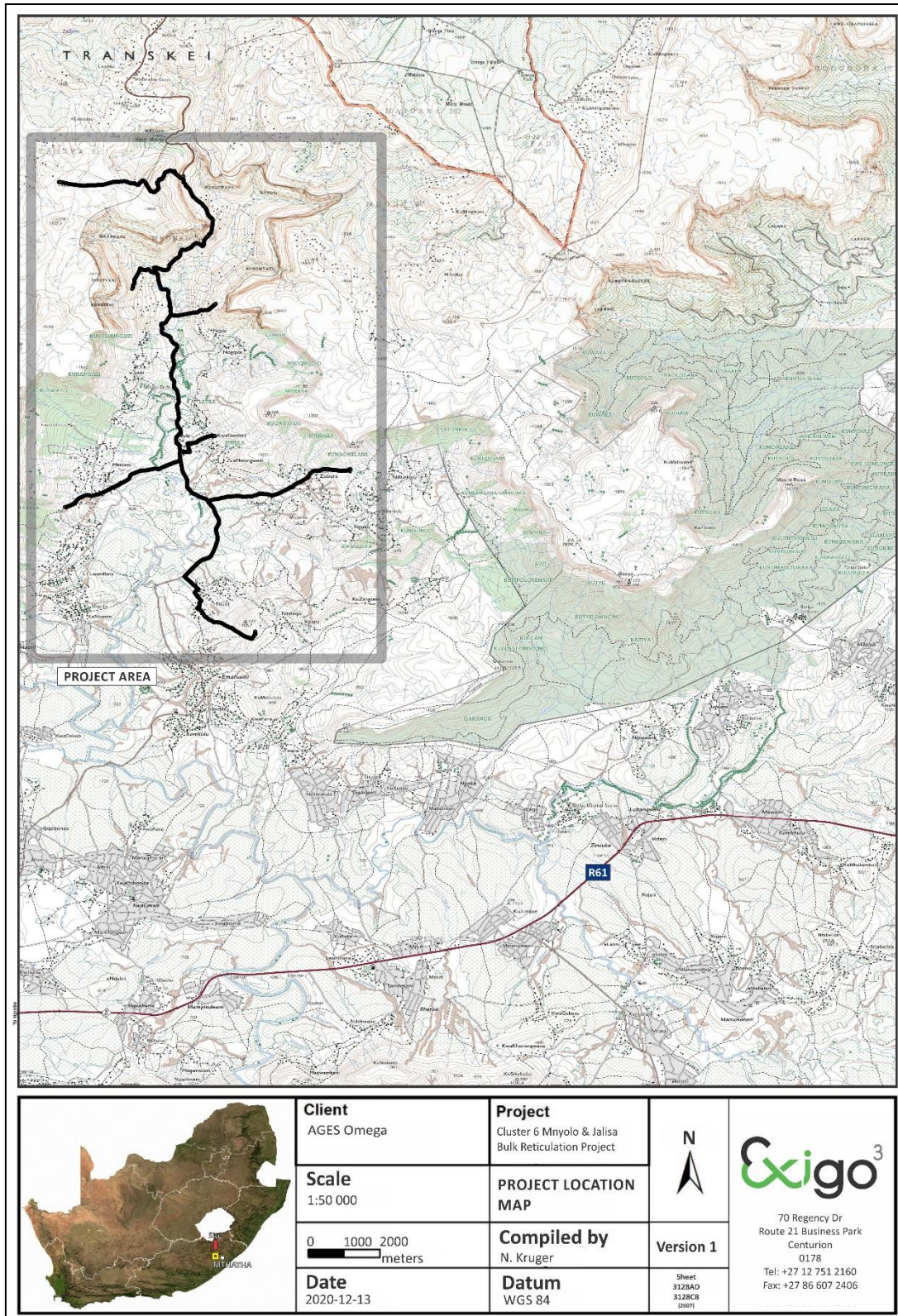


Figure 2-1: 1:50 00 Map representation of the location of the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project (sheet 3128AD, 3128CB).

