

PHASE 1
ARCHAEOLOGICAL IMPACT ASSESSMENT

**RELATING TO THE PROPOSED CRADLE VIEW MIXED DEVELOPMENT IN MUNSEVILLE IN
KRUGERSDORP WITHIN THE
MOGALE CITY MUNICIPALITY,
GAUTENG PROVINCE**



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EXECUTIVE SUMMARY

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

Note: This report follows minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA and South African Provincial Heritage Authorities) for compiling a Phase 1 Archaeological Impact Assessment (AIA).

Site name and location: The proposed cradle view (Munsieville) mixed development project is located northwest of the city of Krugersdorp. The site lies in proximity to the Protea Ridge to the north, Dan Pienaarville and Rant en Dal to the east, a cemetery to the east, and suburbs of Munsieville to the west and south. The R563 (Van Riebeeck Road) lies on the eastern border of the site and links Mogale City with The Cradle of Humankind World Heritage Site, as well as towns like Hekpoort and Magaliesburg.

Local Authority: Mogale City Municipality

Date of field work: 27 May 2015

Date of report: 1 June 2015

Results of potential direct and indirect impacts of the proposed development on the attributes that convey Outstanding Universal Value (OUV).

Mansienville site is located north west of Krugersdorp. The study area span across 25 hecters of land previously subdivided into agricultural farm holdings adjacent to Strekfontein psychiatric hospital. A multi-stepped methodology was used to address the terms of reference. To begin with, a robust desktop study was carried out to understand the framework for managing and accessing impact near World Heritage Sites. This included consulting the 1972 Convention, the operational guidelines of 2013, the ICOMOS (2011) guidelines on assessing impact on Heritage sites. The IUCN guidelines and standards of best practice were also consulted. Subsequently, a review of the archaeology of the area was carried out using contract archaeology reports, research reports and academic publications. Desktop studies were followed by fieldwork carried out by an archaeologists and heritage specialist in conformity with the National Heritage Resources Act, Act 25 of 1999. Based on an interdisciplinary methodology, that combined ICOMOS methodology with several techniques from various disciplines, the impact of the proposed mixed development was considered. The following conclusions were reached:

1. The proposed development is scheduled to take place approximately 11kilometers south of the paleontologically and archaeologically rich sites of Kromdraai and Plover's Lake where significant fossils and tools were recovered. It is important to understand the historical relationship between the upgrade and the World Heritage site. Kromdraai and Plover's Lake are located on private property 11kilometres further north of the proposed development and will not be accessible by residence who will be residing within the proposed development or impacted by the proposed development. The Proposed area was previously agricultural farmland, currently used as garbage dumping site by nearby residents.
2. The proposed development is topographically higher than the area where fossils were recovered and approximately 150m outside the World Heritage site buffer zones. The proposed area is surrounded by buildup areas with Sterkfontein hospital to the north and Munsieville Township on the west and south. Ecologically, it is not yet known if rare grasses and natural vegetation that exist on the rocky outcrops are threatened (see ecological report for details).
3. The proposed mixed development will take place on an already disturbed area. A historical building (baked red tiles scotched roof) along Helena Street and building foundations, dried *eucalyptus and pine trees* stumps has been noted.

This study identified a single historical building and associated infrastructure. This structure constitute the cultural landscape of the study area. Though there are no available written documents on the building synthesis, architectural style and design show some elements associated with the early 1930-1940s and could be associated with the birth of Sterkfontein hospital in the early 1940s or early period (this time period is referred to as remains of the 19th Century). These remains are older than sixty years and therefore qualify as historical remains. Historical buildings and associated infrastructures are significant for their “ object” value, design and building style and they relate to a certain period associated with group or sub cultural group of the community and environment in which they occur. Historical remains are protected by section 35 of the National Heritage Resources Act (No. 25 of 1999). These buildings may not be affected (demolished, altered, renovated or removed) before the Provincial Heritage Resources Authority-Gauteng or South African Heritage Resources Agency (SAHRA) has approved such alterations.

Recommendations

The proposed development designers of the Cradle View mixed development should be strategic to incorporate the identified historical building in their design layout. All new activities (Engineering aspects such as streets, water, and sewage and electricity lines) should be designed to accommodate the building. The proposed development will also minimize waste disposal activities in the vicinity. It is strongly recommended that the proposed development should be demarcated on existing disturbed or in adjacent to degraded areas and thus should be in accordance with the Environmental Management Plan (EMP).

Should the above become unavoidable, an application should be lodged with the Provincial Heritage Resources Authority- Gauteng for the intention to destruct the historical house, before the destruction permit is issued, a Historical Structure Report should be produced and approved by heritage authority, this process is time consuming as well as cost effective. Similar process also applies should the developer wish to renovate, repair historical building in order to fulfill their needs, this should be done on condition that:

1. Historical building need to be recorded prior to any renovation, alterations or extension or destruction: recording implies (I) photographic recording of each building with caption in standard architectural terminology (II) measure drawings of each building's floor plan, elevation, section and architectural detailing to an appropriate scale (usually 1:100cm scale) and (III) a compilation of all recordings in a single historical structure report with Preservations Management Plan.
2. Preparation of the above mentioned documents in a format that can be submitted to Provisional Heritage Resource Authority Gauteng (PHRAG) or South African Heritage Resources Agency (SAHRA) for approval, as well as to any official repository (Archive, Library or Museum)
3. The architectural vocabulary of the original buildings must be retained and respected. The height of these building should be retained and respected.
4. In case where new buildings are sited clearing of planted vegetation should be done in sympathy to the original planted vegetation.

Should the above mentioned recommendations be viable to the developer there are no objections to the proposed project and we recommend to the Provincial Heritage Resources- Gauteng or South African Heritage Resource Agency to approve the project as planned.

ACKNOWLEDGEMENTS:

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PROFESSIONAL DECLARATION

I, the undersigned Mr. Ndivhuho Eric Mathoho hereby declare that I am a Professional archaeologist accredited with the Association for South African Professional Archaeologists (ASAPA) and that Vhufashu Heritage Consultants is an independent Consultants with no association or with no any other interest what so ever with any institution, organization, or whatever and that the remuneration earned from consulting work constitute the basis of company livelihood and income.

