CES: PROPOSED MBSA CLARKEBURY ROAD UPGRADE PROJECT, CLARKEBURY AREA, OR TAMBO DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

Archaeological Impact Assessment

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ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF AREAS DEMARACTED FOR UPGRADING TO A SURFACE STANDARD MBSA CLARKEBURY ROAD UPGRADE PROJECT, CLARKEBURY AREA, OR TAMBO 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 MBSA Clarkebury Road Upgrade 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: 15 April 2020

EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) study subject to an Environmental Impact Assessment (EIA) process for the proposed MBSA Clarkebury Road Upgrade Project in Clarkebury in the OR Tambo District Municipality, Eastern Cape Province. The project entails the upgrade of road sections over approximately 20km which will include the upgrade of 2 bridges along the upgrade route. Three burrow pits and a large quarry of 5ha will be utilized for the road upgrade. 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	MBSA Clarkebury Road Upgrade Project
General Project Location	S31.824881° E28.142447°
1:50 000 Map Sheet	3128CA, 3128CD
Farm Portion / Parcel	Clarkebury Commonage
Magisterial District / Municipal Area	OR Tambo 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 Clarkebury 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 Clarkebury – and particularly areas subject to this assessment – indicate a landscape that has been populated over centuries in surrounds which have seen extensive transformation in historical and recent times. Sites of heritage potential and significance were noted in the proposed MBSA Clarkebury Road Upgrade 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 Historical Period homesteads and dwellings (**Site EXIGO-MCRU-HP01 - Site EXIGO-MCRU-HP03**) and the poorly preserved Phillipsdale Trading Post compound are of medium-low

significance due to the poor state of preservation of the sites. The sites occur in close proximity of the project area and it is recommended that the necessary destruction permits be obtained from the relevant Heritage Resources Authorities prior to site impact and destruction. Generally, the sites should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains and potential human burials.

- An extensive later Iron Age Farmer Period stone walled complex (**Site EXIGO-MCRU-IA01)** have the potential to inform on the spread of Iron Age communities in the interior of the Eastern Cape and the site is of medium heritage significance. The complex occurs at the site proposed for the quarry and it is primarily recommended that an alternative site for the quarry be identified to avoid impact on the heritage resource. A conservation buffer of at least 20m around the site should be implemented and the area should be monitored on a frequent basis by an informed ECO in order to avoid the destruction of existing and previously undetected heritage remains. Should impact on the site prove inevitable it should be adequately documented by means of a Phase 2 Specialist Study. Such a study should minimally include the mapping, documentation and possible sampling of the site in order to conserve the historical fabric of the heritage resource. The necessary alteration and/or destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction.
- The Historically significant Mjanyana Hospital (**Site EXIGO-MCRU-HP05**) and the old Lookout Trading Post compound (**Site EXIGO-MCRU-HP06)** have the potential to inform on architectural, settlement and social developments in the larger Clarkebury landscape and the sites are of medium heritage significance. These compounds occur in close proximity of the road upgrade alignment and it is primarily recommended that the proposed road upgrade footprint be adjusted to avoid the resources and that a conservation buffer of at least 20m around the sites be implemented. However, should impact on any component of the sites prove inevitable, affected components should be adequately documented by means of a Phase 2 Specialist Study. Such a study should minimally include the mapping, documentation and possible sampling of the sites in order to conserve the historical fabric of the heritage resources. The necessary alteration and/or destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction. Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- Graves and burials identified within and in close proximity of the road upgrade, and within the proposed quarry site route are of high significance and these sites require specific mitigation measures. As such, for **Site EXIGO-MCRU-BP12** occurring within the project area it is recommended that the burial be relocated by a qualified archaeologist 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). For burial sites occurring less than 10m from impact areas (**Site EXIGO-MCRU-BP07, Site EXIGO-MCRU-BP10, Site EXIGO-MCRU-BP11, Site EXIGO-MCRU-BP19, Site EXIGO-MCRU-BP20**) the implementation of a heritage conservation buffer of at least 3m and the erection of a temporary construction barricade along areas where construction might encroach is recommended. Note that this recommended relaxation of the standard 50m buffer for burials in closed proximity of the alignment is subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. The burials should be individually fenced where a fence of at least 1.5m should be erected no closer than 1m from the grave dressing feature. The fence should have an access gate with clear signage to indicate the heritage sensitivity status of the site. Site access should be implemented and arranged with relatives associated with the burials. A site management plan detailing strict site management conservation

measures should be compiled for the grave sites. It is essential that the following monitoring protocols should be implemented in order to detect any impact on the resource at the earliest opportunity:

  - Initial site clearance and earth moving at the sites or within 50m radiuses of the sites: Daily monitoring by the heritage specialist.
  - Construction at the sites or within 50m radiuses of the sites: Weekly monitoring by heritage specialist / informed ECO.
  - Monthly monitoring of the site for the duration of project activities at the sites or within 50m radiuses of the sites in order to ensure continued conservation, by an informed ECO.

- For burial sites occurring less than 50m from impact areas (**Site EXIGO-MCRU-BP06, Site EXIGO-MCRU-BP13, Site EXIGO-MCRU-BP21, Site EXIGO-MCRU-BP22**) the implementation of a heritage conservation buffer of at least 20m is recommended subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. The burials should be individually fenced where a fence of at least 1.5m should be erected no closer than 1m from the grave dressing feature. The fence should have an access gate with clear signage to indicate the heritage sensitivity status of the site. Site access should be implemented and arranged with relatives associated with the burials. A site management plan detailing strict site management conservation measures should be compiled for the grave sites. It is essential that sites be monitored on a weekly basis by the heritage specialist / informed ECO in order to detect any impact on the resource at the earliest opportunity.
- For burial sites occurring within the larger project landscape (**Site EXIGO-MCRU-BP01, Site EXIGO-MCRU-BP02, Site EXIGO-MCRU-BP03, Site EXIGO-MCRU-BP04, Site EXIGO-MCRU-BP05, Site EXIGO-MCRU-BP08, Site EXIGO-MCRU-BP09, Site EXIGO-MCRU-BP14, Site EXIGO-MCRU-BP15, Site EXIGO-MCRU-BP16, Site EXIGO-MCRU-BP17, Site EXIGO-MCRU-BP18**) the implementation of a heritage conservation buffer of at least 50m is recommended subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. It is essential that sites be monitored on a frequent basis by the heritage specialist / informed ECO in order to detect any impact on the resource at the earliest opportunity.
- The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery in order to detect and manage negative impact on the sites. 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 of significance occur within and in close proximity of the MBSA Clarkebury Road Upgrade Project zone and some of 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 MBSA Clarkebury Road Upgrade 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.

MBSA Clarkebury Road Upgrade Project Heritage Sites Register:

Site Code	Short Description	Coordinate S	Coordinate E	Mitigation Action
EXIGO-MCRU-BP12	Burial Site	-31.83082044	28.19396672	**Grave Relocation:** Relocation of burial and documentation of site, full social consultation with affected parties, possible conservation management and protection measures. **Permitting:** Apply for relevant permits for grave relocation.
EXIGO-MCRU-BP07	Burial Site	-31.83104139	28.20592878	**Avoidance:** Implement a heritage conservation buffer of at least 3m, erection of a temporary construction barricade along areas where construction might encroach. Sites should be fenced and access control should be applied. **Site Monitoring:** The following monitoring protocols should be implemented: - Initial site clearance and earth moving at the sites or within 50m radiuses of the sites: Daily monitoring by the heritage specialist. - Construction at the sites or within 50m radiuses of the sites: Weekly monitoring by heritage specialist / informed ECO - Monthly monitoring of the site for the duration of project activities at the sites or within 50m radiuses of the sites in order to ensure continued conservation, by an informed ECO. A site management plan detailing strict site management conservation measures should be compiled for the grave sites.
EXIGO-MCRU-BP10	Burial Site	-31.83130106	28.19673141	
EXIGO-MCRU-BP11	Burial Site	-31.83099914	28.19471204	
EXIGO-MCRU-BP19	Burial Site	-31.82522762	28.16683399	
EXIGO-MCRU-BP20	Burial Site	-31.82546625	28.16468672	
EXIGO-MCRU-BP06	Burial Site	-31.83131129	28.20779317	**Avoidance:** Implement a heritage conservation buffer of at least 20m. Sites should be fenced and access control should be applied. **Site Monitoring:** Weekly monitoring of the sites for the duration of project activities in order to ensure continued conservation, by an informed ECO. A site management plan detailing strict site management conservation measures should be compiled for the grave sites.
EXIGO-MCRU-BP13	Burial Site	-31.83006238	28.18821673	
EXIGO-MCRU-BP21	Burial Site	-31.82476904	28.16418841	
EXIGO-MCRU-BP22	Burial Site	-31.82563347	28.16154418	
EXIGO-MCRU-BP01	Burial Site	-31.81053045	28.26728205	**Avoidance:** Implement a heritage conservation buffer of at least 50m. **Site Monitoring:** Strict frequent monitoring during construction by the heritage consultant or an ECO familiar with the heritage occurrences of the site. Implement site management plan.
EXIGO-MCRU-BP02	Burial Site	-31.82914272	28.22976071	
EXIGO-MCRU-BP03	Burial Site	-31.8320924	28.2143681	
EXIGO-MCRU-BP04	Burial Site	-31.83161421	28.210496	
EXIGO-MCRU-BP05	Burial Site	-31.83147716	28.21060061	
EXIGO-MCRU-BP08	Burial Site	-31.83174471	28.2003083	
EXIGO-MCRU-BP09	Burial Site	-31.83069505	28.19876184	
EXIGO-MCRU-BP14	Burial Site	-31.82999776	28.18659274	
EXIGO-MCRU-BP15	Burial Site	-31.85826246	28.17301288	
EXIGO-MCRU-BP16	Burial Site	-31.82821468	28.18039994	
EXIGO-MCRU-BP17	Burial Site	-31.82696854	28.17915732	

EXIGO-MCRU-BP18	Burial Site	-31.8268325	28.17888835	
EXIGO-MCRU-FT01	Feature (unknown)	-31.81167475	28.26561422	***No further heritage action required, general site monitoring.***
EXIGO-MCRU-HP01	Historical Period Site	-31.81394155	28.25887442	**Site Monitoring:** Site monitoring by the heritage consultant or an ECO familiar with the heritage occurrences of the site. **Permitting:** Apply for alteration / destruction permits if sites are impacted on.
EXIGO-MCRU-HP02	Historical Period Site	-31.81568859	28.25641056	
EXIGO-MCRU-HP03	Historical Period Site	-31.85729426	28.17543467	
EXIGO-MCRU-HP04	Historical Period Site	-31.82127002	28.14448088	
EXIGO-MCRU-HP05	Historical Period Site	-31.83383022	28.10709039	**Avoidance:** Implement a heritage conservation buffer of at least 20m. **Site Monitoring:** Strict frequent monitoring during construction by the heritage consultant or an ECO familiar with the heritage occurrences of the site.
EXIGO-MCRU-HP06	Historical Period Site	-31.85737087	28.10360427	**Phase 2 Mitigation:** Legally compliant Phase 2 Study and assessment if impacted on. **Permitting:** Apply for relevant alteration / destruction permits for Phase 2 and consequent impact.
EXIGO-MCRU-IA01	Iron Age Period Site	-31.85670719	28.1725103	**Avoidance:** Implement a heritage conservation buffer of at least 20m. **Site Monitoring:** Strict frequent monitoring during construction by the heritage consultant or an ECO familiar with the heritage occurrences of the site. **Phase 2 Mitigation:** Legally compliant Phase 2 Study and assessment if impacted on. **Permitting:** Apply for relevant alteration / destruction permits for Phase 2 and consequent impact.

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
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
PFS	Pre-Feasibility Study
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 (Pty) Ltd (Exigo) was commissioned by CES to conduct an Archaeological Impact Assessment (AIA) study subject to an Environmental Impact Assessment (EIA) process for the proposed MBSA Clarkebury Road Upgrade Project in the Eastern Cape Province. The rationale of this AIA is to determine the significance of the heritage resource; to consider the impact of the proposed project on the heritage resource, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at the affected feature.

1.2 Project Direction

Exigo'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

The author was contracted to undertake a heritage assessment in the Clarkebury area for the MBSA Clarkebury Road Upgrade Project located in the OR Tambo District Municipality, Eastern Cape Province.

The project entails the upgrade of road sections which will include the upgrade of bridges and culverts along the upgrade route. More specifically, the project will include (see Figure 1-1):

- The upgrade of the road from KuMbanga to Lookout over 22km
- The upgrade op bridges over the Myanjana and Tora Rivers.
- The establishment of three burrow pits.
- The establishment of a quarry covering approximately 5ha.

Road alignments and proposed quarry and burrow pit sites were investigated in order to identify possible areas of heritage sensitivity and constraints that would affect the development, and provide recommendations as to potential mitigation and management of such heritage receptors.

Figure 1-1: Aerial image indicating the proposed MBSA Clarkebury Road Upgrade Project components.