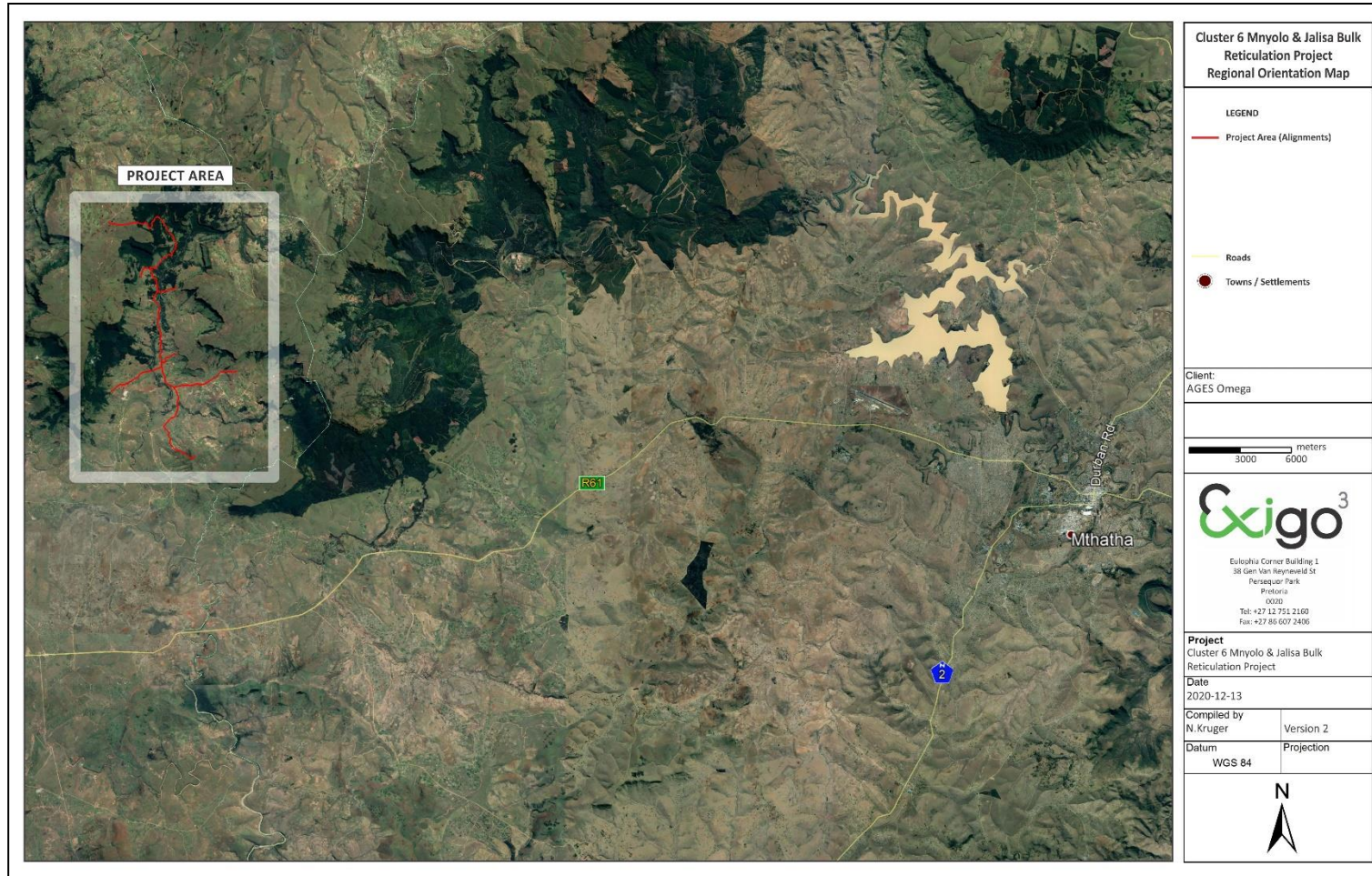


Figure 2-2: Aerial map providing a regional context for the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project.

3 METHOD OF ENQUIRY

3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

3.1.1 Desktop Study

The larger landscape around Mnyolo has not been well documented in terms of its archaeology and history but available academic papers and research articles supplied a historical context for the proposed project and archival sources, aerial photographs, historical maps and local histories were used to create a baseline of the landscape's heritage. In addition, the study drew on available unpublished Heritage Assessment reports to give a comprehensive representation of known sites in the study area.

3.1.2 Aerial Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to assist the foot and automotive site surveys where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified and if they were located within the boundaries of the project area they were physically visited in an effort to determine whether they still exist and in order to assess their current condition and significance. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, potential sensitive areas were subsequently identified and geo-referenced. These areas served as referenced points from where further vehicular and pedestrian surveys were carried out.

3.1.3 Mapping of sites

Merging data generated during the desktop study and the aerial survey, the project area was plotted on historical and more recent 1:50 000 topographic maps of the Mnyolo area. These maps were then superimposed on high definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes.

3.1.4 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the project alignments, routes and impact areas was conducted in November 2020. The process encompassed a systematic field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording, the project areas were systematically surveyed on foot by means of transect surveys. GPS reference points identified during the aerial survey were also visited and random spot checks were made (see detail in previous section). Using a Garmin Montana GPS objects and structures of archaeological / heritage value were recorded and photographed with a Samsung Digital

camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey.

3.2 Limitations

3.2.1 Access

The project areas subject to this assessment are accessed via local roads connecting to the R61 road. Access control is not applied to the areas relevant to this assessment and no restrictions were encountered during the site visit.

3.2.2 Visibility

The surrounding vegetation in the study area landscape is mostly comprised out of mixed grasslands and scattered trees in areas that has largely been transformed by farming activities. Visibility proved to be a minor constraint in the more densely vegetated northern periphery of the project area along the rock outcrop (see Figures 3-1 to 3-1). In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.



Figure 3-1: View of the project area near Singqumeni, at the northern offset of the alignment.



Figure 3-2: View of the BPS2 reservoir at the northern offset of the alignment.



Figure 3-3: View of general surroundings in the project area in Mkonkota, looking north.



Figure 3-4: View of the Mnyolo River valley in the project area.



Figure 3-5: View of the project area in the Mkonkota area.



Figure 3-6: View of the Jalisa area, looking south.



Figure 3-7: View of a river crossing through the Mnyolo River in the project area.



Figure 3-8: View of general surroundings in the Bula area.



Figure 3-9: General surroundings in a southern portion of the project area.



Figure 3-10: View of a deep erosion gully in the Zuburha area along the project alignment.



Figure 3-11: View of the southern offset of the project alignment.



Figure 3-12: View of general surroundings in the Mboleni area of the project alignment.

3.2.3 Limitations and Constraints

The site survey for the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. In summary, the following constraints were encountered:

- **Visibility:** Visibility proved to be a minor constrain in areas with denser surface cover as well as portions where vegetation is more pristine.

It should be noted that, even though it might be assumed that survey findings are representative of the heritage landscape of the project area for the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialist are generally done using the Plomp¹ impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment. A cumulative assessment for the proposed project is also included.

¹ Plomp, H., 2004

4 ARCHAEO-HISTORICAL CONTEXT

4.1 The archaeology of Southern Africa

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across Southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

4.2 The Mnyolo Area: Specific Themes.

The archaeological history of the Eastern Cape Province dates back to about 2 million years and possibly older. The Albany Museum database holds limited information of archaeological sites for the north Eastern Cape, however, records are held at several institutions including the University of the Transkei (now Walter Sisulu University), the University of Fort Hare, and the Rock Art Research Institute at the University of the Witwatersrand. Rock art research, mainly conducted by researchers from the Rock Art Research Institute, University of the Witwatersrand, have been conducted around the Barkly East, Ugie, Maclear, Dordrecht and other areas in the Southern Drakensberg escarpment of the north-eastern Cape. Middle Stone Age and Later Stone Age sites have also been excavated and researched during the 1970's. The literature shows evidence of an archaeological heritage that spans from the Early Stone Age, Middle Stone Age to the Later- Stone, as well as evidence of pastoralism and Iron Age farmers. Rock paintings are prolific throughout Southern Drakensberg Mountains. The region is also significant historically as a frontier between hunter-gatherers, pastoralists, Nguni-speaking farming communities and European settlers.

4.2.1 Early History and the Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Gubenza and Hlupekazi Area at places such as Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears.