Mr. Mathoho Ndivhuho Eric



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Archaeologists and Heritage Consultants for Vhufashu Heritage Consultants
ASAPA Members

TABLE OF CONTENTS

CONTENT	PAGE
EXECUTIVE SUMMARY.....	2
ACKNOWLEDGEMENTS:.....	6
CONSULTANTS: VHUFHASHU HERITAGE CONSULTANTS.....	6
PROFESSIONAL DECLARATION	7
DEFINITIONS.....	11
1.INTRODUCTION.....	12
2. RELEVANT LEGISLATION.....	13
2.1. THE NATIONAL HERITAGE RESOURCE ACT (25 OF 1999).....	13
2.2. THE HUMAN TISSUE ACT (65 OF 1983).....	15
3.TERMS OF REFERENCE.....	15
4.TERMINOLOGY	16
5. METHODOLOGY.....	17
SOURCE OF INFORMATION.....	17
ASSUMPTION AND LIMITATIONS.....	17
6. ASSESSMENTS CRITERIA.....	17
6.1 SITE SIGNIFICANCE	18
6.2 IMPACT RATING	19
6.3 CERTAINTY.....	20
6.4 DURATION	20
6.5 MITIGATION	20
7. DESKTOP STUDY	20
7.1 .STONE AGE (ESA, MSA AND LSA)	23
7.2. IRON AGE / FIRST-FARMING COMMUNITIES.....	24
7.3. HISTORICAL / COLONIAL PERIOD.....	25
7.4. ORIGIN OF KRUGERSDROP.....	26

PAARDEKRAAL MONUMENT	27
CONCENTRATION CAMPS.....	29
8. SITE LOCATION AND PROJECT DESCRIPTION	30
9. ASSESSMENT OF SITES AND FINDS.....	33
10. CONCLUSION AND RECOMMENDATIONS	35
11. TOPOGRAPHICAL MAP	37
12. REFERENCE	38

LIST OF FIGURES

FIGURE 1: VIEW OF THE PROPOSED SITE INDICATED BY A STAR IN RELATION TO THE WORLD HERITAGE SITES BUFFER ZONES AND SOME OF THE PROMINENT FOSSIL SITES SUCH AS KROMDRAAI AND STREKFORTEIN. 31

FIGURE 2. VIEW OF THE COHWHS BORDERS AS PROVIDED TO THE SHAPE FILES FROM SANBI, ADOPTED FROM GOOGLE EARTH..... 31

FIGURE 3: VIEW OF THE STUDY AREA TOWARDS THE SOUTH EASTERN SECTION..... 32

FIGURE 4: SOME OF THE GARBAGE ON SITE..... 32

FIGURE 5: VIEW OF A STONE CONSTRUCTED BUILDING AND FARM HOUSE FOUNDATION ON THE RIGHT..... 34

FIGURE 6: VIEW OF THE HOUSE THAT QUALIFIED TO PROTECT IN TERMS OF THE NATIONAL HERITAGE ACT 25, OF 1999, THE HOUSE IS STILL IN GOOD CONDITION. THIS HOUSE COULD HAVE BEEN CONSTRUCTED IN THE EARLY 1930-1940S..... 34

AIA	Archaeological Impact Assessment
EIA	Environmental Impact Assessment
EIA	Early Iron Age
EMP	Environmental Management Plan
NEC	Naledzi Environmental Consultants
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No.25 of 1999)
SAHRA	South African Heritage Resources Agency
WRDM	West Rand District Municipality
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
IA	Iron Age
LIA	Late Iron Age
UNESCO	United Nations Educational, Scientific and cultural Organization
WHC	World Heritage Conventions of 1972

DEFINITIONS

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures.

Chance Finds Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Cultural Heritage Resources Same as Heritage Resources as defined and used in the South African Heritage Resources Act (Act No. 25 of 1999). Refer to physical cultural properties such as archaeological and palaeontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or *graves* and their associated materials; geological or natural features of cultural importance or scientific significance. Cultural Heritage Resources also include intangible resources such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural Significance The complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Grave A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery.

Historic Material remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

In Situ material *Material culture* and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Late Iron Age this period is associated with the development of complex societies and state systems in southern Africa.

Material culture Buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Site A distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

1. INTRODUCTION

MGD Consulting Engineers(Pty)Ltd commissioned studies for the proposed Cradle view mixed development north of Munsieville near Krugersdorp, Gauteng Province. To ensure that the proposed development meets the environmental requirements in line with the National Environmental Management Act 107 of 1998 as amended in 2010, MIG appointed Tholoana Environmental consultants as an Independent Environmental Assessment Practitioner for the proposed project.

The proposed activities form part of the development process, where application for Environmental Assessment Authorization must be completed. As part of the Basic Assessment process, a NEMA application form was submitted to relevant department. Archaeological Impact Assessment (AIA) report form part of a series of appendices prepared for a Basic Assessment Process (BA) pursued in accordance with the National Environmental Management Act,1998 (Act No. 107 of 1998) as amended and the Environmental Impact Assessment Regulation, 2010.

In order to comply with relevant legislations, the applicant requires information on the heritage resources that occur within or near the proposed site and their heritage significance. The objective of the study is to document the presence of archaeological and historical sites of significance in order to inform and guide planning on decision making. The study serve as a statutory frame of reference on archaeology and heritage sites that occur within the proposed study area. The document enable the developer to align their functions and responsibilities in order to facilitate forward planning in minimizing impact on archaeological and heritage sites. Archaeological/ Heritage impact assessment is conducted in line with the National Heritage Resources Act of 1999 (Act No. 25 of 1999). The Act protects heritage resources through formal and general protection. The Act provides that certain developmental activities require consents from relevant heritage resources authorities. The South African Heritage Resources Agency developed minimum standards for impact assessment, In addition to these local standards, the International Council of Monuments and Sites (ICOMOS) published guideline for assessing impacts. The Burra Charter of 1999, require a caution approach to the management of sites, it set out the need to understand the significance of heritage places, and the significance guide decisions.

The proposed study serve as framework tools which ensure that the National Heritage Resources Act (25 of 1999) and the ICOMOS standard principles are applied, in an effective and equitable manner in order to avoid loss and disturbance of heritage sites in the study area. This will enable applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources. Information presented in this report form the basis of Archaeological resources assessment of the proposed project as the proposal constitutes an activity, which may potentially have direct or indirect impact to heritage resources that may occur in the proposed study area.

The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (Section 34), archaeological sites and material (Section 35) and graves and burial sites (Section 36). In order to comply with the legislation, the applicant requires information on the heritage resources, and their significance that occur

in the demarcated area. This will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for the study with regards to the protection of heritage resources and graves.

2.1. The National Heritage Resource Act (25 of 1999)

This Act established the South African Heritage Resource Agency (SAHRA) as the prime custodians of the heritage resources and makes provision for the undertaking of heritage resources impact assessment for various categories of development as determined by section 38. It also provides for the grading of heritage resources (section 7) and the implementation of a three-tier level of responsibility and functions from heritage resources to be undertaken by the State, Provincial and Local authorities, depending on the grade of heritage resources (section 8)

In terms of the National Heritage Resource Act 25, (1999) the following is of relevance:

Historical remains

Section 34 (1)No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant Provincial Heritage Resources Authority.