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 the heritage resource.*
- *Assess the nature and degree of significance of the heritage resource in the development area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the 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). A Notification of Intent to Develop (NID) will be submitted to SAHRA at the soonest opportunity.*

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 artefacts, 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 sites

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 MBSA Clarkebury Road Upgrade Project is located on portions of communal land in the former Transkei region of the OR Tambo District Municipality, Eastern Cape Province. The large town of Mthatha is situated more or less 40km east of the project area and a number of small villages, notably Clarkebury and the Tembisa occur around the proposed upgrade route. The project footprints appear on 1:50 000 map sheets **3128CA, 3128CD** (see Figure 2-1). Key geographical points for the project locations are:

- **Clarkebury Road Eastern Offset:** S31.81148° E28.26583°
- **Clarkebury Road Central Portion:** S31.82777° E28.18255°
- **Clarkebury Road Western Offset:** S31.85850° E28.10469°

2.2 Area Description: Receiving Environment

The Clarkebury 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 Mjanyana and Tora Rivers as well as several perennial and non-perennial streams and drainage lines 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, schools, shops, homesteads, crop fields, roads and other infrastructure have been established. Original vegetation remains intact along the Mjanyana and Tora Rivers River valleys 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 large number of villages and settlements form part of the Clarkebury landscape around the project area:

- **KuMbanga**
- **Singeni**
- **Mtshayelweni**
- **Ncityana**
- **Lookout**
- **Ntlakwevenkile**
- **Mjanyana**

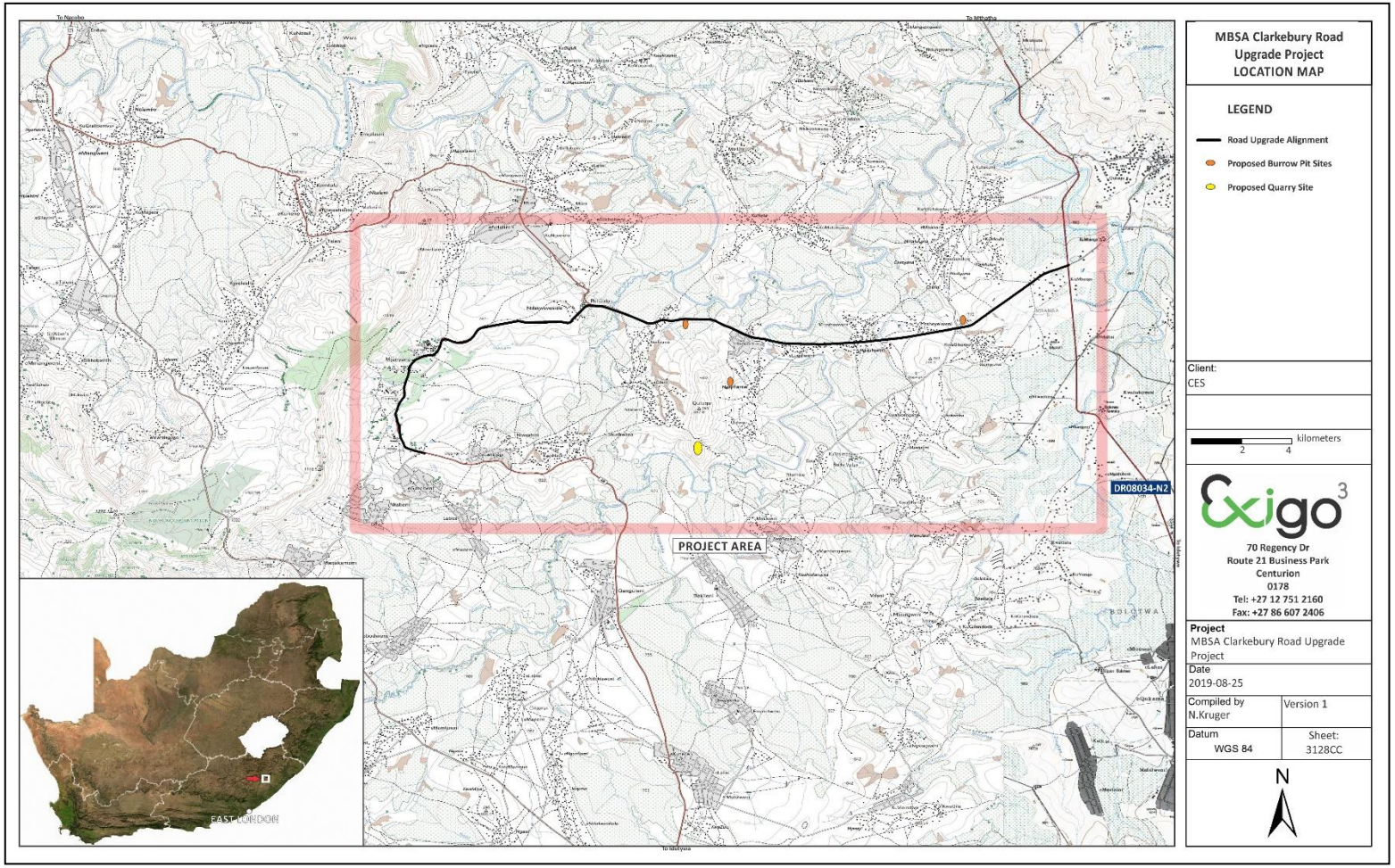

Figure 2-1: 1:50 00 Map representation of the location of the proposed MBSA Clarkebury Road Upgrade Project (sheet 3128CA, 3128CD).

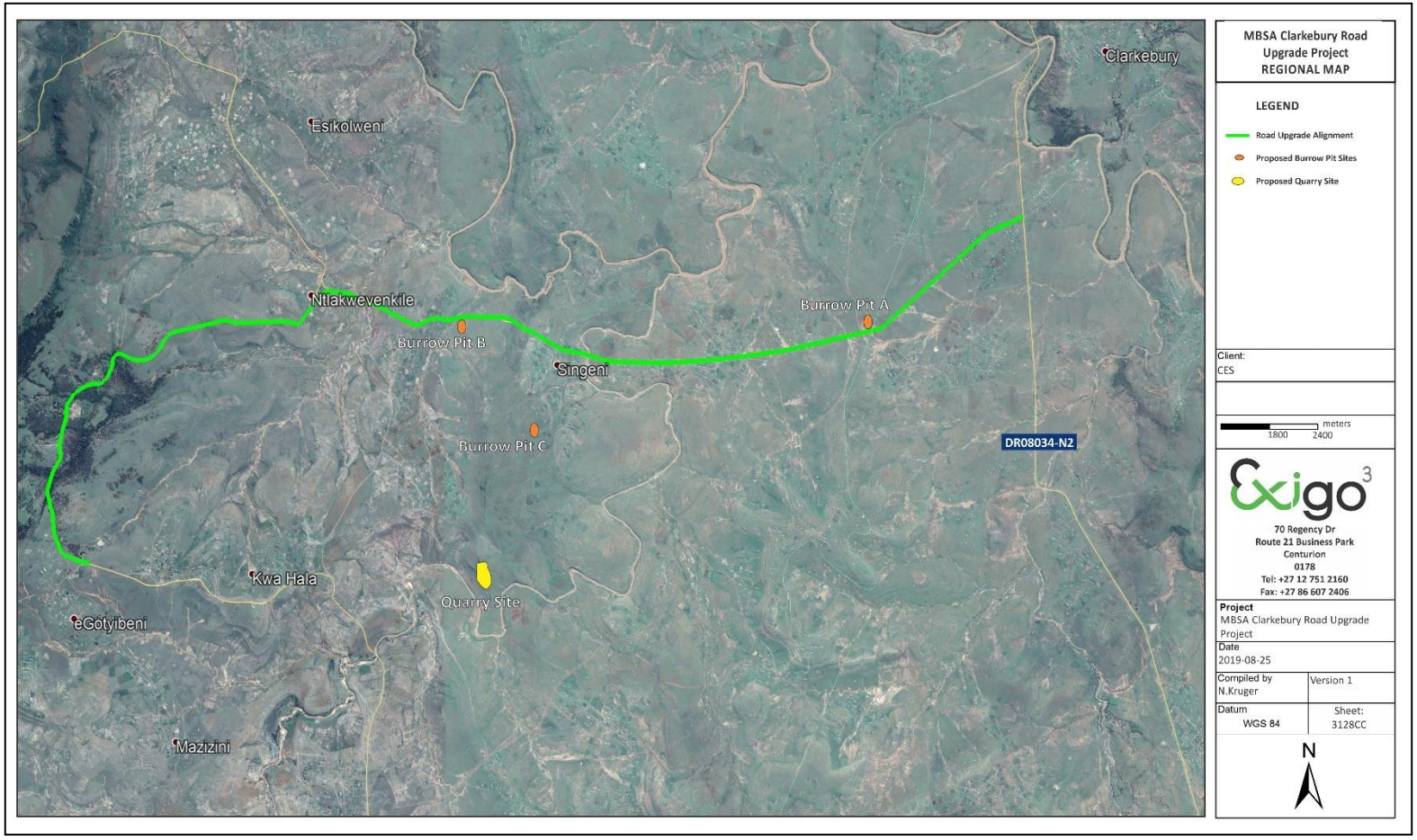

Figure 2-2: Aerial map providing a regional context for the proposed MBSA Clarkebury Road Upgrade Project.

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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 Clarkebury 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 as well as unpublished Heritage Assessment reports were used to create a baseline of the landscape's heritage.

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, geo-referenced and transferred to a handheld GPS device. These areas served as reference points from where further vehicular and pedestrian surveys were carried out.

3.1.3 Mapping of sites

Historical and current maps of the project area were examined. By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Clarkebury area using GIS software. These maps were then superimposed on high definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes. Historical and more recent maps indicate the appearance of suburban areas during the mid-1950's in the project area.

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 July 2019. 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 Clarkebury road alignment, burrow pit sites and the quarry footprint were systematically surveyed on foot and in a motor vehicle. 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.

3.1.5 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.

3.1.6 Visibility

The surrounding vegetation in the project area is mostly comprised out of mixed grassland, pioneering species and scattered trees and bushes. The general visibility at the time of the AIA survey (July 2019) ranged from high in transformed areas, to low in more pristine and overgrown zones. In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.

Figure 3-1: View of general surroundings at the eastern offset of the road alignment at KuMbanga.

Figure 3-2: View of general surroundings in the project area at KuMbanga.

Figure 3-3: View of the site demarcated for Burrow Pit A.

Figure 3-4: View of general surroundings in the project area at Singeni.

Figure 3-5: View of an existing road culvert in the Singeni area.

Figure 3-6: View of general surroundings in the project area at Mtshayelweni.

Figure 3-7: View of general surroundings in the project area at Ncityana.

Figure 3-8: View of an existing road culvert in the Mtshayelweni area.

Figure 3-9: View of the site demarcated for the quarry.

Figure 3-10: Another view of the site demarcated for the quarry in Quluqu.

Figure 3-11: View of the site demarcated for Burrow Pit B.

Figure 3-12: Another view of the site demarcated for Burrow Pit B.

Figure 3-13: View of the site demarcated for Burrow Pit C.

Figure 3-14: View of general surroundings in the project area at Mjanyana.

Figure 3-15: View of general surroundings in the project area at Mjanyana.

Figure 3-16: View of general surroundings in the project area at Lookout.

Figure 3-17: View of the western offset of the road upgrade alignment at Lookout.

3.1.7 Summary: Limitations and Constraints

The foot site survey for the MBSA Clarkebury Road Upgrade Project AIA primarily focused around the Historical period culvert and the following constraints were encountered:

- **Visibility:** Visibility proved to be a minor constraint 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, 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.

3.2 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialist are generally done using the Plomp[1] impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment (See Section 6).

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: *Australopithecines* *Homo habilis* *Homo erectus*	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens sapiens* 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 **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.

[1] Plomp, H.,2004

Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	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 **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	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 Discussion: The Clarkebury 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

The Earlier Stone Age, from between 1.5 million and 250 000 years ago, refers to the earliest that *Homo sapiens sapiens'* predecessors began making stone tools. The earliest stone tool industry was referred to as the Olduwan Industry, originating from stone artefacts recorded at Olduvai Gorge, Tanzania. The Acheulian Industry, the predominant Southern African Early Stone Age Industry, which replaced the Olduwan Industry approximately 1.5 million years ago, is attested to in diverse environments and over wide geographical areas. The hallmark of the Acheulian Industry is its large cutting tools (LCTs or bifaces), primarily handaxes and cleavers. The most well-known Early Stone Age site in Southern Africa is Amanzi Springs, situated about 10km north-east of Uitenhage, near Port Elizabeth (Deacon 1970). In a series of spring deposits a large number of stone tools were found in situ to a depth of 3-4m. Wood and seed material preserved remarkably very well within the spring deposits, and possibly date to between 800 000 to 250 000 years old. Large stone ESA tools are often found associated with the gravels in the area, and were later replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blades industries.

The Middle Stone Age (MSA) spans a period from 250 000-30 000 years ago and focuses on the emergence of modern humans through the change in technology, behaviour, physical appearance, art and symbolism. The large handaxes and cleavers were replaced by smaller stone artefacts called the MSA flake and blade industries. Surface scatters of these flake and blade industries occur widespread across Southern Africa. The majority of MSA sites occur on flood plains and sometimes in caves and rock shelters. Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris.

The Later Stone Age (LSA) spans the period from about 20 000 years ago until the colonial era, although some communities continue making stone tools today. The period between 30 000 and 20 000 years ago is referred to as the transition from the MSA to LSA; although there is a lack of crucial sites and evidence that represent this change. The LSA is marked by a series of technological innovations, new tools and artefacts, the development of economic, political and social systems, and core symbolic beliefs and rituals. The stone toolkits changed over time according to time-specific needs and raw material availability, from smaller microlithic Robberg, Wilton Industries and in between, the larger Albany/Oakhurst and the Kabeljous Industries. Bored stones used as part of digging sticks, grooved stones for sharpening and grinding and stone tools fixed to handles with mastic also become more common. Fishing equipment such as hooks, gorges and sinkers also appear within archaeological excavations. Most importantly bows and arrows revolutionized the hunting economy. It was only within the last 2000 years that earthenware pottery was introduced. Before then tortoiseshell bowls were used for cooking and ostrich eggshell (OES) flasks were used for storing water. Sites dating to the LSA are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material.

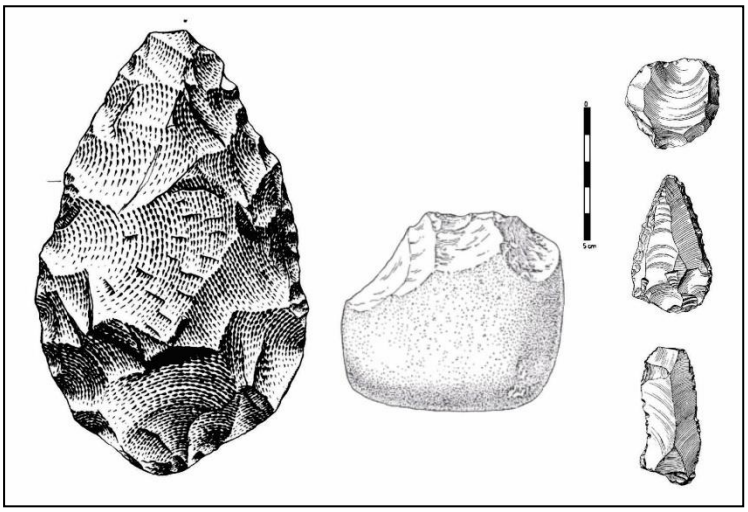

Figure 4-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

Human habitation of the Eastern Cape area dates back as far as the earlier Stone Age. Early humans lived here for thousands of years from the Early Stone Age, through what is known as the Middle Stone Age and well into the Late Stone Age. The majority of Stone Age finds are classified as isolated surface occurrences, and mostly date to the Middle Stone Age. A few important Early Stone Age (ESA) sites are known from a number of Ciskei sites including Middledrift 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 Stadia' 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 if 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'sCave 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 within the Elliot area, except for the incidences of ceramics recorded during excavations. Coiwinton Rock Shelter situated north towards Barkly East above the escarpment yielded evidence of pre-agriculturalist ceramics within the excavation as well as at Bonawe Rock Shelter west of the town of Elliot (Opperman 1982; Mazel 1992).

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 farming communities generally 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.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).