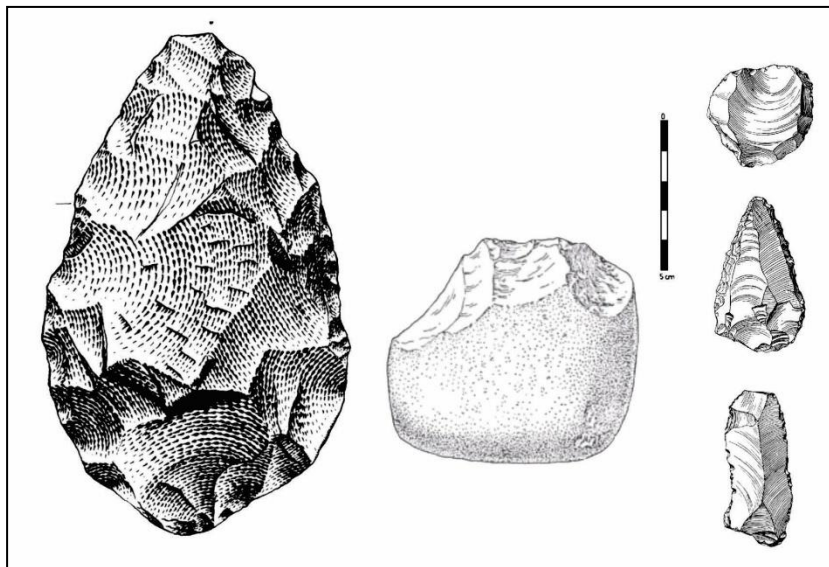


Figure 4-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

A few important Early Stone Age (ESA) sites are known from a number of Ciskei sites including Middeldrift commonage and wide flood plain along the Keiskamma River, streams and erosion channels show Early Stone Age material on silcrete sandstone, from within the fluvial deposits (Derricourt 1973). ESA handaxes were documented and recorded on a site near Indwe (Smith 2010). ESA material has been reported in other sites in the Transkei (Derricourt 1977: Feely 1987). Apart from stone artefacts, the ESA sites in the Transkei have produced very little as regards other archaeological remains. This has made it difficult to make inferences pointing to economical dynamics of the ESA people in this part of the world (Mazel 1989). Although Middle Stone Age (MSA) artefacts occur throughout the Eastern Cape, the most well-known MSA sites include the type-site for the Howiesons Poort stone tool industry, Howiesons Poort rock shelter, situated close to Grahamstown and Klasies River Mouth Cave, situated along the Tsitsikamma coast. MSA sites are located both at the coast and in the interior across southern Africa. MSA people occupied the Southern Drakensberg area before 29 000 BP (Opperman 1996) until between 22 5000 BP and 20 9000 BP (Opperman & Heydenrych 1990). During the colder Bottleneck Stadial the uplands appear to have been abandoned by people and rock glaciers (Lewis & Hanvey 1993), head deposition (Lewis & Dandis 1985) and frost churning (Harvey & Lewis 1991) occurred at the high altitudes (Lewis 2002). Strathalan Cave B is

situated in the foothills of the Southern Drakensberg range approximately 10 km north-east of Maclear contained a terminal MSA continuous occupation from between 28 000 to about 22 000 years ago. The site deposit revealed a sequence of Middle Stone Age occupation floors characterized by the presence of grass bedding materials. The stone artefact collection included slender blades and wooden tools were also used. The subsistence system was based on the hunting of medium-large antelopes and the gathering of plant foods (Opperman & Heydenrych 1990; Opperman 1992). Surface scatters of MSA stone artefact industries occur widely as in the former homelands of the Ciskei and Transkei (Derricourt 1973).

4.2.2 The Later Stone Age (LSA) and Rock Art

The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of Later Stone Age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives. Later Stone Age (LSA) sites occur both at the coast and inland as caves deposits, rock shelters, open sites and shell deposits. The majority of LSA archaeological sites in the Eastern Cape area would date from the past 10 000 years where San hunter-gatherers inhabited the landscape living in rock shelters and caves as well as on the open landscape. These latter sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The Southern Drakensberg was occupied by hunter-gatherers before 10 000 BP (Opperman 1987) but was subsequently abandoned in the Holocene after ca. 6 000 BP, only to be re-occupied by 3 000 BP (Tusenius 1989). Ecological evidence suggests that the southern Drakensberg may have been too dry to support the animals and plants needed for the existence of hunter-gatherer people between 6 000 and some time before 3 000 BP (Tusenius 1989). The north-eastern Cape forms a link between the better watered eastern half of South Africa and the drier west. The wettest conditions apparently existed around 2700 BP, probably correlating with an increase in human occupation in the Southern Drakensberg following the possible abandonment of that area during the dry phase(s) of preceding millennia (Rosen et al. 1999). The succession of stone artefact Industries within the LSA of the Drakensberg region of the north-eastern Cape demonstrates that the resources of this area, which is characterized by a steep ecological gradient, were consistently exploited throughout end Pleistocene and Holocene following the amelioration of conditions after the cold maximum of the Late Pleistocene. The culture stratigraphic sequence is very comparable to that recorded in Lesotho, the middle Orange River basin and the southern and Eastern Cape (Opperman 1982). The renowned San rock paintings of the Drakensberg region also belongs to the LSA period- although the majority were made between 4000 years ago and about 120 years ago. Rock Art can be in the form of rock paintings or rock engravings. Rock paintings occur on the walls of caves and rock shelters across southern Africa and are prolific in the Southern Drakensberg, north-eastern Cape extending the entire Drakensberg range into KwaZulu-Natal and Lesotho. Rock engravings are limited to the Karoo and Northern Cape Regions and do not generally occur within the north Eastern Cape region and former Transkei region. Rock art research within the Southern Drakensberg has been conducted by several researchers and students from the Rock Art Research Institute, University of the Witwatersrand, over a period of 25 years, with a well-established database of site from Maclear, Tsolo, Mthatha, Ugie, Dordrecht and the wider region and extent of the Drakensberg range and Maluti Mountains.

4.2.3 Pastoralism in the Eastern Cape

As noted above, Khoekhoe pastoralists or herders entered southern Africa about 2000 years ago, with domestic animals such as fat-tailed sheep and goats, travelling through the south towards the coast. Their economic systems were directed by the accumulation of wealth in domestic stock numbers and their political make-up was more hierarchical than that of the hunter-gatherers. The most significant Khoekhoe pastoralist sites in the Eastern Cape include Scott's Cave near Patensie (Deacon 1967), Goedgeloof shell midden along the St. Francis

coast (Binneman 2007) and Oakleigh rock shelter near Queenstown (Derricourt 1977). Often, these archaeological sites are found close to the banks of large streams and rivers. Little detailed pastoralist research has been conducted in the Mnyolo area).