Archaeological remains

Section 35(3) Any person who discover archaeological or Paleontological object or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resource authority or the nearest local authority or museum, which must immediately notify such heritage resources authority.

Section 35(4) No person may, without a permit issued by the responsible heritage resources authority-

- destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- trade in ,sell for private gain, export or attempt to export from republic any category of archaeological or paleontological material or object or any meteorite; or
- bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment which assist with the detection or recovery of metal or archaeological material or object or such equipment for the recovery of meteorites.

Section 35(5) When the responsible heritage resource authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or paleontological site is underway, and where no application for a permit has been submitted and no heritage resource management procedures in terms of section 38 has been followed, it may

- serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order
- carry out an investigation for the purpose of obtaining information on whether or not an archaeological or paleontological site exists and whether mitigation is necessary;
- if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
- recover the cost of such investigation from the owner or occupier of the land on which it is believed an archaeological or paleontological site is located or from the person proposing to undertake the development if no application for a permit is received within two week of the order being served.

Subsection 35(6) the responsible heritage resource authority may, after consultation with the owner of the land on which an archaeological or paleontological site or meteorite is situated; serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

Burial grounds and graves

Section 36 (3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority:

- (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; or
- (ii) bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.

Subsection 36 (6) Subject to the provision of any person who in the course of development or any other activity discover the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resource authority which must, in co-operation with the South African Police service and in accordance with regulation of the responsible heritage resource authority-

- (l) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this act or is of significance to any community; and
if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

Cultural Resource Management

Section **38(1)** Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development*...

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

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

- (i) Construction, alteration, demolition, removal or change of use of a place or a structure at a place;
- (ii) Any change to the natural or existing condition or topography of land, and
- (iii) Any removal or destruction of trees, or removal of vegetation or topsoil;

place means a site, area or region, a building or other structure

structure means any building, works, device or other facility made by people and which is fixed to the ground.

2.2. The Human Tissue Act (65 of 1983)

This act protects graves younger than 60 years, these falls under the jurisdiction of the National Department of Health and the Provincial Health Department. Approval for the exhumation and reburial must be obtained from the relevant provincial MEC as well as relevant Local Authorities.

3. TERMS OF REFERENCE

The terms of reference for the study were to undertake an archaeological impacts assessment on the proposed cradle view mixed development and submit a specialist report, which addresses the following:

- Executive summary
- Scope of work undertaken
- Methodology used to obtain supporting information
- Overview of relevant legislation
- Results of all investigations
- Interpretation of information
- Assessment of impact
- Recommendation on effective management measures
- References

4. TERMINOLOGY

The Heritage impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage resources Act, 1999 (Act No 25 of 1999) Heritage resources, (Cultural resources) include all human-made phenomena and intangible products that are result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyle of the people or groups of people of South Africa.

The term 'pre –historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the project area, to the first appearance or use of 'modern' Western writing brought South Africa by the first colonist who settled in the Cape in the early 1652 and brought to the other different part of South Africa in the early 1800. The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may in the near future, qualify as heritage resources.

It is not always possible, based on the observation alone, to distinguish clearly between archaeological remains and historical remains or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floors plans (a historical feature) may serve as a guideline. However circular and square floors may occur together on the same site.

The 'term sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognized and honored whenever graveyards are exhumed and relocated.

The term 'Stone Age' refers to the prehistoric past, although Late Stone Age people lived in South Africa well into the historical period. The Stone Age is divided into an Early Stone Age (3 Million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years ago to 40 years ago) and the Late Stone Age (40 000 years to 200 years ago).

The term 'Early Iron Age' and Late Iron Age respectively refers to the periods between the first and second millenniums AD.

The 'Late Iron Age' refers to the period between the 17th and the 19th centuries and therefore includes the historical period.

Mining heritage sites refers to old, abandoned mining activities, underground or on the surface, which may date from the pre historical, historical or relatively recent past. The term 'study area' or 'project area' refers to the area where the developers wants to focus its development activities (refer to plan)

Phase I studies refers to survey using various sources of data in order to establish the presence of all possible types of heritage resources in a given area.

Phase II studies includes in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include documenting of rock art, engravings or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavation of archaeological sites; the exhumation of bodies and the relocation of grave yards, etc. Phase II work may require the input of specialist and require the co-operation and the approval of SAHRA.

5. METHODOLOGY

Source of information

Most of the information was obtained through the initial site visit made on the 027 May 2015 by Mr. Mathoho Eric where a systematic inspections of the proposed site were covered along linear transects which resulted in the maximum coverage of the entire site. Standard archaeological observation practices were followed; Visual inspection was supplemented by relevant written source, and oral communications with local communities from the surrounding area. In addition, the site was recorded by hand held GPS and plotted on 1:50 000 topographical map. Archaeological/historical material and the general condition of the terrain were photographed with a Canon 1000D Camera.

Assumption and Limitations

It must be pointed out that heritage resources can be found in the unexpected places, it must also be borne in mind that survey may not detect all the heritage resources in a given project area. While some remains may simply be missed during surveys (observation) others may occur below the surface of the earth and may be exposed once development (such as the construction of the proposed facilities) commences.

6. ASSESSMENTS CRITERIA

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site.

- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc).
- The wider historic, archaeological and geographic context of the site.
- The preservation condition and integrity of the site.
- The potential to answer present research questions.

6.1 Site Significance

The site significance classification standards as prescribed in the guideline and endorsed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used as guidelines in determining the site significance for the purpose of this report.

The classification index is represented in the Table below.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction

Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction
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Grading and rating systems of heritage resources

6.2 Impact Rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or cultural) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.

HIGH

These impacts will usually result in long term effects on the social and /or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (e.g. farmers) would be HIGH.

MODERATE

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by the public or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are real, but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.

Example: The provision of a clinic in a rural area would result in a benefit of MODERATE significance.

LOW

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people living some distance away.

NO SIGNIFICANCE

There are no primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a certain formation may be regarded as severe from a geological perspective, but is of NO SIGNIFICANCE in the overall context.