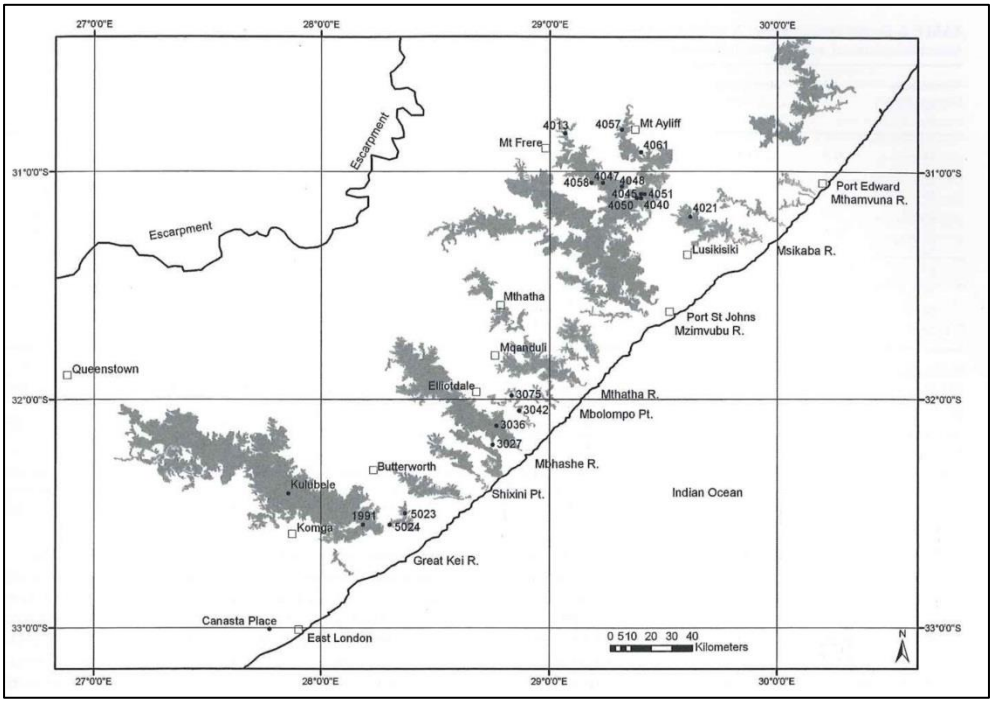

Figure 4-2: Early Iron Age farmer period sites in the Eastern Cape around Mthahta (after Feely & Bell-Cross 2011).

4.2.5 Later History: Colonial Period

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, Hintsa, 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: ARCHAEOLOGICAL SURVEY

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 Clarkebury 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. Historical aerial imagery of this particular region is limited but archive maps of areas subject to this assessment indicate a landscape which has been transformed over centuries by human activity relating to agriculture and human settlement. These sources indicate a relatively densely populated region heavily relying on historical agriculture and livestock farming. A careful analysis of historical aerial imagery and archive maps reveals the following (see Figure 5-80 - Figure 5-82):

- Areas subject to this assessment have been altered extensively by recent and historical farming, presumably during the 20th century.
- Man-made structures or Built Environment features occur in small clusters in the project are but notably at Mjanyana, Phillipsdale, Luqolweni and Mbanga by at least 1938.
- A smaller regional road existed along the current alignment of the Clarkebury Road subject to this assessment, bu at least 1938.
- Bridges and culverts along the Clarkebury Road seem to have been constructed in later years and they are not older than 60 years.

5.2 The Archaeological Site Survey

5.2.1 The Iron Age Farmer Period

- **Site EXIGO-MCRU-HP01**
  S31.85670719 E28.1725103

A frontier zone between the north and the south, the Eastern Cape landscape contains traces of precolonial Iron Age Farmer Period remnants. A large settlement area consisting out of elaborate stone walled enclosures was documented on the summit of a hill at Qulugu, at the site proposed for the road quarry. At the site, a series of circular stone wall enclosures of varying sizes occur across an area of approximately 4ha over much of the flat hilltop. The fairly well-preserved structures, which are in places overgrown with aloe and other shrubs, were built with round stones, in some instances to a height of more than 1.5m. Clear entrances are demarcated by monoliths at many of the enclosures, which were probably used as livestock "kraals". Ashy soil occurs in a central part of the site in association of a number of stone cairns which might be the remains of gran bin stands. A small stone cairn occurs along the more secluded southern periphery of the site on a high rise which provides a look-out point to the surrounding landscape and the Tora River below. No material culture was observed at the site and a clear temporal context for the structures is not known but it is likely that the stone walls date to the terminal phases the Iron Age farmer period in the area. This inference is made based on the fact that the stone enclosures are exclusively circular in shape whereas squarely built enclosures, commonly found in the surrounding landscape, would occur on newer Historical or Contemporary period sites. In addition, the site is situated away from current and historical settlement areas and homesteads and its general appearance do not resemble Historical period livestock enclosers in the surrounding landscape. Finally, many of the stones in the walls are covered with rock lichens along exposed surfaces with no growth evident on obstructed sides. Lichens are known to grow at a slow rate, particularly on exposed soil surfaces which in this instance, suggests an older date range for the stone walls. The site is thus an archaeological site of medium significance which is protected under the National Heritage Resource Act (NHRA 1999). As it is situated in an area demarcated as a stone quarry, impact on the site might occur and mitigation measure will apply.

Figure 5-1: View of circular stone wall enclosure at Site EXIGO-MCRU-IA01.

Figure 5-2: Stone walls on a high hill at Site EXIGO-MCRU-IA01.

Figure 5-3: Ashy soil and possible grain bin stand foundations at Site EXIGO-MCRU-IA01.

Figure 5-4: A small stone cairn at Site EXIGO-MCRU-IA01.

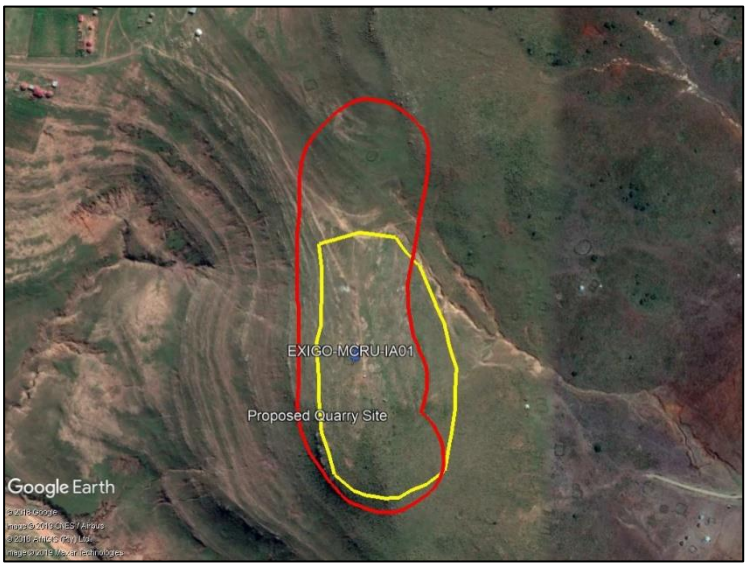

Figure 5-5: Site EXIGO-MCRU-IA01 and a required 20m conservation buffer (red line) in relation to the proposed quarry site (yellow line).

5.2.2 The Historical / Colonial Period

Clarkebury and its surroundings have a long and extensive Colonial Period settlement history. From around the first half of the 19th century, the area was frequented by explorers, missionaries and farmers who all contributed to a recent history of contact and conflict. The project area remained rural for the largest part of the previous centuries and a number of features, structures and buildings dating to different phases of the Historical Period were identified in close proximity of the road upgrade route and associated infrastructure proposed for the project.

- **Site EXIGO-MCRU-HP01**
  S31.81394155 E28.25887442

The dilapidated remains of a homestead, consisting out of the foundations of at least 3 huts as well as the partially intact walls of a stone wall enclosure were noted in the KuMbanga area along the road upgrade alignment. Material culture such as glass, metal and plastic occur at the site. An absolute age for the structures could not be ascertained but an analysis of historical aerial photographs indicates that the area

was relatively densely populated during the previous century. According to indications, the homesteads were in use by around 1938 and the structures are probably older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999). However, the features are poorly preserved and they are of medium-low significate but a permit for the destruction of the structures is required subject to the NHRA should these sites be impacted on by the proposed road upgrade project.

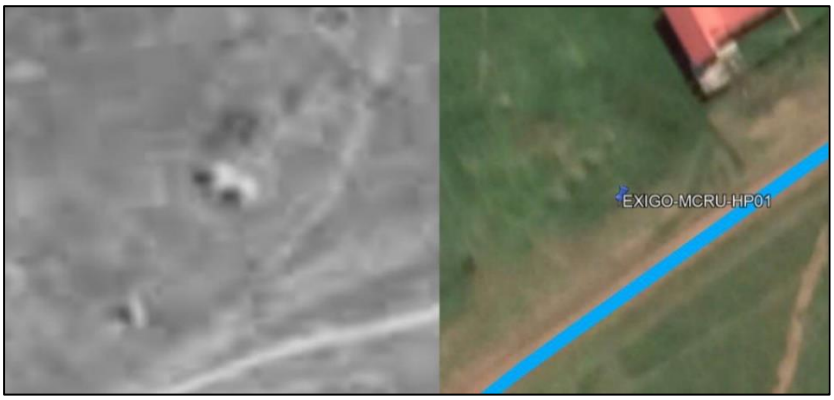

Figure 5-6: Site EXIGO-MCRU-HP01 indicated on an archive aerial image (1938, left) and current aerial imagery (right).

Figure 5-7: View of building foundation remains at Site EXIGO-MCRU-HP01.

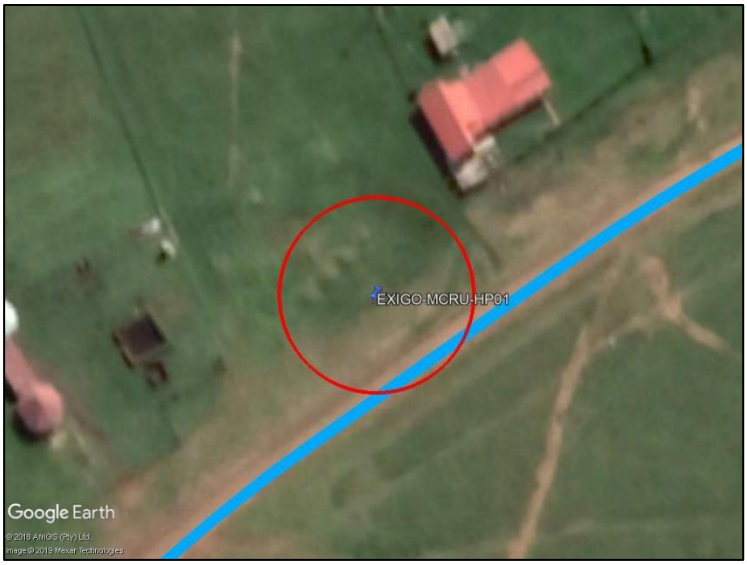

Figure 5-8: Site EXIGO-MCRU-HP01 and a required 20m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MPC-HP02**
  S31.81568859 E28.25641056

The remains of another homestead, consisting out of the foundations of at least 2 huts was noted in the KuMbanga area along the road upgrade alignment. Material culture such as glass, metal, plastic and a broken lower grindstone occur at the site. An absolute age for the site could not be ascertained but an analysis of historical aerial photographs indicates that the area was relatively densely populated during the previous century. According to indications, the homestead was in use by around 1938 and the structures are probably older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999). However, the features are poorly preserved and they are of medium-low significate but a permit for the destruction of the structures is required subject to the NHRA should these sites be impacted on by the proposed road upgrade project.

Figure 5-9: Site EXIGO-MCRU-HP02 indicated on an archive aerial image (1938, left) and current aerial imagery (right).

Figure 5-10: View of a hut foundation at Site EXIGO-MCRU-HP02.

Figure 5-11: View of a broken upper grindstone at Site EXIGO-MCRU-HP02.

Figure 5-12: Site EXIGO-MCRU-HP02 and a required 20m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MPC-HP03**
  S31.85729426 E28.17543467

A Historical Period homestead complex costing out of a single room building, hut remains as well as elaborate livestock enclosures occur in the Qulugu area direct east of the proposed quarry site. The square building was constructed out of mud brick with a pitched corrugated iron roof. The building is typical of Historical Period architecture of the rural areas in the Eastern Cape. In addition, a number of square stone wall enclosures occur around the dwelling. The site is visible on archive aerial photographs and it is older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999). However, the dwelling does not seem to hold any particular social or historical value and it is of medium-low heritage significance. A permit for the destruction of the structures is required subject to the NHRA should these sites be impacted on by the proposed road upgrade project.

Figure 5-13: Site EXIGO-MCRU-HP03 indicated on an archive aerial image (1938, right) and current aerial imagery (left).

Figure 5-14: View of a mud brick dwelling and hut remains (right) at Site EXIGO-MCRU-HP03.

Figure 5-15: View of stone walled livestock enclosures at Site EXIGO-MCRU-HP03.

Figure 5-16: View of stone walled livestock enclosures at Site EXIGO-MCRU-HP03.

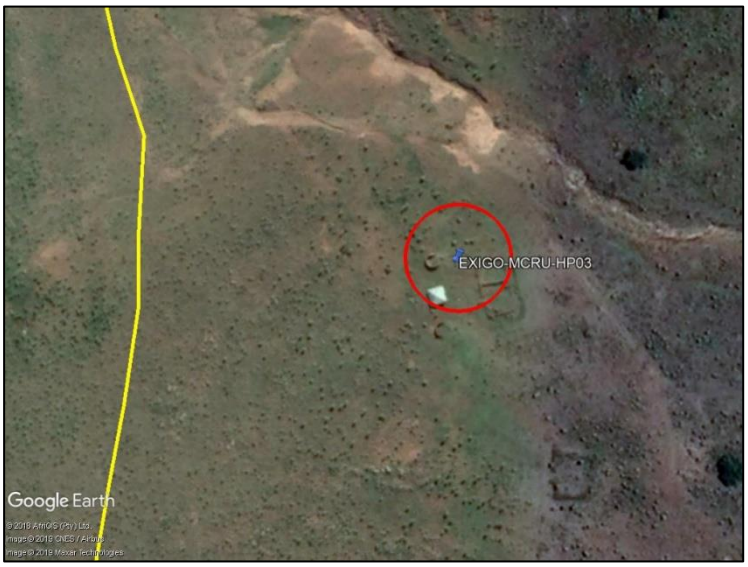

Figure 5-17: Site EXIGO-MCRU- HP03 and a required 20m conservation buffer (red line) in relation to the site proposed for the quarry (yellow line).

- **EXIGO-MPC-HP04**
  S31.82127002 E28.14448088

The remains of a compound of Historical Period multi room buildings occur along the road upgrade alignment in the Ntlakwevenkile area. Here, a large multi-room rectangular building once held the Phillipsdale Trading Store and the remains of a sandstone house and a mud brick building occur in its vicinity. An interesting feature at the site is the wall remains of a rondel structure, constructed out of skillfully shaped sandstone blocks. The building remains display typical Historical Period architectural features of the rural areas in the Eastern Cape. The site is visible on archive aerial photographs, it is older than 60 years and generally protected under the National Heritage Resource Act (NHRA 1999). Even though the buildings might afford a better understanding of architectural, settlement and social developments in the Clarkebury landscape, the site is dilapidated and poorly preserved, and it is rated as of medium-low heritage significance. A permit for the destruction of the structures is required subject to the NHRA should these sites be impacted on by the proposed road upgrade.