4.2.4 Iron Age / Farmer Period

The beginnings of the Iron Age (Farmer Period) in Southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. Iron Age people moved into Southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route. From the coast they followed the various rivers inland. Being cultivators, they preferred rich alluvial soils. The Iron Age can be divided into three phases. The Early Iron Age includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The Middle Iron Age spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The Late Iron Age is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

Even though much research has been conducted on the Iron Age (IA) across southern Africa, only a small portion has focused on the Eastern Cape. A few important Eastern Cape Early Iron Age Sites (EIA) sites include Kulubele situated in the Kei River Valley near Khomga (Binneman 1996), Ntsitsana situated in the interior Transkei, 70 km west of the coast, along the Mzimvubu River (Prins & Granger 1993), and Canasta Place situated on the west bank of the Buffalo River (Nogwaza 1994). Previous investigations into the EIA in the Transkei and Ciskei include work at Buffalo River Mouth (Wells 1934; Laidler 1935), at Chalumna River Mouth (Derricourt 1977) and additional research by Feely (1987) and Prins (1989). The first EIA farming communities during the first millennium AD preferred to occupy river valleys within the eastern half of southern Africa owing to the summer-rainfall climate that was conducive for growing millet and sorghum. The closest documented and well-researched Early Iron Age site, to Elliot is located within the Great Kei River Valley. The site is situated some 200 m below the plateau and 60 km inland from the coast, within the borders of the Transkei, approximately 100 km up the coast towards Durban. There has in the past been some speculation that Early Iron Age populations may have spread well south of the Transkei into the Ciskei, possibly up to the Great Fish River (Binneman et al. 1992), however, no further research has been undertaken to confirm these statements. A closer Early Iron Age site has been documented to the south of East London (Cronin 1982). Thicker and decorated pottery sherds, kraals, possible remains of domesticated animals, upper and lower grindstones and storage pits are associated for identifying EIA sites. The sites are generally large settlements, but the archaeological visibility may in most cases be difficult owing to the organic nature of the homesteads. Metal and iron implements are also associated with EIA communities.

The Later Iron Age (LIA) is not only distinguished from the EIA by greater regional diversity of pottery styles but is also marked by extensive stone wall settlements. LIA sites in the Eastern Cape Province occur adjacent to the major rivers in low lying river valleys but also along ridge crests above the 800m contour. The LIA in the project area can be ascribed to the Mpondomise, Thembu, and Xhosa tribal clusters or their immediate predecessors (Feely 1987). It is also possible that some stone walled sites, especially those incorporating shelters or caves, were constructed by hybrid San/Nguni groups. Trade played a major role in the economy of LIA societies. Goods were traded locally and over long distances. The main trade goods included metal, salt, grain, cattle and thatch. This led to the establishment of economically driven centres and the growth of trade wealth. Keeping of domestic animals, metal work and the cultivation of crops continued with a change in the organisation of economic activities (Maggs, 1989; Huffman 2007). Hilltop settlements are mainly

associated with LIA settlement patterns that occurred during the second millennium AD. Later Iron Age settlements have been formally recorded by the Albany Museum and cover a relatively extended area in comparison with the Early Iron Age settlement patterns. With the exception of the Tembu, stone buildings which characterizes the Iron Age sites of Sotho areas, is absent in the Transkei and Ciskei, and a pattern of some mobility without, it is presumed, a stone working technology of significance, makes the allocation of sites a major problem (Derricourt 1973).

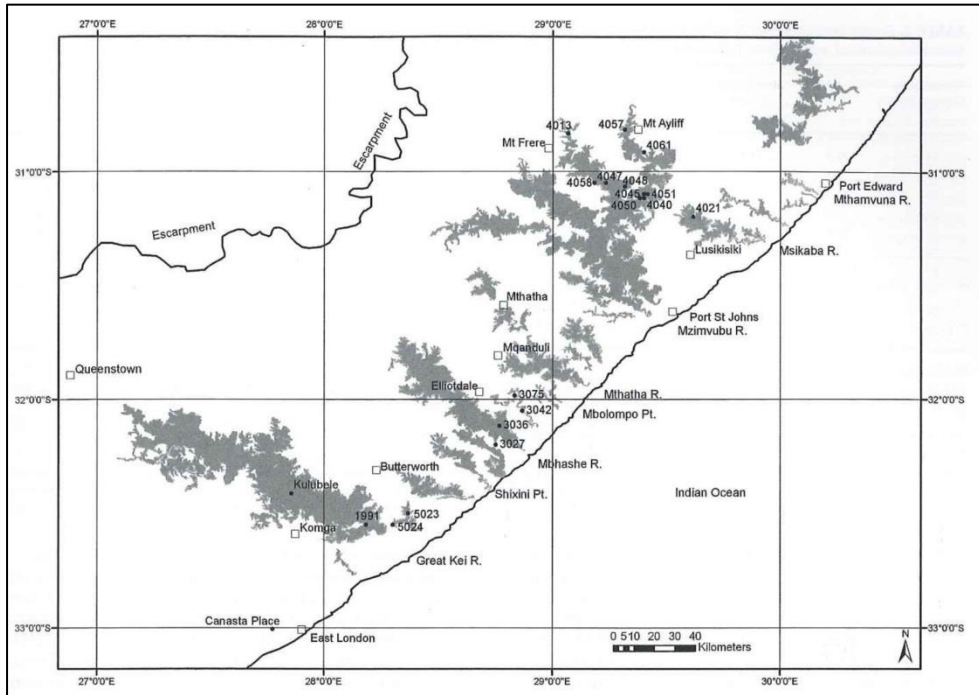


Figure 4-2: Early Iron Age farmer period sites in the Eastern Cape around Mthatha (after Feely & Bell-Cross 2011).

4.2.5 Later History: Reorganization, Colonial Contact and living heritage

The Eastern Cape region is typically viewed by historians as a frontier zone. This area was the meeting place between an aggressively expanding colonial frontier and the southernmost distribution of black Bantu-speaking farming communities in Africa (Huffman 2007). It is well known in the historical literature for the nine frontier wars that were fought here between the settlers of the Cape colony and the Xhosa nation between 1779 and 1879 (see below). Whereas white colonial settlement expanded north and eastwards from Table Bay, in modern Cape Town, some 350 years ago Bantu-speaking agro pastoralists, the predecessors of the Xhosa nation, inhabited areas to the east of the Sundays river already since 1300 years ago (Binneman et al 1992). For many centuries their movement further west and south were hindered by a climatic frontier that prevented these small-scale subsistence farmers from cultivating summer-rainfall crops, such as millet and sorghum, their main source of food. Adding to climatic constraints, the first Bantu speaking pioneers encountered other indigenous population groups in these more marginal areas as did colonial agents many centuries later. These were the Khoisan - the direct descendants of the first modern people to have emerged in Africa some 200 000 years ago. These people had from the time of van Riebeeck become popularly known as the San or Bushmen and Khoekhoen or Hottentots. Whereas the Khoekhoen typically lived closer to the coastal areas where they could find adequate grazing for their cattle and sheep the San hunter-gatherers lived further inland in areas not favoured by either Khoekhoen pastoralists or Bantu-speaking agropastoralists. Nevertheless, the Eastern Cape became the contact zone between these different cultures both in the historical and prehistoric past.