6.3 Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

6.4 Duration

SHORT TERM : 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

6.5 Mitigation

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- ✓ **A** – No further action necessary
- ✓ **B** – Mapping of the site and controlled sampling required
- ✓ **C** – Preserve site, or extensive data collection and mapping required; and
- ✓ **D** – Preserve site

7. Brief synthesis

The undulating landscape containing the Fossil Hominid Sites of South Africa comprises dolomitic limestone ridges with rocky outcrops and valley grasslands, wooded along watercourses and in areas of natural springs. Most sites are in caves or are associated with rocky outcrops or water sources. The serial listing includes the Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs, and the Makapan Valley and Taung Skull Fossil Site. The Taung Skull, found in a limestone quarry at Dart Pinnacle amongst numerous archaeological and paleontological sites south-west of the Sterkfontein Valley area, is a specimen of the species *Australopithecus africanus*. Fossils found in the many archaeological caves of the Makapan Valley have enabled the identification of several

specimens of early hominids, more particularly of *Paranthropus*, dating back between 4.5 million and 2.5 million years, as well as evidence of the domestication of fire 1.8 million to 1 million years ago. Collectively these sites have produced abundant scientific information on the evolution of modern humans over at least the past 3.5 million years. They constitute a vast reserve of scientific information, with enormous potential.

The sites contain within their deposits all of the key interrelated and interdependent elements in their palaeontological relationships. Alongside and predating the hominid period of occupation is a sequence of fossil mammals, micro-mammals and invertebrates which provide a window onto faunal evolution, palaeobiology and palaeoecology stretching back into the Pliocene. This record has come to play a crucial role in furthering our understanding of human evolution and the appearance of modern human behaviour. The fossil evidence contained within these sites proves conclusively that the African continent is the undisputed Cradle of Humankind.

Criteria (1997/99)

The Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs were inscribed on the World Heritage List in 1999 under Cultural criteria (iii) and (vi). The Makapan Valley and Taung Skull Fossil Site were added in 2005 under the same criteria.

***Criterion iii:** The nominated serial site bears exceptional testimony to some of the most important Australopithecine specimens dating back more than 3.5 million years. This therefore throws light on to the origins and then the evolution of humankind, through the hominisation process.*

***Criterion vi:** The serially nominated sites are situated in unique natural settings that have created a suitable environment for the capture and preservation of human and animal remains that have allowed scientists a window into the past. Thus, this site constitutes a vast reserve of scientific data of universal scope and considerable potential, linked to the history of the most ancient periods of humankind.*

Integrity/Authenticity (2005)

The Cradle of Humankind together with Makapan Valley and Taung Skull Fossil Site comprise three separate components situated in different provinces that make up the Fossil Hominid Sites of South Africa. Collectively these components contain the necessary evidence of sites where abundant scientific information on the evolution of modern humans over the past 3.5 million years was uncovered. Furthermore, the nominated serial site covers an area big enough to constitute a vast reserve of scientific information, with enormous potential.

As regards authenticity, the sites contain within their deposits all of the key interrelated and interdependent elements in their natural palaeontological relationships. Thus, the breccia representing the cave fillings contains the fossilised remains of hominids, their lithicultural remains (from about 3.0 million years onwards), fossils of other animals, plants and pollen, as well as geochemical and sedimentological evidence of the conditions under which each member of the deposits was laid down. They represent a succession of paleo ecosystems. The caves, breccias and strata from which quantities of fossils or tools have

been extracted, together with the landscape are generally intact, but are vulnerable to development pressures, villagers' use of the environment and tourism.

Management and protection requirements necessary to maintain the Outstanding Universal Value (2005)

The components of the Fossil Hominid Sites of South Africa are currently protected as National Heritage sites in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). In terms of this legislation, no person may destroy damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

Management of each site is guided by the World Heritage Convention Act (Act No 49 of 1999); the National Environmental Protected Areas Act (Act No 57 of 2003), the National Environmental Management Act (No 107 of 1998), the National Environmental Management Biodiversity Act (Act No 10 of 2004) and the Physical Planning Act, 1967 (Act No. 88 of 1967) .

In terms of these pieces of legislation, mining or prospecting is completely prohibited in a World Heritage Site and all developments are subjected to environmental impact assessments.

There are also site management plans for each of the sites as well as monitoring and evaluation programmes for each. The five components of the property are situated in separate provinces in South Africa, each with a different combination of structures dealing with its management. Management issues at the three serial sites differ significantly. At the time of inscription of the first site it was envisaged that there would be a joint World Heritage Property Management Committee and that each Province and Site Management Authority would nominate members to the joint World Heritage Property Management Committee. The function of the committee is to streamline inter-site management, to discuss common management problems and to function as a communications forum for the sites. The equitable sharing of the benefits of increased tourism, joint funding p

COHWHS Integrated Management Plan (2014-2018)

Between 1999 and 2001, an Integrated Environment and Conservation Management Plan (IECMP) was developed as part of the master planning process (COHWHS 2014-2018). This was updated and revised in 2014 to create the second Integrated Management Plan with the following objectives:

- *“To ensure that all relevant guidelines are in place for the coordinated management and administration of the Cradle of Humankind World Heritage Site (COHWHS) and*
- *To comply with international, regional and local legal requirements for the proper management and administration of the site.”*

The second management plan was informed by IUCN Best Practice Guidelines, Guidelines provided by the National Environmental Management: Protected Areas Act, Act 57 of 2003 (Environmental Affairs: 2006), provisions of the World Heritage Convention Act, No. 49 of 1999 (WHCA). Because the plan covers all aspects of site management including those specifically related to the protection of the OUV, it was heavily consulted in the impact assessment process for the existing upgrade of the existing development. The management plan covers the core area and the buffer zone.

7.1 .STONE AGE (ESA, MSA and LSA)

The Early Stone Age spans a period of between 1.5 million and 250 000 years ago and has been referred to the earliest period of the appearance of the Homo predecessors; the period is associated with introduction of tools made out of stones. Similar archaeological material finger prints associated with the early period (Stone tool artifacts) has been found in Tanzania at Olduvai Gorge. The stone tool industry was referred to as the Oldwan Industry. Most of the stone artifacts recovered were not neatly made and they were very crude in makings.