Figure 5-18: Site EXIGO-MCRU-HP04 indicated on an archive aerial image (1938, left) and current aerial imagery (right).

Figure 5-19: View of a sandstone building foundation at Site EXIGO-MCRU-HP04.

Figure 5-20: View of building remains remains at Site EXIGO-MCRU-HP04. Note the stone rondel in the middle background.

Figure 5-21: View of the remains of the Phillipsdale Trading Store at Site EXIGO-MCRU-HP04.

Figure 5-22: Site EXIGO-MCRU- HP04 and a required 20m conservation buffer (red line) in relation to the road alignment (blue line).

- **EXIGO-MPC-HP05**
  S31.83383022 E28.10709039

The Mjanyana Leper Asylum, now the Mjanyana Hospital, occurs along the road alignment to the west at Mjanyana. The site comprises leper accommodation, medical facilities, religious facilities, administration, workshops and staff accommodation. Most of the buildings at the extensive compound date to the end of the 19th century and the structures were carefully laid out along a street lined with flagstones. A stone-lined furrow for channeled water, tennis courts and social facilities, stables and cow sheds were all constructed in this historic environment. Mjanyana Hospital may only have been formally established as a Leper institution in 1893 but is history of association with Missionary activity dates to 1837, well before this time. The leper asylum once accommodated up to 4000 patients in blocks known colloquially as 'Leprosy' and 'Soweto'. Other notable dwellings on the hospital grounds include late Victorian period houses, a chapel, period specific wagon wagon sheds. The historic cultural landscape not only revolves around this specific precinct, but embraces the distant and spread out built environment that emanates from this. This landscape and the site are protected under the National Heritage Resource Act (NHRA 1999). The site affords a better understanding of architectural, settlement and social developments in the

Clarkebury landscape and it is of medium heritage significance. As such, careful mitigation measures subject to the NHRA will be required should the site be impacted in any way by the proposed road upgrade.

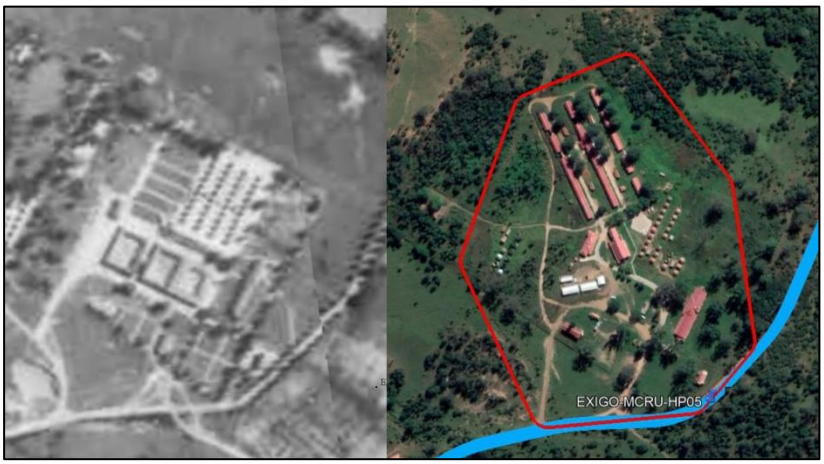

Figure 5-23: Site EXIGO-MCRU-HP05 (Mjanyana Leper Asylum and hospital) indicated on an archive aerial image (1938, left) and current aerial imagery (right).

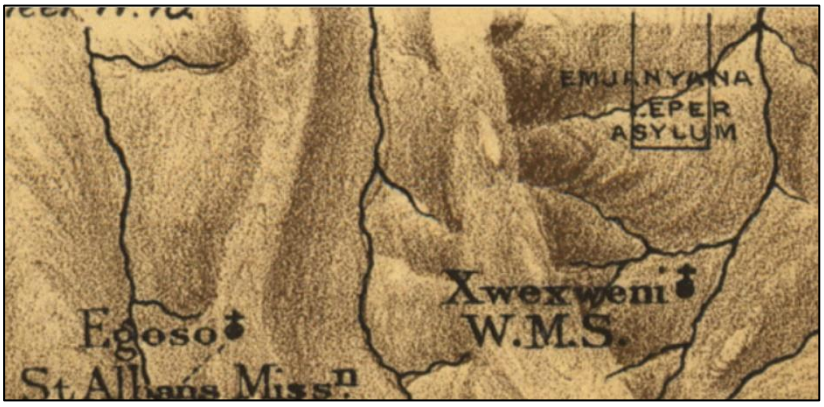

Figure 5-24: The Mjanyana Leper Asylum indicated on a historical map dating to 1905.

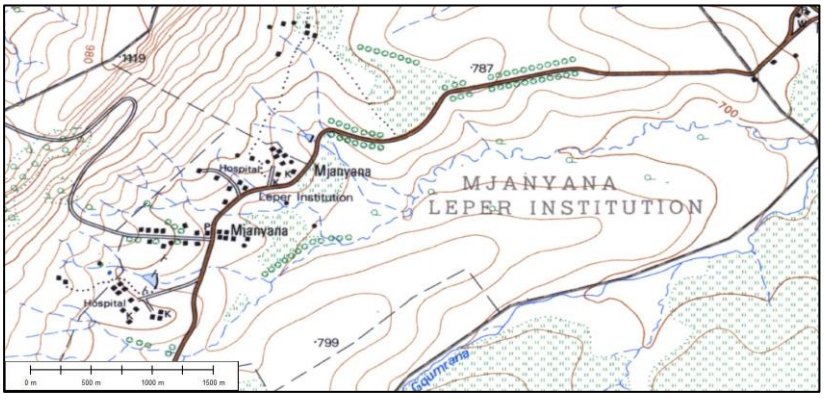

Figure 5-25: The Mjanyana Leper Asylum indicated on a historical map dating to 1964.

Figure 5-26: View of a small chapel at the Mjanyana Hospital.

Figure 5-27: View of a building at the Mjanyana Hospital complex.

Figure 5-28: Another dwelling at the Mjanyana Hospital complex.

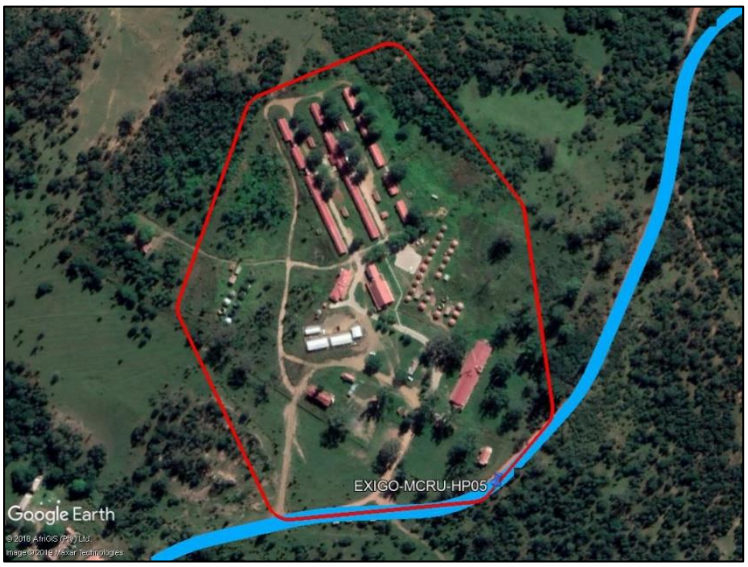

Figure 5-29: Site EXIGO-MCRU-HP05 (Mjanyana Hospital complex) and a required 20m conservation buffer (red line) in relation to the road alignment (blue line).

- **EXIGO-MPC-HP06**
  S31.85737087 E28.10360427

The remains of another compound of Historical Period multi room buildings occur near the south-western offset of the road upgrade alignment south of the Mjanyana area. Here, a large rectangular building once held the Lookout Trading Store and a well-preserved farm house structure, constructed out a plastered up brick, occur in its vicinity. The Lookout Trading Store building has been deserted and it is in a dilapidated state but the farm house is currently occupied. The building remains display typical Historical Period architectural features of the rural areas in the Eastern Cape. The site is visible on archive aerial photographs, it is older than 60 years and generally protected under the National Heritage Resource Act (NHRA 1999). The site and its buildings might afford a better understanding of architectural, settlement and social developments in the Clarkebury landscape and it is rated as of medium heritage significance. As such, careful mitigation measures subject to the NHRA will be required should the site be impacted in any way by the proposed road upgrade.

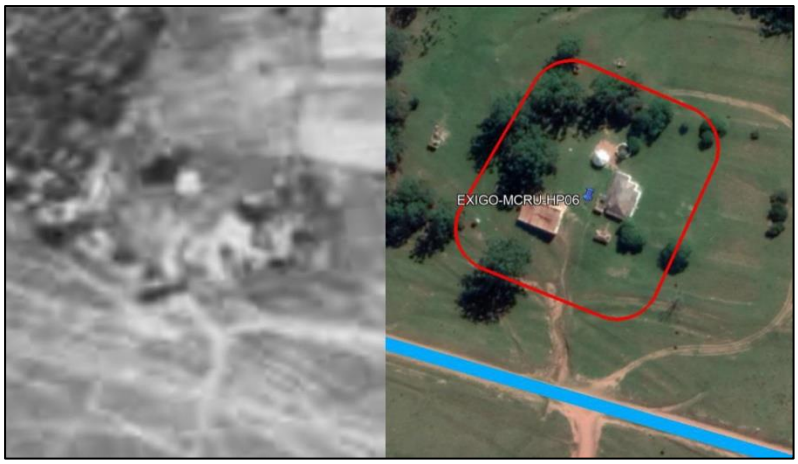

Figure 5-30: Site EXIGO-MCRU-HP06 (the Lookout Trading Store complex) indicated on an archive aerial image (1938, left) and current aerial imagery (right).

Figure 5-31: View of the Lookout Trading Store and a farmhouse behind it at Site EXIGO-MCRU-HP06.

Figure 5-32: The Lookout Trading Store complex and a required 20m conservation buffer (red line) in relation to the road alignment (blue line).

5.2.3 Burial Sites

At least 22 burial sites were identified in the MBSA Clarkebury Road Upgrade Project area. For the purposes of this impact assessment, the gravesites have been grouped into 4 categories; grave/s **within** the project impact zones, grave/s within a radius of **20m** of the project impact zones, grave/s within a radius of **50m** of the project impact zones and other burial sites of note.

a. Burial Sites within the Impact Zones

- **Site EXIGO-MCRU-BP12**
  S31.83082044 E28.19396672

A single grave occurs in an open field in the Luqolweni area directly north of the existing Clarkebury Road. According to local communities, the grave belongs to a member of the Mdaga family who passed away in 1964. The burial is indicated by a large stone cairn, the grave is not fenced off and preservation thereof is fair. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and if a conservation buffer of 20m cannot be maintained, the burial should be relocated according to the applicable social and statutory requirements.

Figure 5-56: View of the burial site at Site EXIGO-MCRU-BP12.

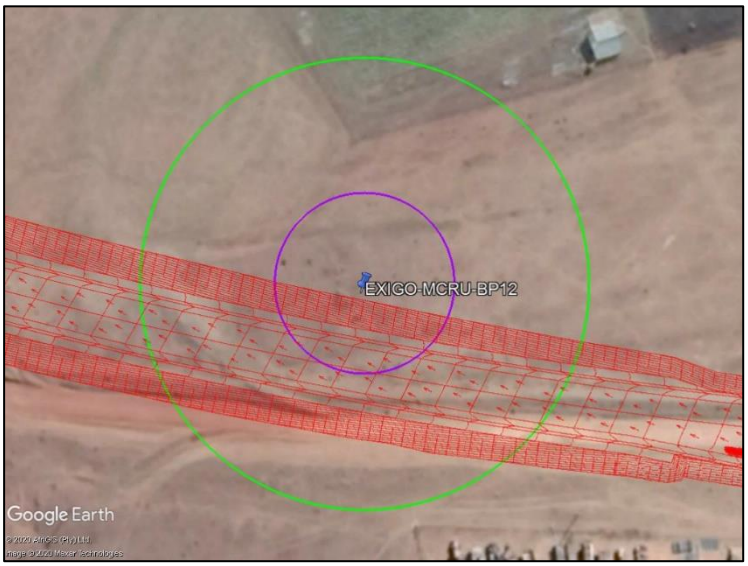

Figure 5-57: Site EXIGO-MCRU-BP12 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

b. Burial Sites within a 20m radius of the Impact Zones

- **Site EXIGO-MCRU-BP07**
  S31.83104139 E28.20592878

A large community cemetery containing an unknown number of graves occurs in the Ngqubusini area directly north of the existing Clarkebury Road. The majority of burials are indicated by elongated soil mounds and stone cairns which are covered in surface grass and stones. Some burials bear hand-carved headstones and a date of "1898" (?) were noted on one of the headstones. As such, it might be assumed that many of the burials in the cemetery date to the Historical Period. Material culture such as glass and enamel containers were noted in associated with some of the graves. The cemetery is not fenced off but the general condition of the graves is poor. The burial site is of high heritage significance, it is situated in close proximity vicinity of the proposed road upgrade route and a conservation buffer should be observed along with the implementation of strict monitoring protocols. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-45: View of the burial site at Site EXIGO-MCRU-BP07.

Figure 5-46: View of a hand-carved headstone at Site EXIGO-MCRU-BP07.

Figure 5-47: Site EXIGO-MCRU-BP07 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP10**
  S31.83130106 E28.19673141

Three graves occur in a crop open in the Luqolweni area directly south of the existing Clarkebury Road. One of the graves is dressed with a marble gravestone and the other burials are indicated by concrete and brick slabs and brick headstones. The graves are is not fenced off but they are generally well preserved. The burial site is of high heritage significance, it is situated in close proximity vicinity of the proposed road upgrade route and a conservation buffer should be observed along with the implementation of strict monitoring protocols. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-52: View of the burial site at Site EXIGO-MCRU-BP10.