By the closing decades of the 18th century, South Africa had fallen into two broad regions: west and east. Colonial settlement dominated the west, including the winter rainfall region around the Cape of Good Hope, the coastal hinterland northward toward the present-day border with Namibia, and the dry lands of the interior. Trekboers moved into, and occupied Khoekhoe and remnant hunter-gatherer land. Indigenous farmers controlled both the coastal and valley lowlands and the Highveld of the interior in the east, where summer rainfall and good grazing made mixed farming economies possible. A large group of British settlers arrived in the eastern Cape in 1820; this, together with a high European birth rate and wasteful land usage, produced an acute land shortage, which was alleviated only when the British acquired more land through massive military intervention against Africans on the eastern frontier. Until the 1840s the British vision of the colony did not include African citizens and most of these groups were expelled across the Great Fish River, the unilaterally proclaimed eastern border of the colony. The first step in this process included attacks in 1811–12 by the British army on the Xhosa groups, the Gqunukhwebe and Ndlambe. An attack by the Rharhabe-Xhosa on Graham's Town in 1819 provided the pretext for the annexation of more African territory, to the Keiskamma River. Various Rharhabe-Xhosa groups were driven from their lands throughout the early 1830s. They counterattacked in December 1834, and Governor Benjamin D'Urban ordered a major invasion the following year, during which thousands of Rharhabe-Xhosa died. The British crossed the Great Kei River and ravaged territory of the Gcaleka-Xhosa as well; the Gcaleka chief, Hintsá, invited to hold discussions with British military officials, was held hostage and died trying to escape. The British colonial secretary, Lord Glenelg, who disapproved of D'Urban's policy, halted the seizure of all African land east of the Great Kei. D'Urban's initial attempt to rule conquered Africans with European magistrates and soldiers was overturned by Glenelg; instead, for a time, Africans east of the Keiskamma retained their autonomy and dealt with the colony through diplomatic agents. However, after further fighting with the Rharhabe-Xhosa on the eastern frontier in 1846, Governor Colonel Harry Smith finally annexed, over the next two years, not only the region between the Great Fish and the Great Kei rivers (establishing British Kaffraria) but also a large area between the Orange and Vaal rivers, thus establishing the Orange River Sovereignty. These moves provoked further warfare in 1851–53 with the Xhosa (joined once more by many Khoe), with a few British politicians ineffectively trying to influence events. Between 1811 and 1858 colonial aggression deprived Africans of most of their land between the Sundays and Great Kei rivers and produced poverty and despair. From the mid-1850s British magistrates held political power in British Kaffraria, destroying the power of the Xhosa chiefs. Following a severe lung sickness epidemic among their cattle in 1854–56 the Xhosa killed many of their remaining cattle and in 1857–58 grew few crops in response to a millenarian prophecy that this would cause their ancestors to rise from the dead and destroy the whites. Many thousands of Xhosa starved to death, and large numbers of survivors were driven into the Cape Colony to work. British Kaffraria fused with the Cape Colony in 1865, and thousands of Africans newly defined as Fingo resettled east of the Great Kei, thereby creating Fingoland. The Transkei, as this region came to be known, consisted of the hilly country between the Cape and Natal. It became a large African reserve and grew in size when those parts that were still independent were annexed in the 1880s and '90s.

5 RESULTS: OFF-SITE DESKTOP AND ARCHAEOLOGICAL SITE SURVEYS

5.1 The Off-Site Desktop Survey

The history and archaeology of the larger Eastern Cape Province is relatively well known but in the larger Mnyolo region little systematic archaeological research has been conducted and, as such the heritage landscape is somewhat of an enigma. In terms of heritage resources, the archaeological landscape surrounding the project area is primarily well known for the occurrence of Iron Age farmer sites and Colonial remnants. However, no particular reference to archaeological sites or features of heritage potential were recorded during an examination of literature thematically or geographically related to the project area. A careful analysis of historical aerial imagery and an archive map of areas subject to this assessment indicate a landscape which has been transformed over centuries by human activity relating to agriculture and settlement. These sources indicate a relatively densely populated region heavily relying on historical agriculture and livestock farming.

5.2 The Archaeological Site Survey

5.2.1 Historical Period Sites

Features and structures possibly dating to the Historical Period were identified in close proximity of the pipeline routes in the study areas. Even though temporal contexts for the structures could not be ascertained, it might be assumed that, generally the features probably date to the early to mid-20th century.

These inferences are based on the following observations:

- Even though of low quality and resolution, aerial imagery dating to the first part of the 20th century suggests that the structures were present in the landscape in the early 1900's.
- As a general rule, southern African Iron Age farming communities constructed irregular circular stock enclosures. Squarely built enclosures only appear consequent to Colonial contact, which implies that cattle kraals identified in the villages did not belong to Iron Age stock farmers, but rather later more recent family units.

The close proximity of many of the features to other similar homesteads currently in use, might suggest that these sites were occupied during early phases of the same occupational period of current homesteads in the area.

- **EXIGO-C6UM-HP01** -31.53944084 28.27004808

The remains of a stone wall structure were documented in the Mboleni settlement. The function of the stone structure is not known but it could form part of a historical stock kraal similar to those found in the area. A clear temporal context for the structures is not known but the remains might be older than 60 years. No material culture was observed in association with the remains and the structures are not well preserved. The feature, which is of low heritage significance due to its poor preservation and loss of historical context, occurs in close proximity of the water pipeline alignment and peripheral impact on the site is anticipated.



Figure 5-1: View of a stone enclosure at Site EXIGO-C6UM-HP01.

- **EXIGO-C6UM-HP02** -31.54154101 28.26836432

A surface feature consisting out of the foundation remains of a mud brick structures was documented in the Mboleni settlement. The multi-roomed foundation remains cover an area of approximately 7m x 5m. A clear temporal context for the structures is not known but, considering its similarity with existing home structures in the vicinity as well as the presence of glass and plastic at the site, the feature is most probably not older than 60 years, and of recent age. The feature, which is of low heritage significance due to its poor preservation and probable more recent age, occurs in close proximity of the water pipeline alignment and peripheral impact on the site is anticipated.