The ESA tools were simple tools which, were among other things used to chop and butcher meat, de- skin animal and probably to smash bones to obtain marrow. The presence of cut marks from animal fossil bones dating to this period has led to the conclusion by researchers that human ancestors were scavengers and not hunters (Esteyhuysen, 2007). They may have preyed on a drowned or crippled animals or shared a kill by another predator, which explains why at some ESA sites occur high bone proportions of large, dangerous game (Wadley, 2007)

The industries were later replaced by the Acheulian stone tool Industry which is attested to in diverse environments and over wide geographical areas. The Industry is characterized by large cutting tools mostly dominated by hand axes and cleavers. Bifaces emerged in East Africa more that 1.5 million years ago (mya) but have been reported from a wide range of areas, from South Africa to northern Europe and from India to the Liberian Coast. The end products were astonishingly similar across the geographical and chronological distribution of the Acheulian techno-complex: large flakes that were suitable in size and morphology for the production of hand axes and cleavers perfectly suited to the available raw materials (Sharon, 2009). Evidence presented from Sterkfontein cave shows that the first tool making hominids belong to either an early species of the Homo or an immediate ancestor which is yet to be discovered here in South Africa (Esteyhuysen, 2007). Both the Oldwan and Acheulian industries are well represented in the archaeology of the Cradle of Humankind from sites at Sterkfontein and Kromdraai. These discoveries have made considerable contribution to the body of scientific knowledge in the subject of tool manufacturing in association with human evolutions. At Kromdraai site two definite Oldwan stone tools estimated to date to around 1.9 million years ago were discovered.

The Middle Stone Age dates back to about 250 000 ago ending at around 25 000 years ago. In general Middle Stone Age tools are smaller than those of the Early Stone Age

period. They are characterized by smaller hand axes, cleavers, and flake and blade industries. The period is marked by the emergence of modern humans through the change in technology, behavior, physical appearance, art, and symbolism. Various stone artifact industries occur during this time period, although less is known about the time prior to 120 000 years ago, extensive systemic archaeological research is being conducted on sites across southern Africa dating within the last 120 000 years (Thompson & Marean, 2008). Surface scatters of these flake and blade industries occur widespread across southern Africa although rarely with any associated botanical and faunal remains. It is also common for these stone artifacts to be found between the surface and approximately 50-80cm below ground. Fossil bone may be associated with MSA occurrences. These stone artifacts, like the Earlier Stone Age hand axes are usually observed in secondary context with no other associated archaeological material.

An early South African Middle Stone Age stone artifact industry referred to as the Mangosian had a very wide distribution stretching across Limpopo, the eastern Orange Free State, around Cape Point and Natal (Malan 1949). This stone artifact industry, according to the period, may have represented the final development that the prepared core technique of the Middle Stone Age reached prior to its replacement by the microlithic techniques of the Later Stone Age. Malan (1949) also made mention that there are variations of Middle Stone Age assemblages throughout South Africa (Binnerman *et al*, 2011).

A variety of MSA tools includes blades, flakes, scraper and pointed tools that may have been hafted onto shafts or handles and used as spear heads. Residue analyses on some of the stone tools indicate that these tools were certainly used as spear heads (widely, 2007). The presence of spear heads on some of the MSA assemblages is an indication that these group of people were hunters who targeted middle sized game such as hartebeest, wildebeest and zebra (Wadley, 2007), Some assemblages are show the presence of bone tools such as bone points.

The last phase of stone tool development is associated with Late Stone tools. The period is associated with the use of micro- lithic stone tools. LSA tool have been found in the Cradle of humankind, however the LSA sites in Gauteng has been poorly represented during the mid- Holocene.

7.2. IRON AGE / FIRST-FARMING COMMUNITIES

Controversy still surround the question of the first arrival of Africans in South Africa, however, archaeological evidence has now disproved the old notion that Africans arrived at the same time with the colonialist at the Cape Town (Maggs, 1986). It is believed that as Iron Age people moved they came into contact with hunter-gatherers (Klatzow, 1994). Current evidence indicates that the first Iron Age communities were established in Transvaal at 280 AD.

For the first time people were able to live a settled village life, unlike hunter- gatherers of the Stone Age. They cultivated crops, had domestic livestock, worked metal such as iron and copper and produce distinctive pottery. They generally preferred to choose specific habitat in which to live characterized by alluvial soil in close proximity to river valleys. The

region had natural features, good climatic condition favorable to their survival and cultivation of their cereals such as sorghum and millet. It is generally believed that ceramic potteries are material culture that expresses group identity because they form a repeated code of cultural symbols, as the design form a repeated code (Huffman 2007).

Sites dating to the early Iron Age are known to occur within Gauteng Province namely Broederstroom. These sites are distinguished from the presence of thicker and decorated pottery shards, kraals, possible remains of domesticated animals, upper and lower grindstones and storage pits are associated for identifying Early Iron Age 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 Early Iron Age communities. Hilltop settlement is mainly associated with Later Iron Age settlement patterns that occurred during the second millennium A.D.

The Later Iron Age communities later moved from settlement in river valleys to the hilltops. Later Iron Age settlements have been formally recorded and cover a relatively extended area in comparison with the EIA settlement patterns. The Iron Age occupation of the study area seems to have taken place on a significant scale as represented by the presence of stonewalled sites. These structures are associated with the latter period dating from 16th to 18th centuries (Thorp, 1996). Much controversy still surrounds the attempts by various linguists to reconstruct the development and the spread of the African family of languages. Linguistic and archaeological evidence suggest that the latter part of the Iron Age period is most likely associated with ancestors of Ba-Tswana and Basotho. Numerous ancestral to the Tswana and Nguni who occupied the region left remnants of thousands of stonewalled settlement.

7.3. HISTORICAL / COLONIAL PERIOD

Historical archaeology is a period associated with the last 500 years when European settlers and colonialism entered into southern Africa. Movement into the interior was closely linked with the change from farming to stock farming. The movement of Boer into the interior got underway when Wilhelm Adrien van der Stel began to issue free grazing permits in 1703. The exoduses went hand in hand with hunting expeditions into the interior which not only provided the farmers with meat, but also enable them to learn more about the resources of the hinterland. British government made its laws which undermine the freedom of the Boers. The mounting conflict between African and white stock farmers played the dominant part. This led to the general dissatisfaction and a feeling of insecurity among the Afrikaner. The frontier wars of 1834/35 caused the frontier farmers to suffer heavy losses. To aggravate matters, land prices rose sharply during the 1820 and 1830 and drought was a serious problem. These conditions threatened the pastoral lifestyle. There was no land for the younger generations. They opted to migration in search of land and grazing in the interior.

During the great trek into the interior they were already acquainted with conditions of the interior and with the main trek routes. They got available information from travelers,

hunters and missionaries. The foremost Voortrekker, Louis Tregardt and Hans van Rensburg were the pioneer of the Transvaal Lowveld left in 1835. Andries Hendrik Potgieter, the conservative founder of the Transvaal, emigrated towards the end of 1835. By 1836 the vanguard of Potgieter trek had crossed the Vaal River. When the white entered the Transvaal the plains were restricted by Africans for grazing purposes, while occupying the high altitude and mountains.