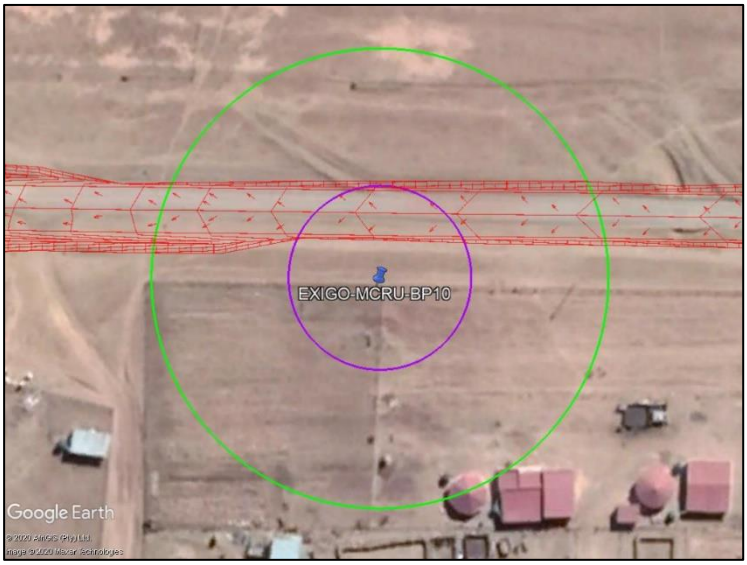

Figure 5-53: Site EXIGO-MCRU-BP10 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP11**
  S31.83133° E28.20640°

A single grave occurs directly south of the existing Clarkebury Road next to a homestead fence. The burial is indicated by an elongated stone cairn which is filled in with soil and an unmarked rough stone is placed on one side to indicate the burial. The grave is not fenced off and it is poorly preserved. The burial site is of high

heritage significance, it is situated in close proximity vicinity of the proposed road upgrade route and a conservation buffer should be observed along with the implementation of strict monitoring protocols. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-54: View of the burial site at Site EXIGO-MCRU-BP11.

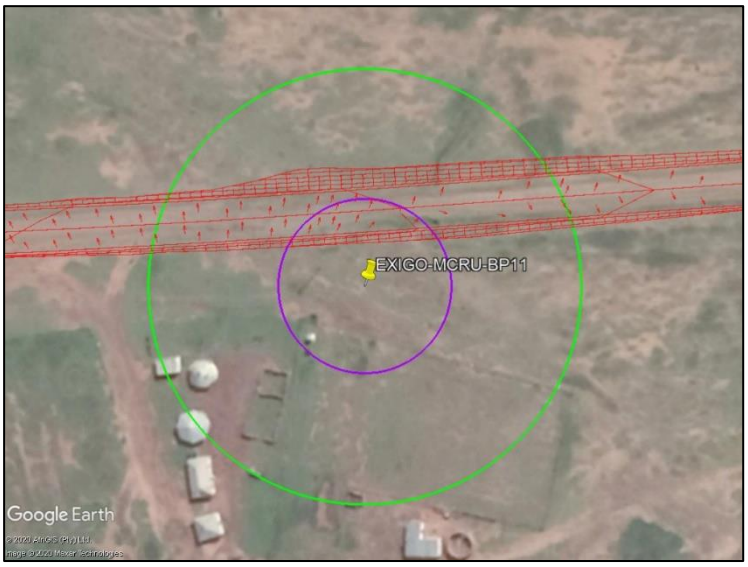

Figure 5-55: Site EXIGO-MCRU-BP11 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP19**
  S31.82522762 E28.16683399

A single grave occurs in an open field in the Ncityana area north of the existing Clarkebury Road. The burial is indicated by a brick structure with stone foundations and filled in with gavel. The grave is not fenced off but it remains in a goof state of preservation. The burial site is of high heritage significance, it is situated in close proximity vicinity of the proposed road upgrade route and a conservation buffer should be observed along with the implementation of strict monitoring protocols. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-70: View of the burial site at Site EXIGO-MCRU-BP19.

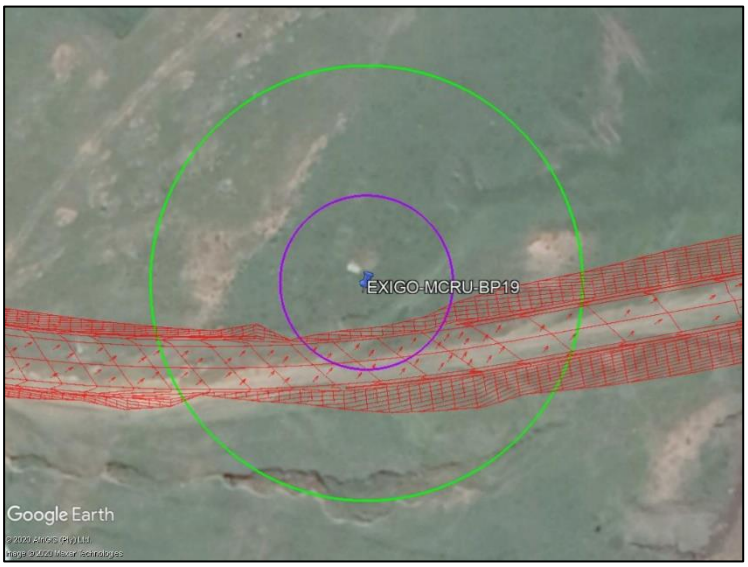

Figure 5-71: Site EXIGO-MCRU-BP19 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP20**
  S31.82546625 E28.16468672

Another single grave occurs in a crop field in the Ncityana area south of the existing Clarkebury Road. The burial is indicated by a brick structure which is filled in with gavel. The grave is not fenced off but it remains in a good state of preservation. The burial site is of high heritage significance, it is situated in close proximity vicinity of the proposed road upgrade route and a conservation buffer should be observed along with the implementation of strict monitoring protocols. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-72: View of the burial site at Site EXIGO-MCRU-BP20.

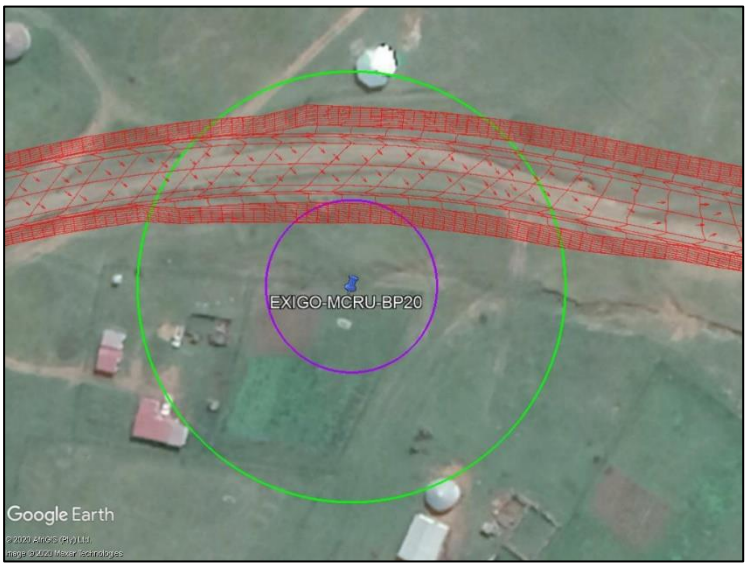

Figure 5-73: Site EXIGO-MCRU-BP20 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

c. Burial Sites within a 50m radius of the Impact Zones

- **Site EXIGO-MCRU-BP06**
  S31.83131129 E28.20779317

Three graves occur in an open field in the Ngqubusini area directly south of the existing Clarkebury Road. The burials are indicated by concrete and brick slabs and brick headstones. The graves are is not fenced off but they are generally well preserved. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-43: View of the burial site at Site EXIGO-MCRU-BP06.

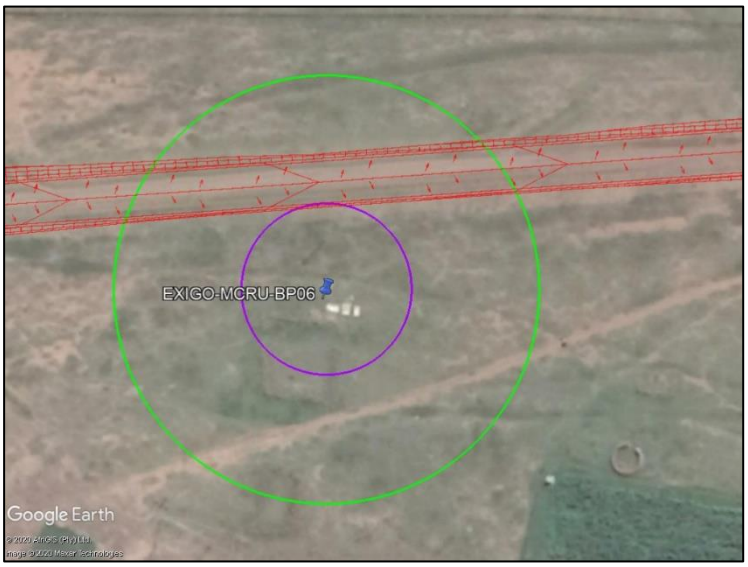

Figure 5-44: Site EXIGO-MCRU-BP06 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP13**
  S31.83006238 E28.18821673

A small cemetery containing at least 4 graves occurs in an open field in the Singeni area directly south of the existing Clarkebury Road. One of the burials is indicated by a brick and concrete dressing and the other graves are indicated by elongated soil and stone mounds which are covered in surface grass and stones. The graves are is not fenced off and they are not well preserved. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-58: View of the burial site at Site EXIGO-MCRU-BP13.

Figure 5-59: Site EXIGO-MCRU-BP13 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP21**
  S31.82476904 E28.16418841

At least 4 burials occur next to a homestead in the Ncityana area directly north of the existing Clarkebury Road. Two of the burials are indicated by brick structures which are filled in with gavel and the other graves are indicated with soil mounds and unmarked headstones. The graves are not fenced off but they remain in fair state of preservation. The burial site is of high heritage significance, it is situated in close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

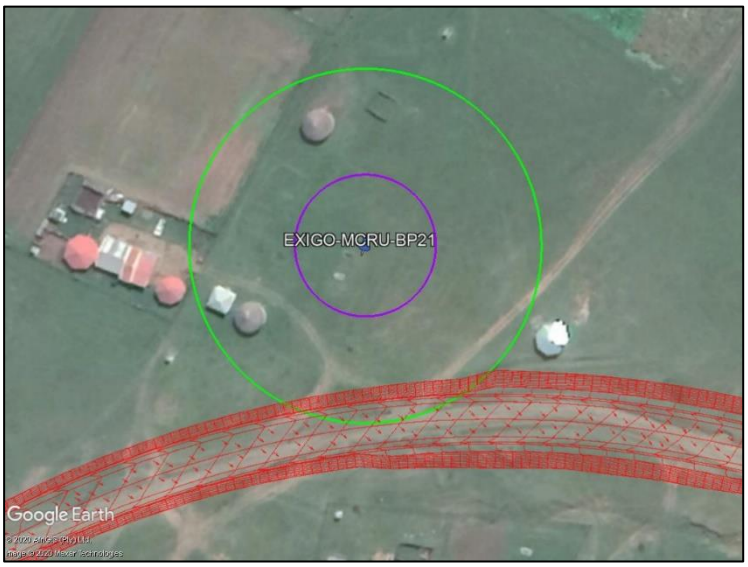

Figure 5-74: View of the burial site at Site EXIGO-MCRU-BP21.

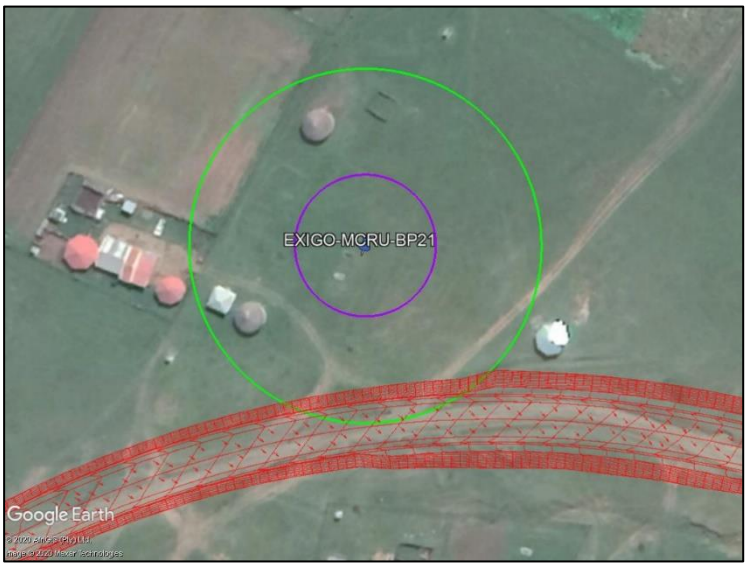

Figure 5-75: Site EXIGO-MCRU-BP21 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

- **Site EXIGO-MCRU-BP22**
  S31.82563347 E28.16154418

A possible single burial occurs in an open field in the Ncityana area directly north of the existing Clarkebury Road. The potential burial is indicated by an upright monolith which is not marked. The potential burial site is of high heritage significance, it is situated in close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-76: View of the burial site at Site EXIGO-MCRU-BP22.

Figure 5-77: Site EXIGO-MCRU-BP22 with 20m buffers (purple) and 50m buffer (green) indicated in relation to the road design (red lines).

d. Other Burial Sites

- **Site EXIGO-MCRU-BP01**
  S31.81053045 E28.26728205

A small cemetery containing at least 7 graves occurs in the KuMbanga area directly east of the DR08034-N2 road. The majority of burials are indicated by concrete and marble stone bases and marked marble headstones. Single graves are indicated by elongated soil mounds which are covered in surface grass and stones. Material culture such as glass and enamel containers were noted in associated with some of the graves. The cemetery is fenced off and the general condition of the graves is good. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-33: View of the burial site at Site EXIGO-MCRU-BP01.

Figure 5-34: Site EXIGO-MCRU-BP01 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP02**
  S31.82914272 E28.22976071

At least 8 graves occur in an open field in the Mtshayelweni area directly south of the existing Clarkebury Road. The burials are indicated by soil mounds and some graves bear unmarked rocks headstones. The site is not fenced and the graves are in a poor state of preservation. The burial site is of high heritage significance, it is situated in close proximity of proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-35: View of the burial site at Site EXIGO-MCRU-BP02.

Figure 5-36: Site EXIGO-MCRU-BP02 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP03**
  S31.8320924 E28.2143681

A small cemetery containing at least 7 graves occurs in the Ngqubusini area south of the existing Clarkebury Road. The majority of burials are indicated by concrete slabs and cement headstones. Single graves are indicated by elongated soil mounds which are covered in surface grass and stones. Material culture such as glass and enamel containers were noted in associated with some of the graves. The cemetery is not fenced off but the general condition of the graves is good. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-37: View of the burial site at Site EXIGO-MCRU-BP03.

Figure 5-38: Site EXIGO-MCRU-BP03 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP04**
  S31.83161421 E28.210496

Two graves occur within a homestead complex in the Ngqubusini area south of the existing Clarkebury Road. The burials are covered with brick and filled-in gravel grave dressings bearing cement headstones. The cemetery are fenced off but the general condition of the graves is good. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-39: View of the burial site at Site EXIGO-MCRU-BP04.