Figure 5-2: View of foundation remains at Site EXIGO-C6UM-HP02.

5.2.2 Burial Sites

At least 9 human burial sites were noted along the alignment for the Mnyolo Bulk Water Project.

- **EXIGO-C6UM-BP01** -31.52714518 28.29475785

At least 2 graves occur in the Bula area of the project area along the proposed pipeline route. The graves are indicated by elongated soil mounds covered with surface grass where rough and irregular and unmarked rocks were placed as headstones on the burials. One of the graves occur within a collapsed wire fence. The site is not maintained and the condition of the burials is poor. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-3: View of a burial at Site EXIGO-C6UM-BP01.

- **EXIGO-C6UM-BP02** -31.52727971 28.29439114

At least 3 graves were noted in an open field in the Bula area of the proposed pipeline route. The graves are indicated by rough elongated stone cairns filled in with soil and covered with surface grass. The site is not maintained and the condition of the burials is fair. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-4: View of a burial at Site EXIGO-C6UM-BP02.

- **EXIGO-C6UM-BP03** -31.52768615 28.29385034

A small family cemetery was noted in an open field in the Bula area along the proposed pipeline route in a central portion of the project area. Some of the graves are indicated by rectangular brick structures filled in with concrete and gravel and others are rough elongated stone cairns filled in with soil and covered with surface grass. A dilapidated fence was erected around the graveyard. No material culture associated with the grave was observed, it is not maintained and the condition thereof is fair. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-5: View of a burial at Site EXIGO-C6UM-BP03.

- **EXIGO-C6UM-BP04** -31.533787 28.33899703

At least 2 densely overgrown graves were observed on a high ridge near Zuburha east of the in the project footprint. The burial site is of high heritage significance but it is it is situated some distance from the proposed pipeline construction alignments.

- **EXIGO-C6UM-BP05** -31.53532231 28.32183148

A single grave was noted in a crop field next to a livestock enclosure in the Ziburha area along the proposed pipeline route. The grave is indicated by a rectangular brick structure which is filled in with gravel and it beards a granite headstone. The site is not maintained and the condition of the burial is good. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-6: View of a burial at Site EXIGO-C6UM-BP05.

- **EXIGO-C6UM-BP06** -31.53539448 28.3215786

A single grave was noted in a crop field in the Ziburha area of the proposed pipeline route in a central portion of the project area. The grave is indicated by a poorly visible soil mound and a rough, irregular and unmarked rock placed as headstone on the burial, which is not enclosed. The site is not maintained and the condition of the burial is fair. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-7: View of a burial at Site EXIGO-C6UM-BP06.

- **EXIGO-C6UM-BP07** -31.53651531 28.31928757

At least 4 graves occur next to a homestead in the Zuburha area along the proposed pipeline route. The burials are indicated by elongated stone and soil mounds with unmarked headstones and material culture such as enamel containers and a cast iron pots were placed on the graves. The graves are in a poor state of preservation and they are not fenced. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-8: View of a burial at Site EXIGO-C6UM-BP07

- **EXIGO-C6UM-BP08** -31.56561837 28.29549327

A small family cemetery was noted in an open field in the KuCibi area along the proposed pipeline route in a southern portion of the project area. Some of the graves are dressed with marble headstones and tombstones, others are indicated by rectangular brick structures filled in with concrete and gravel and a number of rough elongated stone cairns filled in with soil indicate informal burials. No material culture associated with the grave was observed, it is not maintained and the condition thereof is fair. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-9: View of a burial at Site EXIGO-C6UM-BP08.

- **EXIGO-C6UM-BP09** -31.53890926 28.27263281

A single grave occur in the Mboleni settlement in a harvested crop field next to a homestead along the proposed pipeline route. The burial is demarcated by a large elongated soil mound. No material culture associated with the grave was observed, it is not maintained and preservation thereof is poor. The burial site is of high heritage significance, it is situated in close proximity of proposed pipeline construction alignments and a conservation buffer should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.



Figure 5-10: View of a burial at Site EXIGO-C6UM-BP09.