Mzilikazi, the powerful Ndebele regarded with growing suspicion the arrival of so many whites from the same direction. He then realized that such a large group of white constituted a threat to the survival of the Ndebele. The Ndebele attacked the Trekkers at Vegkop on the 16 October 1836. In January 1837 Potgieter captured Mzilikazi stronghold and drove the Ndebele far to the north. Potgieter was firmly convinced that they should seek the salvation of an independent Voortrekker state, far away from British influence.

The 18th century's period is marked by the presence of white, where land was taken from African chiefs and redistributed to the Boers; this was followed by demarcation of portions of land into farms.

7.4. ORIGIN OF KRUGERSDROP

Krugersdorp owes its origin to two important events in the history of South Africa, namely the Transvaal War of Independence (1881) and the discovery of Witwatersrand goldfields (1886). The town originated after the executive council of the republic of Transvaal resolved to purchase a portion of the farm Paardekraal, for the purpose of establishing a free hold township to be known as Krugersdorp. According to article 149, Mr. M.P.W. Pretorius proposed that portion of his farm Paardekraal, viz 500 morgen, be bought by the Government for \$3,000 for the purpose of lying out a town.

In July 1887 Mr. F.H. Rissik then government land surveyor arrived at the farm Paardekraal and out spanned his cart and horses near the cairn of stones (Paardekraal Monument). He was instructed to survey the township approximately 1000 yards south of the monument. In 1888 Krugersdorp was proclaimed, at that time a new township called the district township was laid out near the Monument, intended to serve the rural population and was therefore laid out in large "Burger Right" erven. The sale of stands at Krugersdorp by public auction on the 31st October 1887 was announced in the Government Gazette of the 28th September 1887 (Government Notice No. 254). The public auction was supervised by sergeant Ockerse whom later was appointed as chief of Police in the sub-district of Krugersdorp.

This small town served as agricultural and administrative centre for the western goldfields. It started from the mining camp called "Devils dorp" where life was cheap to settle and stable.

This small attractive town had paved roads, piped water and street lights. The Boer and British mining population molded and shape this small town in such a way that it reflects

their origin and corresponding value. Different parts of Krugersdorp town were marked by contrasting Transvaal Republic (Dutch origin) and Imperial Edwardian architecture. The ideological struggle between Boer and Britons was inscribed into the built environment. Eventually all the new buildings were erected in the Edwardian style and given patriotic names like “Victoria” and “Jubilee”. Krugersdorp was transformed into a British town but still retained many of its older aspects as a Transvaal Republican “Boer Dorp”. The Town contained substantial population of African, Indians, Colored, Britons and Boers. The Transvaal specifically Krugersdorp inherit its cosmopolitan vitality from an often violent and turbulent past currently represented by grave sites as a results of the South African War of 1899-1902 fought between different groups of people. Existing cemeteries bears the testimony of the challenges faced by men, women and children, while some Monuments bearer witness to Boer unity and Pledges (Paardekraal Monument).

Most of the miners who settled in this town were English speaking and had British roots, from Britain, California, Australia and various South African mining towns such as Kimberly and Pilgrims Rest in Mpumalanga. The British victory in the Anglo Boer War had given these nomadic miners confidence to set down roots in Krugersdorp and to raise families. Within a short period of time Krugersdorp had transformed from small town characterized by gambling den, music halls and saloon. New restaurants, concert halls and municipal library were constructed. By 1905 Krugersdorp had evolved into more ideologically harmonious hybrid town, where the ideology of South African brought the Boer and the Britons closer together.

Paardekraal Monument

In December 1880 a great gathering of Transvaal Burgers met at Paardekraal the farm on which Krugersdorp was eventually built to record their protest against the British annexation to their republic. This was after the British special Commissioner Sir. Theophilus Shepstone with 25 mounted policemen were dispatched from Natal to annex the Transvaal in 1876. On his arrival to Pretoria he read the proclamation whereby the Transvaal became British territory. Shepstone’s action resulted in renewed discussion between Pretoria and London to restore the Transvaal’s independence, however without success. This eventually led to armed struggle. This culminated in the defeat of the British at Majuba in 1881 after which the British annexation was reversed. This whole episode increased hostile attitude and bitterness between Boer and Britons.

It was at Paardekraal gathering that Paul Kruger, Piet Joubert and M.W. Pretorius, were appointed and solemn pledge to stand united until independence has been restored. Each 6000 burgers man placed a stone as a symbol of pledge. In 1890 instruction was issued by the government for the erection of a monument over a sacred pile of stones which had been set up at Paardekraal. The stones which had composed the original cairn were removed and disposed at some unknown place by vandals.

Mr. Wierda finalized the design of the monument while Mr. W.Y. Veitch constructed the Monument. In a short decisive war, independence was restored and the Burgers resolved that there be celebration held on 16 December to commemorate the victory over Dingaan. In September, 1890, President Kruger visited the Monument which was nearing completion and it met with his approval. The Monument was completed in November the

same year. It was during these years that Krugersdorp rightly receive the stamp of the "Fighting town."

Krugersdorp carried its famous historical image when Dr. Jameson, in his abortive plan to oust the republicans was captured at Doringkop on the outskirts of the town on the New Year eve of 1895. Dr. Jameson and his men were imprisoned after they surrendered to General Cronje. The graves of Jameson men are still to be seen along railway line to Randfontein, while the monument south of the town mark the spot where Jameson surrendered to the Transvaal Burgers.

The South African War of independence (Anglo Boer war)

The Anglo Boer war was caused by the antagonism between the Boer and the Britons which could be traced back when the Boers decided to leave the Cape Colony after the British have taken the Cape Colony in 1806. The Transvaal burghers held a series of meeting at which the restoration of independence received strong support. Relation between Transvaal and British rule were inaugurated with the Pretoria Conventions of 1881, however a series of accompanying conditions prevented the Boers from acting independently. A newly elected Transvaal President Paul Kruger, General N.J Smit and Rev S.J. du Toit left for London to consult with the British government on possible amendments to Pretoria Convention. The spread of Afrikaner nationalism was regarded with increasing suspicion as a threat to British rule. At that time the Transvaal republic developed into a single best gold producer which increases state revenues and the centers of gravity shifted to Transvaal. The Boer struggle against British imperialism became the focal point of a rapidly burgeoning national consciousness. A memorandum or Transvaal ultimatum to the British agent at Pretoria was handed, however the British did not meet the Boers demands, forty eight hours later the allied republics of Transvaal and Free State were formally at war with Great Britain. The Boer republics declared war on the 11 October 1899

Almost all British reinforcement had reached Natal before the ultimatum. The Transvaal army was commanded by General P. Joubert while the Free State was under General M. Prinsloo. Most of the commandos were well armed with the latest modern rifle. Pre-emptive strikes by joint strategic plan adopted by two republics were that they would have to neutralize the main forces already threatening their borders, and then they must adopt secure defensive position inside the colonies and try to block the advance of the British expeditionary forces after it began to arrive at the ports.