Figure 5-40: Site EXIGO-MCRU-BP04 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP05**
  S31.83147716 E28.21060061

A small cemetery containing at least 5 graves occurs next to a homestead in the Ngqubusini area south of the existing Clarkebury Road. The majority of burials are indicated by concrete slabs and marked marble headstones. Single graves are indicated by elongated soil mounds which are covered in surface grass and stones. Some of the graves are individually fenced off with cast iron fences and the general condition of the graves, which are partially obstructed by surface vegetation, is good. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-41: View of the burial site at Site EXIGO-MCRU-BP05.

Figure 5-42: Site EXIGO-MCRU-BP05 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP08**
  S31.83174471 E28.2003083

Two graves occur in an open field in the Luqolweni area south of the existing Clarkebury Road. The burials are indicated by concrete and brick slabs and brick headstones. The graves are is not fenced off but they are generally well preserved. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-48: View of the burial site at Site EXIGO-MCRU-BP08.

Figure 5-49: Site EXIGO-MCRU-BP08 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP09**
  S31.83069505 E28.19876184

A single grave occurs in an open field in the Luqolweni area directly north of the existing Clarkebury Road. The burial is indicated by a concrete and brick grave dressing with brick headstone. The grave is not fenced off but it is generally well preserved. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-50: View of the burial site at Site EXIGO-MCRU-BP09.

Figure 5-51: Site EXIGO-MCRU-BP09 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP14**
  S31.82999776 E28.18659274

At least four graves occur next to a crop field in the Singeni area directly south of the existing Clarkebury Road. The poorly visible burials are indicated by soil mounds and stone cairns. The graves are is not fenced off and they are not well preserved. The burial site is of high heritage significance, it is situated in the close proximity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-60: View of the burial site at Site EXIGO-MCRU-BP14.

Figure 5-61: Site EXIGO-MCRU-BP14 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP15**
  S31.85826246 E28.17301288

A possible burial site occurs on the summit of a hill at Qulugu, at the site proposed for the road quarry. The potential burial is indicated by an elongated stone cairn which is covered in surface grass and aloe. Material culture such as glass and enamel containers and serving bowls were observed where they were placed on the cairn. The secluded location of the potential grave coupled with its placement on the summit of a prominent hill might imply that the burial might have belonged to a high-status individual but it should be noted that local communities bear no knowledge of a burial site at this location (see Addendum 1). The potential burial is not fenced, it is of high heritage significance if indeed a human grave and a conservation buffer of 50m should be observed at all times. Alternatively, the possible burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-62: View of the potential burial site at Site EXIGO-MCRU-BP15.

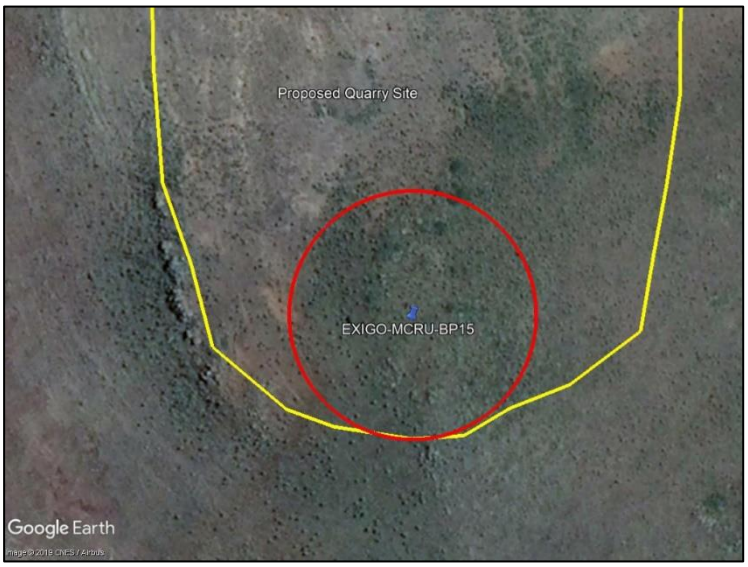

Figure 5-63: Site EXIGO-MCRU-BP15 and a required 50m conservation buffer (red line) in relation to the propose quarry site (yellow line).

- **Site EXIGO-MCRU-BP16**
  S31.82821468 E28.18039994

A small cemetery containing at least 6 graves occurs in an open field in the Singeni area south of the existing Clarkebury Road. One of the burials is indicated by a marble grave dressing and another is indicated with a brick and concrete structure. The other graves are indicated by elongated soil and stone mounds which are covered in surface grass and stones. The graves are not fenced off and they remain in a fair state of preservation. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-64: View of the burial site at Site EXIGO-MCRU-BP16.

Figure 5-65: Site EXIGO-MCRU-BP16 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP17**
  S31.82696854 E28.17915732

A single grave occurs next to a quarry in an open field in the Singeni area south of the existing Clarkebury Road. The burial is indicated by a brick structure which is filled in with gavel. A concrete headstone bears the name, birth date and date of passing (2011?) of the deceased. The grave is not fenced off but it remains in a goof state of preservation. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burial should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-66: View of the burial site at Site EXIGO-MCRU-BP17.

Figure 5-67: Site EXIGO-MCRU-BP17 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-BP18**
  S31.8268325 E28.17888835

Two graves occur near a small quarry in an open field in the Singeni area south of the existing Clarkebury Road. The burials are indicated by elongated soil and stone mounds which are covered in surface grass. The graves are not fenced off and they remain in a fair state of preservation. The burial site is of high heritage significance, it is situated in the general vicinity of the proposed road upgrade route and a conservation buffer of 50m should be observed. Alternatively, the burials should be relocated according to the applicable social and statutory requirements, should impact prove inevitable.

Figure 5-68: View of the burial site at Site EXIGO-MCRU-BP18.

Figure 5-69: Site EXIGO-MCRU-BP18 and a required 50m conservation buffer (red line) in relation to the road alignment (blue line).

5.2.4 Other Sites / Features

- **Site EXIGO-MCRU-FT01**
  S31.81167475 E28.26561422

A small enclosure consisting of wooden posts and a wire fence encloses a small tree at the eastern offset of the road upgrade alignment in the KuMbanga area. Even though the site is probably not of heritage importance, any social or cultural association to the feature should be considered and observed.

Figure 5-78: View of the fenced tree at Site EXIGO-MCRU-FT01.

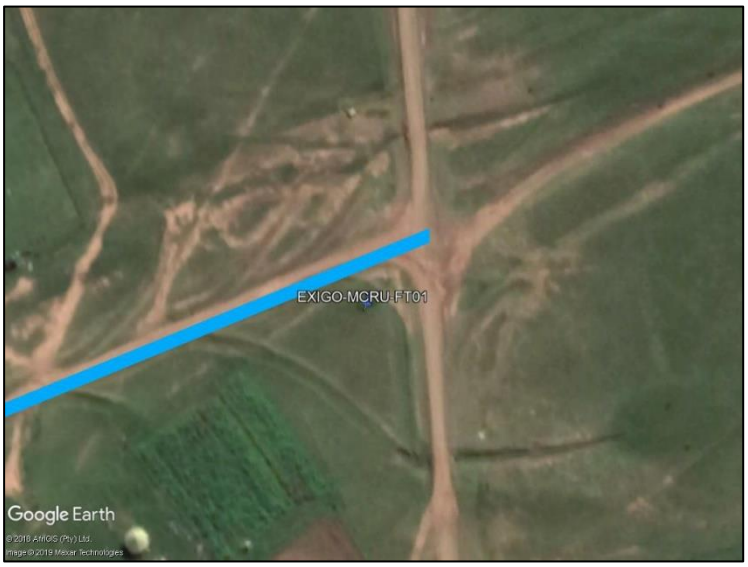

Figure 5-79: Site EXIGO-MCRU-FT01 in relation to the road alignment (blue line).

- **Site EXIGO-MCRU-FT02**
  S31.83099914 E28.19471204

Four large mounds were noted in an open field in the Luqolweni area directly north of the existing Clarkebury Road. Initially, these features were flagged as human burials but local communities indicated that horses were buried at the site. Apparently, the horses were killed by lightning where after they were buried under the mounds. Even though the site is not of heritage importance, cognizance should be taken of the fact that human burials do occur in the immediate landscape. Any social or cultural association to the feature should also be considered and observed.

Figure 5-80: View of the burial site at Site EXIGO-MCRU-FT02.

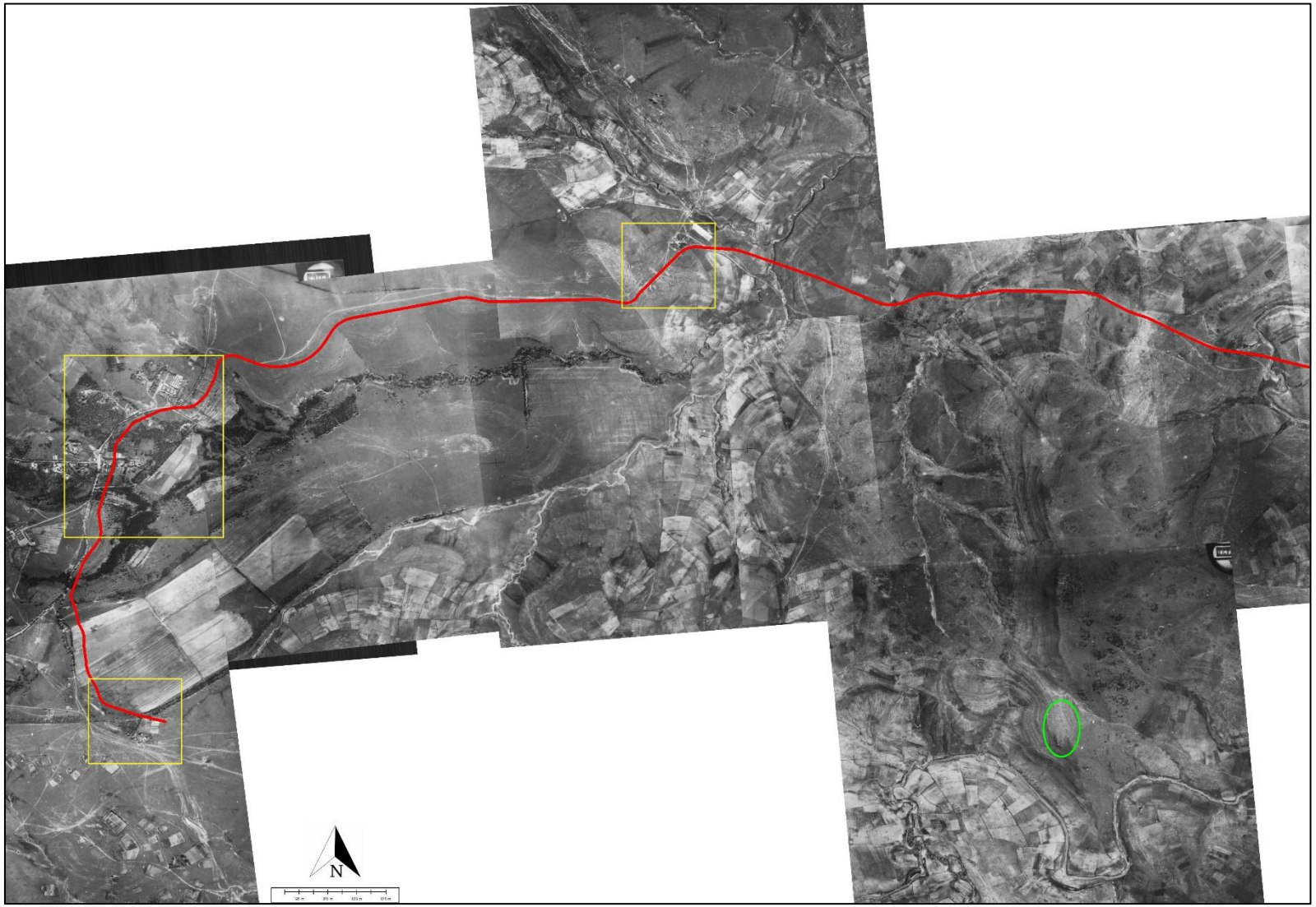

Figure 5-81: A historical aerial image dating to 1938 indicating the western portion of the project area (red line – road alignment and green circle – quarry) in the historical landscape. Note the presence of dense human occupation (yellow squares).

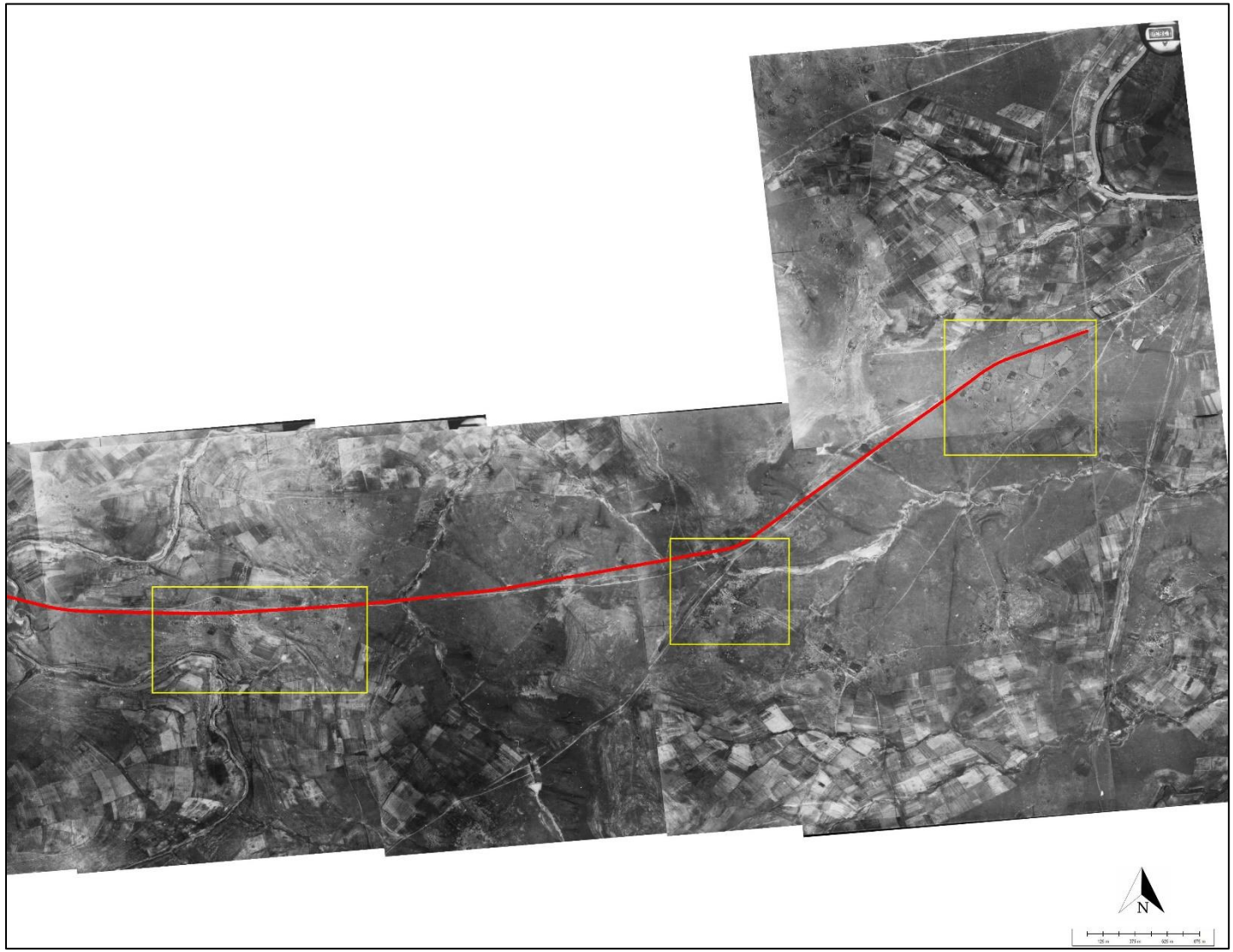

Figure 5-82: A historical aerial image dating to 1938 indicating the eastern portion of the project area (red line – road alignmen) in the historical landscape. Note the presence of dense human occupation (yellow squares).