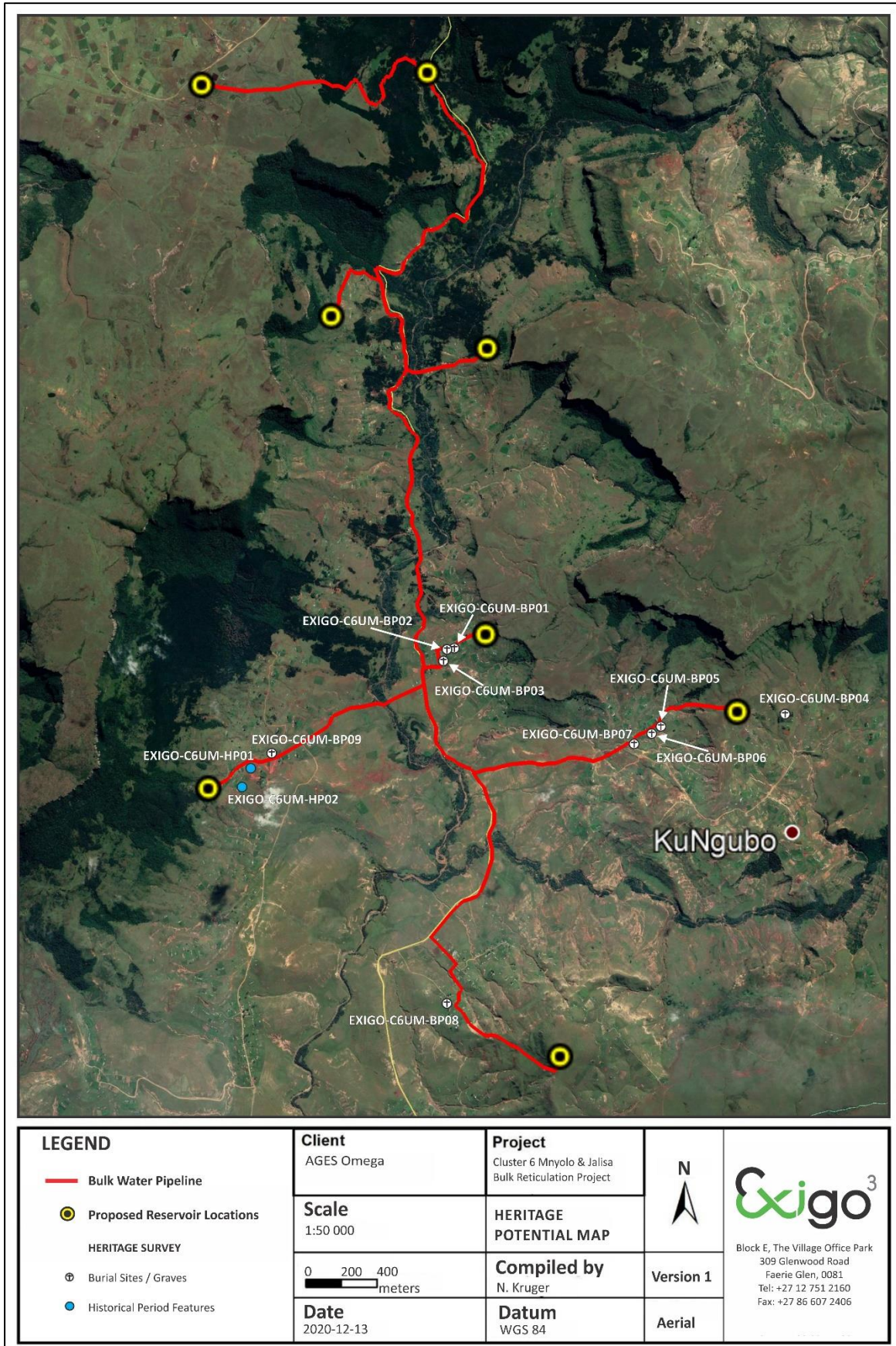


Figure 5-11: Aerial map indicating the locations of occurrences of heritage potential, discussed in the text

6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

6.1 Potential Impacts and Significance Ratings²

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

6.1.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

6.1.2 Direct impact rating

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

Heritage receptors were found in the project zones and potential impacts to heritage resources is foreseen.

The following table summarizes impacts to **low** significance Historical Period sites (Site Exigo-C6UM-HP01, Site Exigo-C6UM-HP02) located in close proximity of development areas:

NATURE OF IMPACT: Impacts could involve displacement or destruction of heritage structures or features in the proposed Cluster 6 Lower Mnyolo Bulk Water Project areas.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Minor	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Low	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible

² Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Avoidance, site monitoring by ECO.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to burial sites of **high** significance located in close proximity of the project areas:

- **Site Exigo-C6UM-BP01 - Site Exigo-C6UM-BP09**

NATURE OF IMPACT: Impacts could involve displacement or destruction of burials in the project area.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGNITUDE	Major	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	High	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Avoidance, site management (conservation buffering), strict site monitoring by ECO, grave relocation.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

6.2 Evaluation Impacts

Previous studies conducted in the larger Eastern Cape landscape around the project area suggest a rich and diverse archaeological landscape. The Mnyolo landscape has been inhabited continuously in prehistoric and historical times where large portions of land have been transformed for agriculture and ruralisation. Cognisance should be taken of archaeological material that might be present in surface and sub-surface deposits.

6.2.1 Archaeology

The study did not identify any archaeological receptors which will be directly impacted by the proposed project and no impact on archaeological sites or features is anticipated.

6.2.2 Built Environment

A number of Historical Period features and buildings relating to rural settlement occur in the general landscape but the project area has varied significance in terms of the built environment. The remains of a

possible low significance Historical Period features in the project area occur in close proximity of development areas but the threshold of the potential impact is expected to be LOW, provided that no previously undetected heritage remains of significance be exposed during construction and development phases. In addition, no significant old buildings, structures, or features in the direct project surround remains intact and no impact on the built environment is anticipated.

6.2.3 Cultural Landscape

The larger area comprises a rich cultural horizon and the natural landscape surrounding the proposed project encompasses open grasslands and river valleys, typical of the rural areas of the Eastern Cape. The cultural landscape holds Herder sites, Iron Age remains, Colonial Period farmsteads and Historical towns. However, the proposed project is unlikely to result in a significant impact on the cultural landscape of this area.

6.2.4 Graves / Human Burials Sites

A number of burial sites were located in the study area in close proximity of the pipeline construction alignments. These receptors are of high significance for their social and cultural value. The potential impact on the resources is anticipated to be HIGH but this impact rating can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, site management, site monitoring / grave relocation) for the sites, if / when required. It should be noted that graves and cemeteries often occur within settlements or around homesteads in the rural areas of the Eastern Cape, and they are also randomly scattered around archaeological and historical settlements. The probability of informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

Heritage resources occur in close proximity of the Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project zone and these heritage receptors might be impacted on by the proposed project. However, these impacts can be mitigated and in the opinion of the author of this Archaeological Impact Assessment Report, the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project may proceed from a culture resources management perspective, provided that mitigation measures are implemented where applicable, and provided that no subsurface heritage remains are encountered during any phase of development.

6.3 Management actions

Recommendations for relevant heritage resources management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of Addendum 3.

OBJECTIVE: prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

- *No mitigation or management actions are required for the remains of possible Historical Period features of low significance (Site Exigo-C6UM-HP01, Site Exigo-C6UM -HP02).*
- *For the highly significant burial sites occurring within the project area (Site Exigo-C6UM-BP01 - Site Exigo-C6UM-BP09) the following are required in terms of heritage management and mitigation:*

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/disturbance to subsurface burials and surface burial features.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	
Preferred Mitigation Procedure			
Avoidance: Implement a heritage conservation buffer of at least 10m from all burials / graves. Where digging / construction encroaches on this buffer, erect a temporary construction barricade around burials to clearly indicate the location of burials. Implement a site management plan detailing strict site management conservation measures.	DEVELOPER QUALIFIED SPECIALIST	HERITAGE	Prior to the commencement of construction and earth-moving.
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)			
Grave Relocation: Relocation of burials and documentation of site, full social consultation with affected parties, possible conservation management and protection measures. Subject to authorisations and relevant permitting from heritage authorities and affected parties.	QUALIFIED SPECIALIST	HERITAGE	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (required)			
Site Monitoring: The project site in the vicinity of this receptor should be monitored bi-monthly by the heritage consultant or an ECO familiar with the heritage occurrences of the site: regular examination of trenches and excavations and site clearing in order to detect and preserve previously undocumented heritage receptors.	ECO		Monitor as frequently as practically possible.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

7 RECOMMENDATIONS

The larger landscape of the Eastern Cape Province and the Mnyolo area is rich in pre-historical and historical remnants since the area is highly suitable for pre-colonial habitation. The proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project zones have been transformed by historical and recent farming as well as ruralisation. Here, the landscape seems to have been inhabited continuously for centuries in prehistoric and historical times and a number of sites of heritage potential were noted in the project zones.