The Boer republics were more successful in three major offensives. Their commandos invaded northern Natal and besieged the town of Ladysmith. They invaded Cape colony to lay siege to the British garrison in Kimberly and Mafikeng. However the Boer besiegement victory was short lived, the British under Lord Roberts and Lord Kitchener turned the situation around. They eventually relieved besieged towns of Ladysmith on the 28 February 1900, Kimberly on the 15 February 1900 and Mafikeng on the 18th May 1900. On the 13th March 1900 Roberts occupied Bloemfontein the capital of Orange Free State. On 31st May British troops entered Johannesburg and on 5th June Pretoria was taken from the Boers.

The Boers under the leadership of Louis Botha, Christian de wet, Jan Smuts and General de la Rey abandoned the British style of war fare, and increase their reliance on small and mobile military units. They captured supplies and disrupt communications and undertake raids on British army. They were very successful in evading capture.

Concentration camps

To flush out the Boer guerrilla tactic, Kitchener sought to deprive the Boer support systems by introducing the so called “scotched earth policy.” All farms with Livestock and crops which provided foods as well as emotional support for women and children were destroyed. Historical documents suggest that approximately 30 000 farms were burnt and available crops were destroyed and live stocks were removed from Boer farms. Women and children’s were removed to what became known as concentration camps, people were living under canvass (Voster, 1999).The adopted scorch earth policy was done to restrict the Boer Movement. This policy also dramatically affected the lives of thousands of Africans, especially those who lived and worked on the farms. These concentration Camps housed more than 6000 women and children, records shows that in 1901 there were 5488 people in the concentration camp near Paardekraal Monument.

The camps were initially run by military establishment, but in November 1901 civilian administrators took over. The death rate was very high. Deaths were mainly due to inadequate food and illness such as measles, amoebic dysentery and pneumonia. According to Rev A. J. Louw statistics the death figure was significantly higher than the figure for burgers that had been killed in action. Approximately 1800 graves bear the concentration camps testimony are in the old Krugersdorp Cemetery. In November 1901 approximately 178 people died within one month.

Two conflicting ideas emerged from various source of data, first being that during the South African War (Anglo Boer war of independence) of 1899-1902 a concentration camp in Krugersdorp was situated against the Monument Hill, and however other documents suggest that the concentration camp was situated at the place where Paardekraal dam is currently located. At the council meeting held on the 21 December 1908, Mr. Henry Sharp reported as follows, the concentration camp was situated in the area north- east of Coronation Park, Hillside. Previous vegetation encompasses ground cover of variety grass species, presence of extinct Aloes and small shrubs of Proteas, ferns and a variety of other wild flowers. Historical documents suggest that Krugersdorp had one of the biggest concentration camps in the Transvaal.

Less than kilometers from the Paardekraal Monument there exist an old British block houses constructed during the war of independence, these blockhouses were one of the 8000 that existed, the houses were specifically located to overlook Krugersdorp concentration camps down below. The block houses were declared the National Monument by the South African Monument Council in 1984. The custodian of the Paardekraal monument site indicated that Krugersdorp concentration camp site was well fenced just like Paardekraal Monument site however some vandals removed fence and fence post and sold them for metal scrap. The same activities were previously reported at the Paardekraal Monument site where vandalism to the monument was rife.

8. SITE LOCATION AND PROJECT DESCRIPTION

Munsieville is located northwest of the city of Krugersdorp. The site lies in proximity to the Protea Ridge to the north, Dan Pienaarville and Rant en Dal to the east, a cemetery to the east, and suburbs of Munsieville to the west and south. The R563 (Van Riebeeck Road) lies on the eastern border of the site and links Mogale City with The Cradle of Humankind World Heritage Site, as well as towns like Hekpoort and Magaliesburg. The site is located on the following global positioning system co-ordinates (GPS S26°.03', 48.02" & E 27°.45'.20.08").

The project entails establishment of residential estate on an area that covers approximately 25 hectares characterized by undulating land with a line of rocky outcrop. The vast area has been subjected to agricultural activities and comprises of previous agricultural holdings. One residential house as well as an area where a house has been demolished, at the bottom section of the rocky ridge a structure built of stones and cement has been noted. Large section of the land is currently used as garbage refusal area characterized by cement rubble and plastics. At the demolished house variety of exotic plants exist namely: *Arundo donax* (Spanish reed) *Pennisetum clandestinum*, *Bidens Formosa* (Cosmos) and *cerens peruvianus* (Queen of the night). Due to the surface disturbances, such as surface cultivation and overgrazing for a long time may have reduces the status of the natural grass structure. Some of the identifiable grass species includes *Digitaria eriantha*, *andropogon shirensis*, *eragrostis chloromelas*.

The geology and soil of the study area is dominated by quartzite conglomerates and shale horizon of the Magaliesberg, Daspoort and Silverton formation (Vaalian Pretoria Group) and hospital hill. Soil are shallow, gravel lithols of the mispah and Glenrosa forms. Further north of the study area (Kromdraai and Strekfontein) the geology is underlain by Malmani Dolomite formation of the Chuniespoort group of the Transvaal super group (Kasr dolomite land is referred to the typical landforms and process in areas that are underlain by dolomite Calcium/ magnesium carbonate rocks) In certain areas this dolomite formation are overlain by a relatively thin cover of younger sedimentary rocks of the Transvaal super groups or unconsolidated materials. The Malmani Dolomite is just one rock formation of great interest as they are characterized of palaeocaves fossil deposit. This type of rock formations make up some of the South Africa's best aquifer, this is because they often support borehole and springs which yield a lot of good quality ground water.

The area is located on the border of two main vegetation types, the Gold reef Mountain bushveld (SVcb9) which include the ridges vegetation to the east and the Soweto Highveld grassland (Gm8). Within the study area natural vegetation occurs along the rocky outcrop ridge dominated by species such as *Englero phylum*, *megalismontanum*, *Diospyros lyciodes*, *Searsia pyroides*, *Rothmaniavia capensis*.

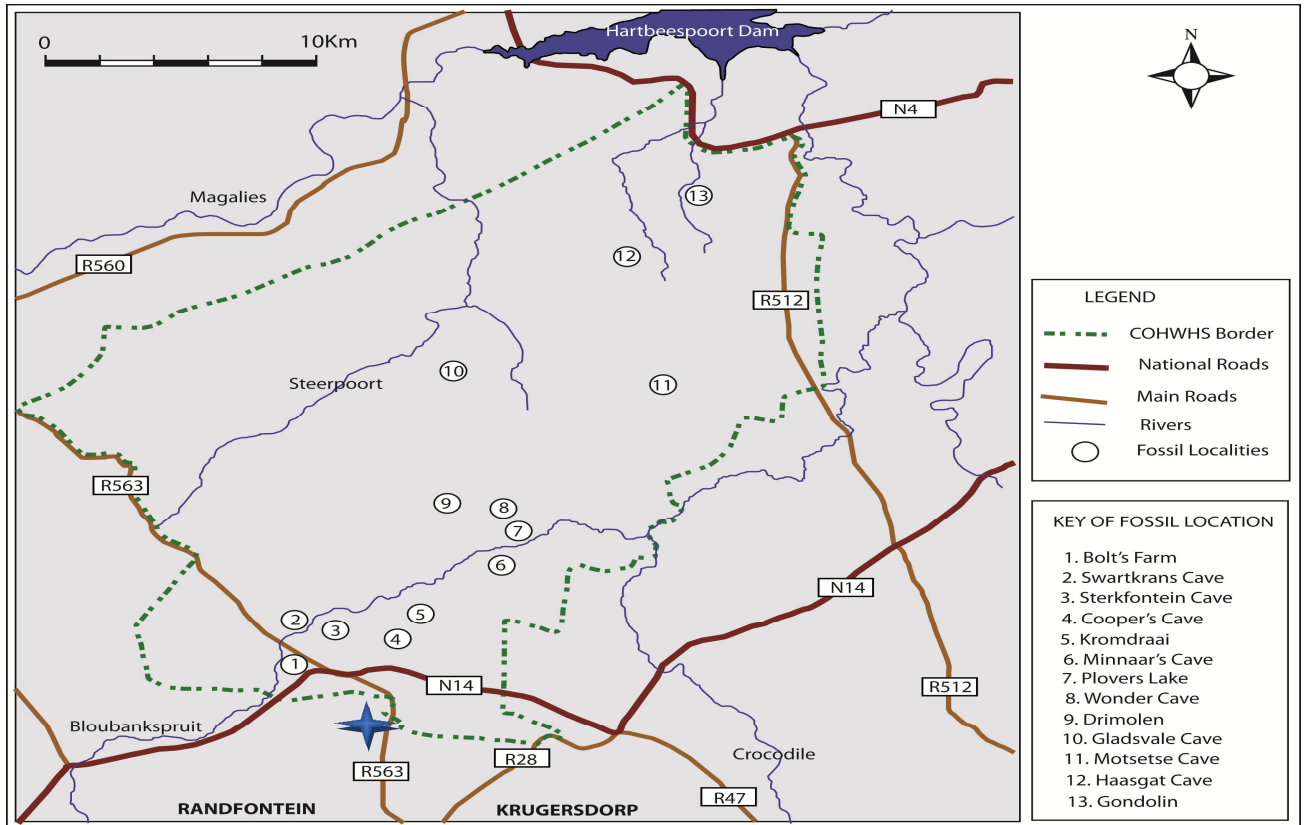


Figure 1: View of the proposed site indicated by a star in relation to the World Heritage Sites buffer zones and some of the prominent fossil sites such as Kromdraai and Sterkfontein.



Figure 2. View of the COHWS borders as provided to the shape files from SANBI, adopted from Google earth.



Figure 3: View of the study area towards the south eastern section



Figure 4: Some of the garbage on site

9. ASSESSMENT OF SITES AND FINDS

This section contains the results of the heritage site/find assessment. The phase 1 heritage scoping assessment program as required in terms of the section 38 of the National Heritage Resource Act (Act 25 of 1999) done for the proposed Cradle view mixed development.

Finds Assessments

Sites	GPS co-ordinates	Sites significance	Remarks
1. Existing Historical Building and associated infrastructures	GPS S26°.03', 48.2" & E 27°.45'.20.8"	High significance	The building is still in good condition
2. Stone constructed room at the bottom slope of the rocky outcrop, the structure is located several meters from site three and could have been used as, chemical storage facility	GPS S26°.04', 00.7" & E 27°.45'.29.5"	Low significance	Absence of building fabrics such as roof and windows
3. House foundation indicated by concrete rubble and associated palm trees.	GPS S26°.03', 58.6" & E 27°.45'.19.9"	Low significance	Demolished, absence of building fabrics



Figure 5: View of a stone constructed building and farm house foundation on the right



Figure 6: View of the house that qualified to protect in terms of the National Heritage Act 25, of 1999, the house is still in good condition. This house could have been constructed in the early 1930-1940s.

10. CONCLUSION AND RECOMMENDATIONS

The proposed development designers of the Cradle View mixed development should be strategic to incorporate the identified historical building in their design layout. All new activities (Engineering aspects such as streets, water, and sewage and electricity lines) should be designed to accommodate this historical building. The proposed development will also minimize waste disposal activities in the vicinity. It is strongly recommended that the proposed development should be demarcated on existing disturbed or in adjacent to degraded areas and thus should be in accordance with the Environmental Management Plan (EMP).

Should the above became unavoidable, an application should be lodge with the Provincial Heritage Resources Authority- Gauteng for the intention to destruct the historical house, before the destruction permit is issued, a Historical Structure Report should be produced and approved by heritage authority, this process is time consuming as a well as cost effective. Similar process also applies should the developer wish to renovate, repair historical building in order to fulfill their needs, this should be done on condition that:

5. Historical building need to be recorded prior to any renovation, alterations or extension or destruction: recording implies (I) photographic recording of each building with caption in standard architectural terminology (II) measure drawings of each building' s floor plan, elevation, section and architectural detailing to an appropriate scale (usually 1:100cm scale) and (III) a compilation of all recordings in a single historical structure report with Preservations Management Plan.
6. Preparation of the above mentioned documents in a format that can be submitted to Provisional Heritage Resource Authority Gauteng (PHRAG) or South African Heritage Resources Agency (SAHRA) for approval, as well as to any official repository (Archive, Library or Museum)
7. The architectural vocabulary of the original buildings must be retained and respected. The height of these building should be retained and respected.
8. In case where new buildings are sited clearing of planted vegetation should be done in sympathy to the original planted vegetation.

Should the above mentioned recommendations be viable to the developer there are no objections to the proposed project and we recommend to the Provincial Heritage Resources- Gauteng or South African Heritage Resource Agency to approve the project as planned. The developer in this case is here by reminded of section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorization being granted by the Department.

11. GOOGLE EARTH MAP



Figure 7: View of the study area adopted from Google earth Program

12. REFERENCE

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