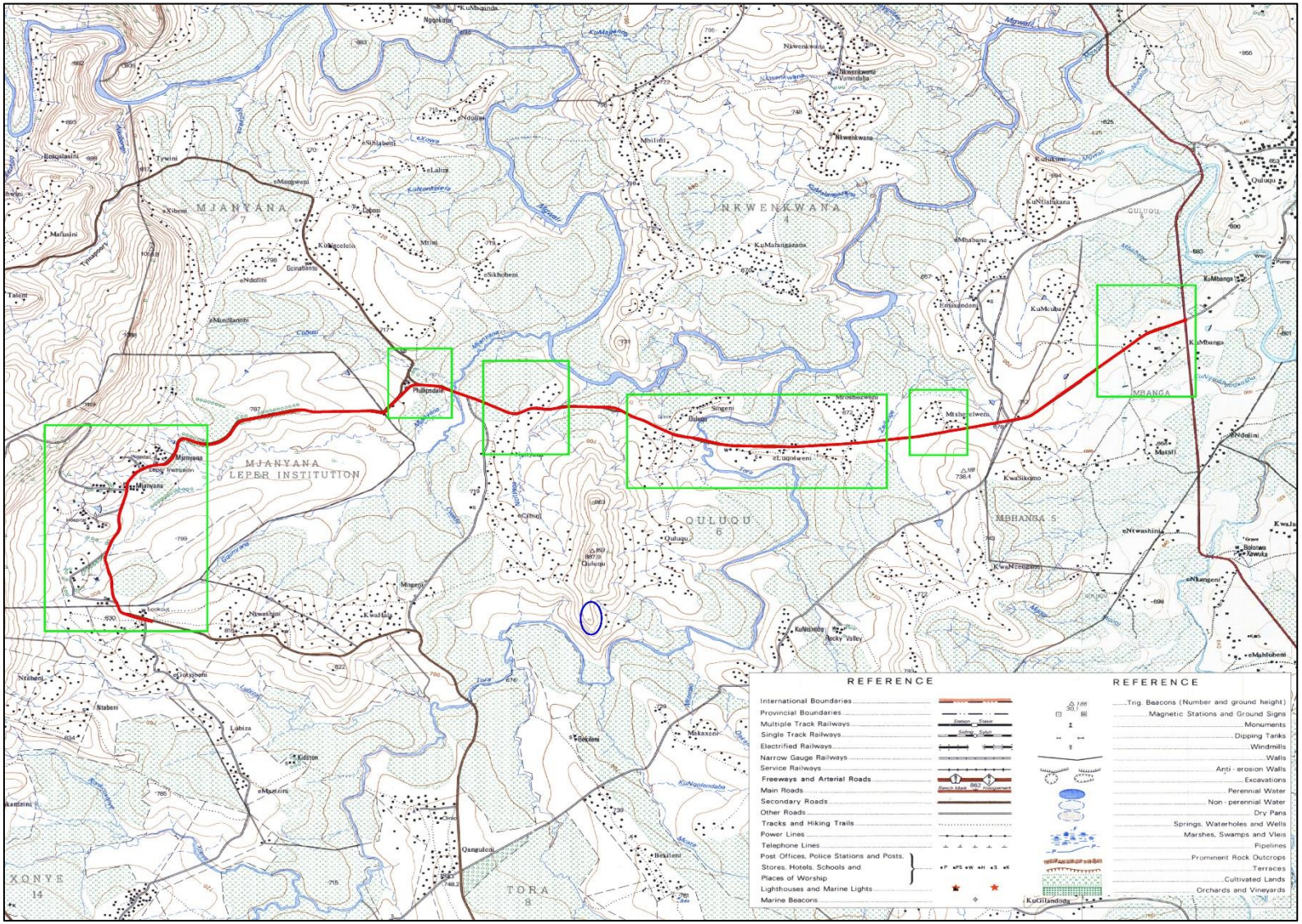

Figure 5-83: Historical topographic map of the project area dating to 1964. Areas of dense human occupation during the past 50 years are indicated by green squares.

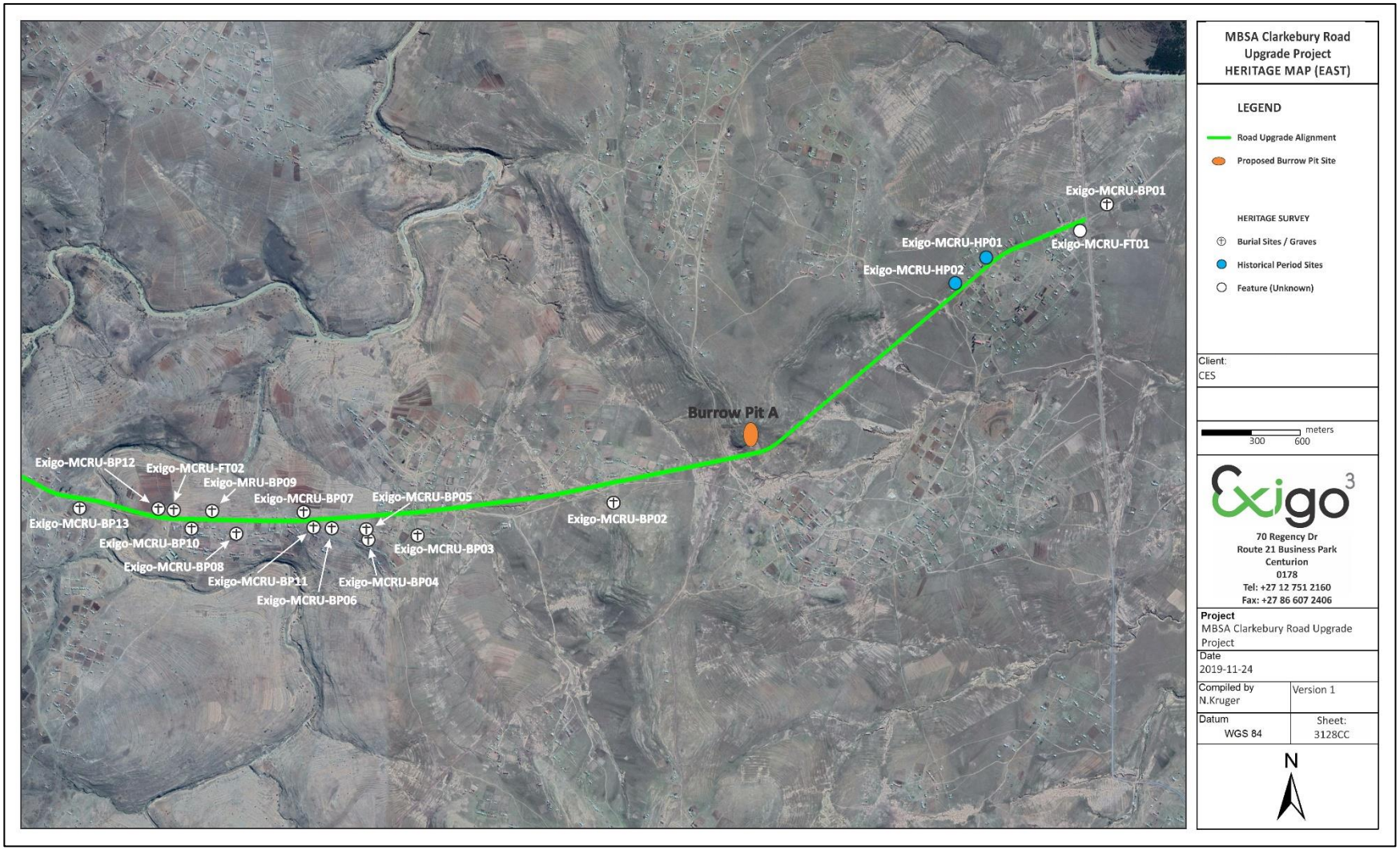

Figure 5-84: Aerial map indicting the location of heritage sites in the eastern project zone, discussed in the text.

Figure 5-85: Aerial map indicting the location of heritage sites in the western project zone, discussed in the text.

6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

6.1 Potential Impacts and Significance Ratings[2]

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, of 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). The significances of the impacts were determined through a synthesis of the criteria below:

Probability: This describes the likelihood of the impact actually occurring.	
Improbable:	The possibility of the impact occurring is very low, due to the circumstances, design or experience.
Probable:	There is a probability that the impact will occur to the extent that provision must be made therefore.
Highly Probable	It is most likely that the impact will occur at some stage of the development.
Definite:	The impact will take place regardless of any prevention plans, and there can only be relied on mitigatory actions or contingency plans to contain the effect.
Duration: The lifetime of the impact	
Short term:	The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
Medium term:	The impact will last up to the end of the phases, where after it will be negated.
Long term:	The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
Permanent:	Impact that will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

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

Scale: The physical and spatial size of the impact	
Local:	The impacted area extends only as far as the activity, e.g. footprint
Site:	The impact could affect the whole, or a measurable portion of the above mentioned properties.
Regional:	The impact could affect the area including the neighbouring residential areas.
Magnitude/ Severity: Does the impact destroy the environment, or alter its function.	
Low:	The impact alters the affected environment in such a way that natural processes are not affected.
Medium:	The affected environment is altered, but functions and processes continue in a modified way.
High:	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.	
Negligible:	The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
Low:	The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
Moderate:	The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
High:	The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The following weights were assigned to each attribute:

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	**Sum (Duration, Scale, Magnitude) x Probability**	
	Negligible	<20
	Low	<40
	Moderate	<60
	High	>60

The significance of each activity is rated without mitigation measures and with mitigation measures for both construction and operational phases of the development.

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

The following table summarizes impacts to the Iron Age site of **medium** significance located within the project areas:

- **Site EXIGO-MCRU-IA01**

NATURE OF IMPACT: Impacts could involve displacement or destruction of heritage structures or features in the project area.		
	Without mitigation	**With mitigation**
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Medium	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Avoidance, site monitoring by ECO. Phase 2 Analysis, Destruction Permitting.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to the possible Historical Period site of **medium-low** significance located within the project areas:

- **Site EXIGO-MCRU-HP01 - Site EXIGO-MCRU-HP04**

NATURE OF IMPACT: Impacts could involve displacement or destruction of structures or features in the proposed Project area.		
	Without mitigation	**With mitigation**
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Minor	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Medium-Low	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	

MITIGATION: Site monitoring by ECO, destruction permitting if and when required.
CUMULATIVE IMPACTS: No cumulative impact is anticipated.
RESIDUAL IMPACTS: n/a

The following table summarizes impacts to the Historical Period site of **medium** significance located within the project areas:

- **Site EXIGO-MCRU-HP05 & Site EXIGO-MCRU-HP06**

NATURE OF IMPACT: Impacts could involve displacement or destruction of heritage structures or features in the project area.		
	Without mitigation	**With mitigation**
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Probable	Negligible
SIGNIFICANCE	Medium	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	Yes	No
CAN IMPACTS BE MITIGATED?	N.A	
MITIGATION: Avoidance, site monitoring by ECO. Phase 2 Analysis, Destruction Permitting.		
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-MCRU-BP01 - Site EXIGO-MCRU-BP22**

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
MAGINITUDE	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 (fencing, access control), strict site monitoring by ECO, grave relocation.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

6.2 Evaluation Impacts

6.2.1 Discussion: Evaluation of Results and Impacts

Previous studies conducted in the larger Eastern Cape landscape around the project area suggest a rich and diverse archaeological landscape. The Clarkebury 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.

6.2.2 Archaeology

The study identified an Iron Age site of heritage significance which will be directly impacted by the proposed project (quarry) and mitigation measures will be required for this site.

6.2.3 Built Environment

A number of Historical Period structures and buildings relating to rural settlement and missionary expansion occur in the project area which holds varied significance in terms of the built environment. Impact on significant old buildings, structures or features in the direct project surrounds might occur and in these instances mitigation measures will be required for the sites.

6.2.4 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 Iron Age remains and a rich Colonial Period frontier which embraces a regional history, represented in a number of significant built environment feature. However, the proposed project is unlikely to result in a significant impact on the general cultural landscape of this area.

6.2.5 Graves / Human Burials Sites

A number of burial sites were located in the study area in close proximity of the road upgrade route and at the prosed project quarry site. 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 of significance occur within and in close proximity of the MBSA Clarkebury Road Upgrade Project zone and some of 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 MBSA Clarkebury Road Upgrade 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 resource 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: ensure conservation of heritage resources of significance, prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

For the Iron Age site of medium heritage significance within the project area the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-IA01**

PROJECT COMPONENT/S	All phases of construction and operation.	
POTENTIAL IMPACT	Damage/destruction of sites.	
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
MITIGATION: TARGET/OBJECTIVE	To conserve the historical fabric of the sites and to locate undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.	
MITIGATION: ACTION/CONTROL	**RESPONSIBILITY**	**TIMEFRAME**
Fixed Mitigation Procedure (**required**)		
Site Monitoring: Regular examination of trenches and excavations.	ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor as frequently as practically possible.
Preferred Mitigation Procedure		
Avoidance: Implement a heritage conservation buffer of at least 20m around the heritage resource, redesign the	DEVELOPER	All phases of construction and

proposed quarry site to avoid the heritage resource and the proposed conservation buffer.		operation.
Alterative Mitigation Procedure (**if preferred mitigation procedure is not feasible**)		
Documentation of sites if features are to be impacted on by development (mapping, desktop study Phase 2 site sampling). Permitting if and when required.	HERITAGE ASSESSMENT PRACTITIONER	Prior to the commencement of construction and earth-moving.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

For the Historical Period sites of low significance within the project area the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-HP01 - Site EXIGO-MCRU-HP04**

PROJECT COMPONENT/S	All phases of construction and operation.	
POTENTIAL IMPACT	Damage/destruction of sites.	
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
MITIGATION: TARGET/OBJECTIVE	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.	
MITIGATION: ACTION/CONTROL	**RESPONSIBILITY**	**TIMEFRAME**
Fixed Mitigation Procedure (**required**)		
Site Monitoring: Regular examination of trenches and excavations in order to detect and preserve previously undocumented heritage receptors.	ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor as frequently as practically possible. Prior to the commencement of construction and earth-moving.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

For the Historical Period structure of medium heritage significance within the project area the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-HP05, Site EXIGO-MCRU-HP06**

PROJECT COMPONENT/S	All phases of construction and operation.
POTENTIAL IMPACT	Damage/destruction of sites.
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.
MITIGATION: TARGET/OBJECTIVE	To conserve the historical fabric of the sites and to locate undetected heritage remains as soon as possible after disturbance so as to maximize

	the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL		**RESPONSIBILITY**	**TIMEFRAME**
Fixed Mitigation Procedure (**required**)			
Site Monitoring: Regular examination of trenches and excavations.		ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor as frequently as practically possible.
Preferred Mitigation Procedure			
Avoidance: Implement a heritage conservation buffer of at least 20m around the heritage resource, redesign the proposed road alignment to avoid the heritage resource and the proposed conservation buffer.		DEVELOPER	All phases of construction and operation.
Alterative Mitigation Procedure (**if preferred mitigation procedure is not feasible**)			
Documentation of sites if features are to be impacted on by development (mapping, desktop study Phase 2 site sampling). Permitting if and when required.		HERITAGE ASSESSMENT PRACTITIONER	Prior to the commencement of construction and earth-moving.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

For the highly significant burial site occurring within the project area the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-BP12**

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			
Grave Relocation: Relocation of burial 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 HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (**required**)			
Site Monitoring: Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains.		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.

For the highly significant burial sites occurring less than 20m from impact areas the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-BP07, Site EXIGO-MCRU-BP10, Site EXIGO-MCRU-BP11, Site EXIGO-MCRU-BP19, Site EXIGO-MCRU-BP20**

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 3m, erection of a temporary construction barricade along areas where construction might encroach. Sites should be fenced and access control should be applied. A site management plan detailing strict site management conservation measures should be compiled for the grave sites.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Alterative 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 HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (**required**)		
Site Monitoring: The following monitoring protocols should be implemented: - Initial site clearance and earth moving at the sites or within 50m radiuses of the sites: Daily monitoring by the heritage specialist. - Construction at the sites or within 50m radiuses of the sites: Weekly monitoring by heritage specialist / informed ECO - Monthly monitoring of the site for the duration of project activities at the sites or within 50m radiuses of the sites in order to ensure continued conservation, by an informed ECO. Regular examination of trenches and excavations in this	ECO	Monitor as frequently as practically possible.

area in order to avoid the destruction of previously undetected burials or heritage remains.		
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

For the highly significant burial sites occurring less than 20m from impact areas the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-BP06, Site EXIGO-MCRU-BP13, Site EXIGO-MCRU-BP21, Site EXIGO-MCRU-BP22**

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 20m. Sites should be fenced and access control should be applied. A site management plan detailing strict site management conservation measures should be compiled for the grave sites.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Alterative 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 HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (**required**)		
Site Monitoring: Bi-weekly monitoring by heritage specialist / informed ECO should be implemented. Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains.	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.	

For the highly significant burial sites occurring within the larger project landscape the following are required in terms of heritage management and mitigation:

- **Site EXIGO-MCRU-BP01, Site EXIGO-MCRU-BP02, Site EXIGO-MCRU-BP03, Site EXIGO-MCRU-BP04, Site EXIGO-MCRU-BP05, Site EXIGO-MCRU-BP08, Site EXIGO-MCRU-BP09, Site EXIGO-**

MCRU-BP14, Site EXIGO-MCRU-BP15, Site EXIGO-MCRU-BP16, Site EXIGO-MCRU-BP17, Site EXIGO-MCRU-BP18

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 50m.		DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (**required**)			
Site Monitoring: Frequent monitoring of the site for the duration of project activities by an informed ECO. Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains.		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 Clarkebury area is rich in pre-historical and historical remnants since the area is highly suitable for pre-colonial habitation. The proposed MBSA Clarkebury Road Upgrade 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 MBSA Clarkebury Road Upgrade 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 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 Historical Period homesteads and dwellings (**Site EXIGO-MCRU-HP01 - Site EXIGO-MCRU-HP03**) and the poorly preserved Phillipsdale Trading Post compound are of medium-low significance due to the poor state of preservation of the sites. The sites occur in close proximity of the project area and it is recommended that the necessary destruction permits be obtained from the relevant Heritage Resources Authorities prior to site impact and destruction. Generally, the sites should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains and potential human burials.
- An extensive later Iron Age Farmer Period stone walled complex (**Site EXIGO-MCRU-IA01)** have the potential to inform on the spread of Iron Age communities in the interior of the Eastern Cape and the site is of medium heritage significance. The complex occurs at the site proposed for the quarry and it is primarily recommended that an alternative site for the quarry be identified to avoid impact on the heritage resource. A conservation buffer of at least 20m around the site should be implemented and the area should be monitored on a frequent basis by an informed ECO in order to avoid the destruction of existing and previously undetected heritage remains. Should impact on the site prove inevitable it should be adequately documented by means of a Phase 2 Specialist Study. Such a study should minimally include the mapping, documentation and possible sampling of the site in order to conserve the historical fabric of the heritage resource. The necessary alteration and/or destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction.
- The Historically significant Mjanyana Hospital (**Site EXIGO-MCRU-HP05**) and the old Lookout Trading Post compound (**Site EXIGO-MCRU-HP06)** have the potential to inform on architectural, settlement and social developments in the larger Clarkebury landscape and the sites are of medium heritage significance. These compounds occur in close proximity of the road upgrade alignment and it is primarily recommended that the proposed road upgrade footprint be adjusted to avoid the resources and that a conservation buffer of at least 20m around the sites be implemented. However, should impact on any component of the sites prove inevitable, affected components should be adequately documented by means of a Phase 2 Specialist Study. Such a study should minimally include the mapping, documentation and possible sampling of the sites in order to conserve the historical fabric of the heritage resources. The necessary alteration and/or destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction. Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.

- Graves and burials identified within and in close proximity of the road upgrade, and within the proposed quarry site route are of high significance and these sites require specific mitigation measures. As such, for **Site EXIGO-MCRU-BP12** occurring within the project area it is recommended that the burial be relocated by a qualified archaeologist 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). For burial sites occurring less than 10m from impact areas (**Site EXIGO-MCRU-BP07, Site EXIGO-MCRU-BP10, Site EXIGO-MCRU-BP11, Site EXIGO-MCRU-BP19, Site EXIGO-MCRU-BP20**) the implementation of a heritage conservation buffer of at least 3m and the erection of a temporary construction barricade along areas where construction might encroach is recommended. Note that this recommended relaxation of the standard 50m buffer for burials in closed proximity of the alignment is subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. The burials should be individually fenced where a fence of at least 1.5m should be erected no closer than 1m from the grave dressing feature. The fence should have an access gate with clear signage to indicate the heritage sensitivity status of the site. Site access should be implemented and arranged with relatives associated with the burials. A site management plan detailing strict site management conservation measures should be compiled for the grave sites. It is essential that the following monitoring protocols should be implemented in order to detect any impact on the resource at the earliest opportunity:
    - Initial site clearance and earth moving at the sites or within 50m radiuses of the sites: Daily monitoring by the heritage specialist.
    - Construction at the sites or within 50m radiuses of the sites: Weekly monitoring by heritage specialist / informed ECO.
    - Monthly monitoring of the site for the duration of project activities at the sites or within 50m radiuses of the sites in order to ensure continued conservation, by an informed ECO.
- For burial sites occurring less than 50m from impact areas (**Site EXIGO-MCRU-BP06, Site EXIGO-MCRU-BP13, Site EXIGO-MCRU-BP21, Site EXIGO-MCRU-BP22**) the implementation of a heritage conservation buffer of at least 20m is recommended subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. The burials should be individually fenced where a fence of at least 1.5m should be erected no closer than 1m from the grave dressing feature. The fence should have an access gate with clear signage to indicate the heritage sensitivity status of the site. Site access should be implemented and arranged with relatives associated with the burials. A site management plan detailing strict site management conservation measures should be compiled for the grave sites. It is essential that sites be monitored on a weekly basis by the heritage specialist / informed ECO in order to detect any impact on the resource at the earliest opportunity.
- For burial sites occurring within the larger project landscape (**Site EXIGO-MCRU-BP01, Site EXIGO-MCRU-BP02, Site EXIGO-MCRU-BP03, Site EXIGO-MCRU-BP04, Site EXIGO-MCRU-BP05, Site EXIGO-MCRU-BP08, Site EXIGO-MCRU-BP09, Site EXIGO-MCRU-BP14, Site EXIGO-MCRU-BP15, Site EXIGO-MCRU-BP16, Site EXIGO-MCRU-BP17, Site EXIGO-MCRU-BP18**) the implementation of a heritage conservation buffer of at least 50m is recommended subject to approval by the SAHRA Burial Grounds and Graves (BGG) Unit. It is essential that sites be monitored on a monthly basis by the heritage specialist / informed ECO in order to detect any impact on the resource at the earliest opportunity.
- The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery in order to detect and manage negative impact on the sites. 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 landscape of the proposed MBSA Clarkebury Road Upgrade Projectarea. 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, during construction, 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.

If such sites 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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Accessed 2019-08-20

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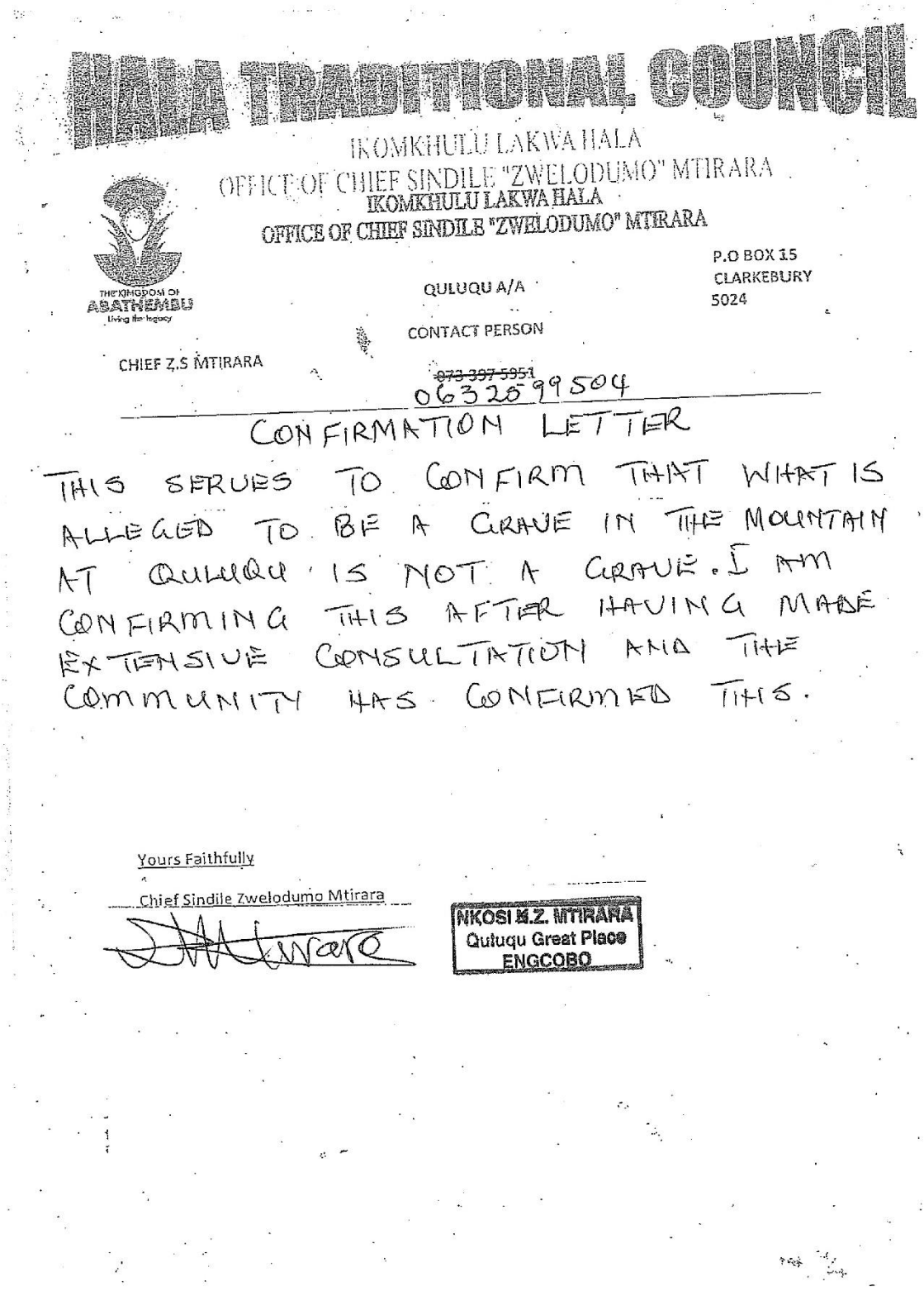
10 ADDENDUM 1: COMMUNITY LIASION



HALA TRADITIONAL COUNCIL

IKOMKHULU LAKWA HALA

OFFICE OF CHIEF SINDILE "ZWELODUMO" MTIRARA

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5024

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CHIEF Z.S MTIRARA

~~073 397 5951~~
0632099504

CONFIRMATION LETTER

THIS SERVES TO CONFIRM THAT WHAT IS ALLEGED TO BE A GRAVE IN THE MOUNTAIN AT QULUQU IS NOT A GRAVE. I AM CONFIRMING THIS AFTER HAVING MADE EXTENSIVE CONSULTATION AND THE COMMUNITY HAS CONFIRMED THIS.

Yours Faithfully

Chief Sindile Zwelodumo Mtirara

NKOSI M.Z. MTIRARA
Quluqu Great Place
ENGCOBO

11 ADDENDUM 2: HERITAGE LEGISLATION BACKGROUND

11.1 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.

11.1.1 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.

e. 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)."

f. 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.

11.1.2 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 m^2 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 m^2 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.

11.2 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, auguring), 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 reinternment [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.

A fundamental aspect in assessing the significance and protection status of a heritage resource is often

whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information, which would otherwise be lost.

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 it 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. site-specific, 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

	TYPE OF DEVELOPMENT			
HERITAGE CONTEXT	**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
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 **Context 2:** Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources. **Context 3:**	**Category A: Minimal intensity development** - 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. **Category B: Low-key intensity development** - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m

Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources **Context 4:** Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.	- Building footprints between 1000m2-2000m2 - 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%). **Category C: Moderate intensity development** - 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%) **Category D: High intensity development** - 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%)

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.

No further action / Monitoring

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.

Avoidance

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.

Mitigation

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.

Compensation

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.

Rehabilitation

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:

- 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.

Enhancement