The following recommendations are made based on general observations in the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project in terms of heritage resources management.

- According to the South African Heritage Resources Agency Information System (SAHRIS) Palaeo Map, portions of the project area fall within a potentially sensitive fossiliferous zone and a Palaeontological Assessment is recommended for the project, subject to review and recommendations by the relevant heritage authorities. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should be carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- The remains of a number of poorly preserved possible Historical Period stone enclosures and structures in the project area (**Site Exigo-C6UM-HP01, Site Exigo-C6UM-HP02**) occur in close proximity of pipeline routes but the sites are of low significance due to the loss of historical context as a result of poor preservation. No further mitigation or management actions are required for the sites.
- Graves and burials identified within close proximity of the pipeline construction alignments (**Site Exigo-C6UM-BP01 - Site Exigo-C6UM-BP09**) are of high significance and these sites might be impacted on by the proposed project. In most of these cases, the graves and cemeteries are situated near roads or within settlements, often around or very close to homesteads and homestead buildings, roads and other infrastructure. These locations of human burials along the proposed alignment present challenges in terms of the conservation and management of these sensitive heritage receptors. As a primary measure, Heritage Authority (SAHRA) guidelines require a 100m conservation buffer for all burials but the implementation of this guideline might prove problematic and impractical in a number of instances considering the locations of many of the burials, as noted above. It is therefore recommended that a heritage conservation buffer of at least 10m be implemented around all graves. Where construction or digging risk encroaching on this conservation buffer, a temporary construction barricade should be erected around burials at risk in order to clearly demarcate the locations of the burials. A site management plan detailing strict site management conservation measures should be compiled for all burials in the project area. All burials should be monitored on a bi-monthly basis by an informed ECO or by the heritage Specialist in order to detect any impact on the resource at the earliest opportunity.
- **Should impact on any human burial prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum B).**
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or

burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.

- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

In addition to these site-specific recommendations, careful cognizance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.

8 GENERAL COMMENTS AND CONDITIONS

This AIA report serves to confirm the extent and significance of the heritage resources of the proposed Cluster 6 Mnyolo & Jalisa Bulk Reticulation Project area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, at any stage, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal MSA stone tools.
- Formal LSA stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such site were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by AMAFA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required. It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (*cf.* **NHRA (Act No. 25 of 1999)**, Section 36 (6)). It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).

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10 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

10.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

10.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

d. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority-

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (g) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (h) *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;*
- (i) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (j) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

e. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

10.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a

development categorised as:

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

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

And:

“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:

- (k) The identification and mapping of all heritage resources in the area affected;*
- (l) 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;*
- (m) an assessment of the impact of the development on such heritage resources;*
- (n) 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;*
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”*

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than

60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation

10.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, augering), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

11 ADDENDUM 2: GRAVE RELOCATION AND SITE MANAGEMENT: STATUTORY MANDATE

11.1 Archaeology, graves and the law

Note that four categories of graves can be identified. These are:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years; and
- Graves of victims of conflict or of individuals of royal descent

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.

Human remains that are less than 60 years old are subject to provisions of the Human Tissues Act (Act 65 of 1983) 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.

A registered undertaker can only handle human remains or an institution declared under the Human Tissues Act (Act 65 of 1983 as amended).

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

Summary of applicable legislation and legal requirements:

- Human Tissue Act (Act 65 of 1983 as amended).
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA for removal of human remains

11.2 Graves: necessary procedures

When graves are located in an area demarcated for development, the following mitigation options might be considered:

- **Conservation:** The establishment of a 50 meter buffer zone around the burial place which is fenced off and, maintained and conserved. *This option is generally recommended as the relocation of burial places is an extremely complicated, time consuming and sensitive process.*

- **Mitigation and relocation:** In the event where impact on the burial place will occur, mitigation measures may entail full grave relocation. Such a relocation process must be undertaken by suitably qualified individuals with a proven track record. The relocation must also be undertaken in full cognisance of all relevant legislation, including the specific requirements of the National Heritage Resource Act (Act no. 25 of 1999). Furthermore, a concerted effort must also be made to identify all buried individuals and to contact their relatives and descendants. Other legislative measures which may be of relevance include the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act (Act no. 65 of 1983, as amended), the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Methodology for grave relocations:

- **Documentation:** Physical documentation of graves and determining context of graves prior to exhumation: Photographic, GPS, Site Map, Historical Background.
- **Public Notices:** In order to locate and notify descendant families, notices (in compliance with the National Heritage Resources Act) must be placed on the site/s, indicating the intent of relocation. These notices, translated into at least 3 languages, have to remain in place for a minimum of 60 days. Additionally, newspaper adverts and notices on local radio stations announcements are required.
- **Social consultation:** If any descendant families were located during initial consultation/public participation phases, a full social consultation action will be lodged.
- **Permit application:** Application for a permit from SAHRA can only be obtained after all necessary consent documents from descendant families, landowners and relevant authorities have been secured.
- **Exhumation & relocation**

The exhumation, investigation and reburial of the burial place may commence after SAHRA has issued relevant permits and permissions

12 ADDENDUM 3: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

12.1 Site Significance Matrix

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

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

12.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. sitespecific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

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

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

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

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

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

12.3 Direct Impact Assessment Criteria

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected
NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.				
HERITAGE CONTEXTS		CATEGORIES OF DEVELOPMENT		
<p>Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p>Context 2: Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p>Context 3: Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p>		<p>Category A: Minimal intensity development</p> <ul style="list-style-type: none"> - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m2. <p>Category B: Low-key intensity development</p> <ul style="list-style-type: none"> - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m - Building footprints between 1000m2-2000m2 		

<p>Context 4: Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<ul style="list-style-type: none"> - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). <p>Category C: Moderate intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site between 5000m2-10 000m2. - Linear development between 100m and 300m. - Building footprints between 2000m2 and 5000m2 - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) <p>Category D: High intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site in excess of 10 000m2 - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)
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12.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p>No further action / Monitoring</p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p>Avoidance</p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p>Mitigation</p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p>Compensation</p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p>Rehabilitation</p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation. - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric. - Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource. <p>Enhancement</p> <p>Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This</p>

management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored