

**PREPARED FOR:
ANGLO AMERICAN THERMAL COAL**

**A PHASE I HERITAGE IMPACT ASSESSMENT STUDY
FOR THE PROPOSED NEW VAAL COLLIERY (NVC) LIFE
EXTENSION PROJECT**



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EXECUTIVE SUMMARY

This document contains the report on the Phase I Heritage Impact Assessment (HIA) study which was conducted for the proposed New Vaal Colliery (NVC) Life Extension (Lifex) Project on the Highveld in the Orange Free State Province of South Africa. The two proposed mining areas are the New Cornelia Block 1 and the New Cornelia Vaalbank areas, which are together referred to as the NVC Lifex Project Area.

This Phase I Heritage Impact Assessment (HIA) study for the NVC Lifex Project Area was undertaken according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The aims of the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (Box 1) do occur in the proposed Project Area and, if so, to determine the nature, the extent and the significance of these remains.
- To determine whether such remains will be affected by the proposed NVC Lifex Project; and, if so, to evaluate what appropriate actions could be taken to reduce the impact of the mining development project on such heritage resources.

The Phase I HIA study revealed the following types and ranges of heritage resources in the NVC Project Area as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Farmstead complexes associated with historical houses, outbuildings (second residences, wagon sheds, rondavels) and in some instances cattle enclosures.
- Informal and formal graveyards.

These heritage resources were geo-referenced and mapped (Figure 2, Tables 1-3).

Impact on heritage resources

It is highly likely that GY20 and GY21 will be impacted by the open cast mining activities in the New Cornelia Block 01 mining area.

The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. The significance of the graveyards therefore has been indicated as \pm Highq(Table 3).

Legislation applicable to graves, include Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Mitigating the graveyards

The graveyards can be mitigated by means of the following strategies, namely:

- If the graveyards are to be affected directly (by the open cast mines and/or other mine infrastructure which will be established on top of the graveyards) the graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graves and graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.
- If the graveyards are to be affected indirectly (by the open cast mines and/or other mine infrastructure which will be established in close proximity but not on top of the graveyards) the graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.

General

It is possible that this Phase I HIA study may have omitted certain heritage resources in the NVC Project Area considering the size of the area and the fact that heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the NVC Lifex Project or during any future exploration, mining or other development activities, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association of Southern African Professional Archaeologist (ASAPA) should be notified in order to determine appropriate mitigation measures for the discovered finds.

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1 INTRODUCTION

This document contains the report on a Phase I Heritage Impact Assessment (HIA) study which was conducted for the proposed New Vaal Colliery Life Extension Project (NVC Lifex Project) on the Highveld in the Orange Free State Province of South Africa.

Focused archaeological research has been conducted in the Orange Free State Province for more than four decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as the recording of rock art and historical sites. The Orange Free State Province has a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Orange Free State Province of South Africa therefore form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's national estate as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur across the Orange Free State Province (see Box 1, page 9).

Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

- (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 natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;(iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as part of the national estate if they have cultural significance or other special value
 o ± These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (c) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (i) sites of significance relating to the history of slavery in South Africa

2 TERMS OF REFERENCE

The New Vaal Colliery (NVC) Life Extension Project is also referred to as the NVC Lifex Project. This project involves Eskom's needs for a secure coal supply to keep the Lethabo Power Station running until approximately 2043. Anglo American Thermal Coal (AATC) will only be able to fulfil this requirement if the life of NVC is extended by 13 years. Therefore AATC proposes to blend coal from New Vaal Colliery with coal from the NVC Lifex resources of New Cornelia Block 1 and New Cornelia Vaalbank, which lie to the south of the existing mine. These operations will include both opencast and underground mining within the New Cornelia Block 1 and the New Cornelia Vaalbank reserves.

These two mining areas are referred to as the NVC Project Area and have not previously been subjected to a Phase I Heritage Impact Assessment (HIA) study. Consequently, Golder Associates Africa (Pty) Ltd (Golder), who is responsible for compiling an Environmental Impact Assessment (EIA) as well as an Environmental Management Program (EMP) permitting process for the NVC Lifex Project, commissioned the author to undertake a Phase I HIA study for the NVC Project Area.

The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (Box 1) do occur in the proposed Project Area and, if so, to determine the nature, the extent and the significance of these remains.
- To determine whether such remains will be affected by the proposed NVC Lifex Project; and, if so, to evaluate what appropriate actions could be taken to reduce the impact of the mining development project on such heritage resources.

3 THE NEW VAAL COLLIERY (NVC) PROJECT AREA

3.1 Location

The NVC Project Area is largely located in the Metsimaholo Local Municipality in the northern Orange Free State. Towns closest to the project area include Sasolburg (about 10 km to the southwest), Vanderbijlpark (about 7 km to the west), Vereeniging (10 km to the north) and Heilbron (35 km to the south).

The Vaal River runs along the northern boundary of the existing New Vaal Colliery whilst the Vaal Dam and the villages of Deneysville and Refengkgotse form the eastern boundary of the NVC Project Area. The project area stretches across an undulating piece of land which is largely covered with agricultural fields (cultivated and grazing pasture), particularly as one moves from the north to the south. Few trees occur in the NVC Project Area. Those that do occur are exotics such as Blue Gum lots, poplar-groves on the banks of streams and Oak trees which are usually located near historical farm homesteads. Most of these trees are anthropogenic as they have been introduced by human activities in the area during the past (Figure 1).

3.2 The New Vaal Colliery Lifex Project

The NVC Lifex Project includes the following two (developmental) components, namely:

- **Block 1 (New Cornelia Block):** This block is located in the Taaibosspruit Valley immediately upstream of its confluence with the Vaal barrage. Part of the proposed New Cornelia Block 1 layout falls within the riparian areas of the Taaibosspruit. An opencast mine resource located on the northern bank of the Taaibosspruit covering a total of ± 800 hectares/(ha) will eventually be established in this part of the Project Area. Other developmental components include infrastructure covering a footprint of approximately 25ha and a haul truck route over ± 3 km from Block 1 to the existing NVC mine boundary.

- New Cornelia Vaalbank: This resource is located to the southeast of New Cornelia Block 1 on the eastern bank of the Taaibosspruit. The proposed mine will comprise of underground board and pillar mining stretching across $\pm 10\,000$ ha. Other developmental components include a mine shaft and associated infrastructure with a footprint of approximately 30ha as well as a conveyor corridor stretching ± 12.6 km from the Vaalbank shaft complex to the existing NVC de-stoning plant.

The areas to be affected by the NVC Lifex Project are here referred to as the NVC Project Area whilst the developmental components involved with these two areas are referred to as the NVC Lifex Project.

3.3 Within a cultural landscape

The NVC Project Area is located in a cultural landscape that is marked by heritage remains dating from the pre-historical into the historical (colonial) period. The archaeological and historical significance of this cultural landscape therefore must be described and explained in more detail before the results of the base line heritage survey is discussed (see Part 5, ~~Contextualising the NVC Project Area~~ and Part 9, ~~Select Bibliography~~).

The NVC Project Area is known for the production of agricultural crops such as maize wheat, sorghum, dairy, and vegetables. Cattle and sheep ranching also make a contribution to the local economy. Coal mines and power stations also occur in the area.

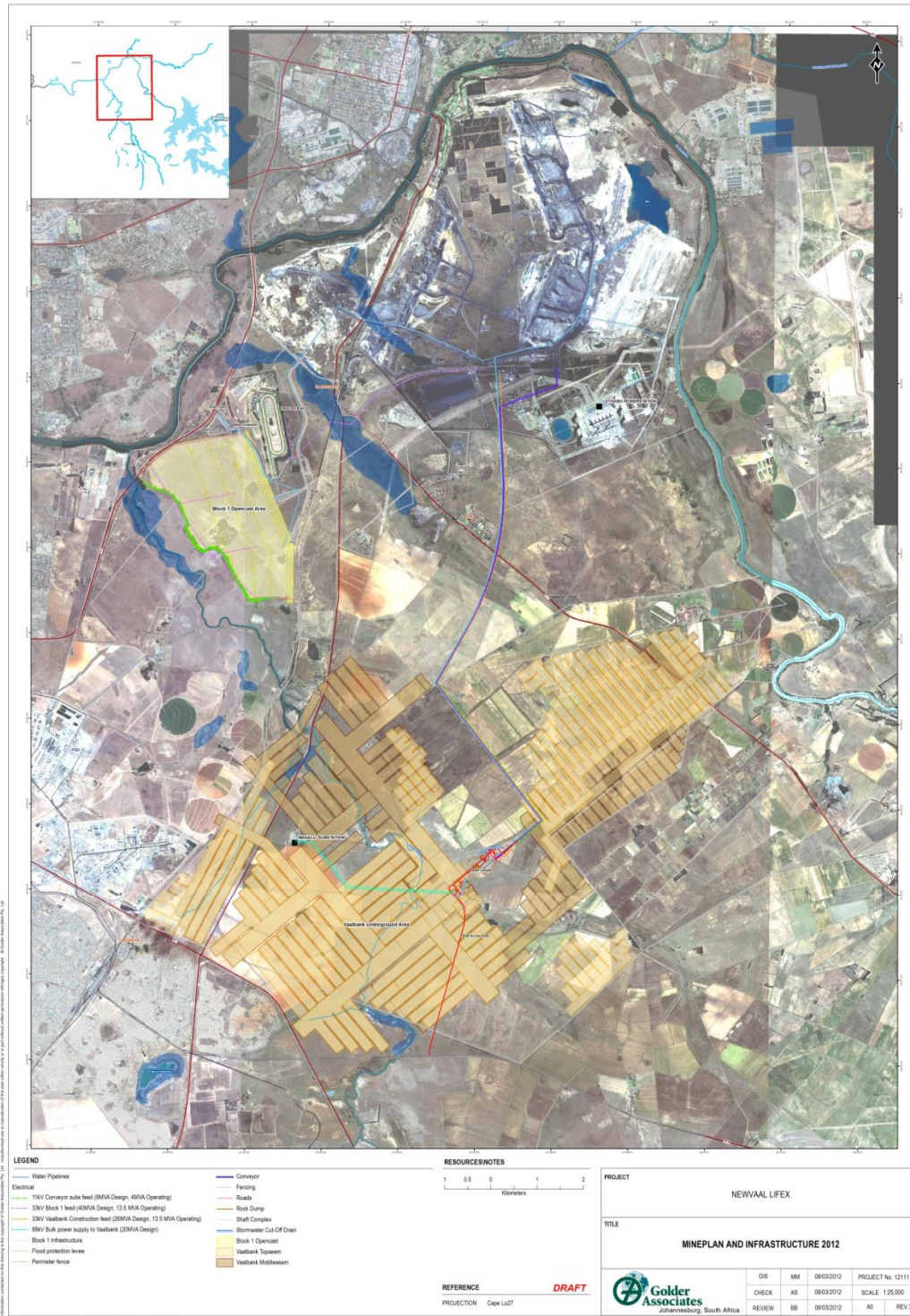


Figure 1- The NVC Project Area on the Highveld in the Orange Free State Province. Note the New Cornelia Block 1 in the centre (NVC to the north) and the New Cornelia Vaalbank mining area in the lower centre. Various types and ranges of heritage resources were mapped in the project area.

4 METHODOLOGY

This Phase I HIA study was conducted by means of the following:

- Surveying the proposed NVC Project Area with a vehicle and selected spots on foot.
- Briefly surveying literature relating to the pre-historical and historical context of the NVC Project Area.
- Consulting maps of the proposed NVC Project Area.
- Consulting archaeological (heritage) data bases.
- Consulting spokespersons regarding the possible presence of graves and graveyards in the NVC Project Area.
- Synthesising all information obtained from the data bases, fieldwork, maps and literature survey.

4.1 Fieldwork

The proposed NVC Project Area was surveyed with a vehicle where accessible roads existed while selected, sensitive spots in the project area were surveyed on foot.

4.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the Provincial Heritage Resources Agency (PHRA) and the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria were consulted to determine whether any heritage resources of significance has been identified during earlier heritage surveys in or near the NVC Project Area (see Part 9, [Select Bibliography](#)).

Literature relating to the pre-historical and the historical unfolding of the Highveld where the NVC Lifex Project will unfold was reviewed (see Part 5, [Contextualising the NVC Project Area](#)).

It is important to contextualise the pre-historical and historical background of the NVC Project Area in order to comprehend the identity and meaning of heritage sites in and near the project area.

In addition, the NVC Project Area was studied by means of 1:50 000 topographical maps and the 1:250 000 map on which it appears.

4.3 Consulting spokespersons

Spokespersons living in the NVC Project Area were consulted regarding the possible presence of solitary graves and graveyards. Many graveyards on the Highveld have been abandoned or occur in desolated areas or in maize fields where they remain undetected if not pointed out by persons such as farmers and workers, who are well acquainted with the NVC Project Area (see Part 8, ~~Spokespersons consulted~~).

4.4 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the NVC Project Area considering the size of the area and the fact that heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the NVC Lifex Project or during other development activities, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

4.5 Some remarks on terminology

Terms that may be used in this report are briefly outlined below:

- **Conservation:** The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.
- **Cultural resource management:** A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.
- **Cultural resources:** A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.
- **Heritage resources:** The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the 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 lifestyles of the people or groups of people of South Africa.

- In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.
- Iron Age: Refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the Historical Period.
- Maintenance: Keeping something in good health or repair.
- 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 to the Eastern Highveld by the first Colonists who settled here from the 1840s onwards.
- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- 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.
- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.

- Reconstruction: Re-erecting a structure on its original site using original components.
- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.
- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.
- Stone Age: Refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).
- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.
- Translocation: Dismantling a structure and re-erecting it on a new site using original components.
- Project Area: refers to the area (footprint) where the developer wants to focus its development activities (refer to Figure 3).
- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).
- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or

shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involve permitting processes, require the input of different specialists and the co-operation and approval of SAHRA.

5 CONTEXTUALISING THE NVC LIFEX PROJECT AREA

5.1 Prehistory

The NVC Project Area is situated close to the Vaal River valley which is also the provincial border between Gauteng and the Orange Free State. The Vanderbijlpark-Vereeniging area is characterised by undulating, highveld grassland that is drained by the Riet River west of Vanderbijlpark and the Klip River and Suikerbosrand River towards Vereeniging in the east. The Vereeniging-Vanderbijlpark-Sasolburg area is situated approximately 1 500 m above sea level. It has an annual summer rainfall of 650 mm per annum. Summer temperatures vary between 15° to 27° C and winter temperatures between 3° and 17° C.

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and Homo habilis have been found in dolomite caves and underground dwellings at places such as Sterkfontein and Swartkrans near Krugersdorp. Homo habilis, one of the Early Stone Age (ESA) hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles.

The Acheulian industrial complex replaced the Oldowan industrial complex during the ESA. This phase of human existence was widely distributed across South Africa and is associated with Homo Erectus, who manufactured hand axes and cleavers from as early as one and a half million years ago. Oldowan and Acheulian artefacts were also found four to five decades ago in some of the older gravels (ancient river beds and terraces) of the Vaal River and the Klip River in Vereeniging. The earliest ancestors of modern man may therefore have roamed the Vaal valley at the same time that their contemporaries occupied some of the dolomite caves near Krugersdorp.

Middle Stone Age (MSA) sites dating from as early as two hundred thousand years ago have been found all over South Africa. MSA hunter-gatherer bands

also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears.

The Late Stone Age (LSA) commenced twenty thousand years ago or somewhat earlier. The various types of 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. LSA people manufactured tools that were small but highly effective, such as arrow heads and knives.

LSA people were also known for their rock art skills. At least one rock engraving site exists near Vereeniging, at Redan. This site has been declared a national monument. It is highly likely that more rock engraving sites may exist near the NVC Project Area.

Early Iron Age (EIA) farming communities practised a mixed economy, consisting of plant cultivation and stock herding, in the interior of South Africa during the first half of the first millennium AD. These Bantu-Negroid people, who interbred with the local San and Khoi-Khoi, were ironworkers of some repute and they established the first permanent villages south of the Limpopo River. These communities occupied the savanna of the Limpopo Province as well as the eastern lowveld and coastal regions of South Africa. No traces of their existence have as yet been found on the Highveld.

During the Late Iron Age (LIA), farming was practised in the northern, central and eastern parts of the country. These farming communities built numerous stone walled settlements throughout the southern Highveld of the Orange Free State, on the Witwatersrand, in the Bankeveld and numerous other places in South Africa from the 17th century onwards. These sites are associated with the predecessors of the black ethnic groups living in South Africa. Some of these

sites are also situated near the Vaal Valley, but eastwards of Vereeniging and outside the Vaal Triangle. Stone walled sites are also spread out along the range of hills running from Randfontein in the west through Johannesburg to Heidelberg in the east. These sites are associated with the ancestors of the Sotho-Tswana peoples.

Numerous pre-*difaqane* and *difaqane* wars were fought on the Highveld during the last quarter of the 18th century and during the first three decades of the 19th century. These wars led to the displacement of large numbers of LIA communities. During this time the Matabele of Mzilikazi caused chaos and havoc in the Orange Free State and in the Bankeveld, further to the north. The Matabele established several village complexes along the Vaal River before they entered the Bankeveld in 1827.

5.2 Early history

George Stow discovered coal on the banks of the Vaal River in 1879. The town of Vereeniging, named after the company that retrieved the coal reserves, came into existence in 1882. Today Vereeniging is a flourishing industrial centre. Giant thermal power stations in the Vaal Triangle convert water and coal into electricity distributed through the national grid. It was in Vereeniging that the Boer and British generals met in May 1902 to end the Anglo-Boer War (AD1899-1902). The terms of the peace were negotiated at Vereeniging. At Witkop, near Redan, a solitary blockhouse attests to this period in South Africa's history.

The town of Vanderbijlpark was planned in 1941 when the South African Iron and Steel Industrial Corporation (Iskor) began building steel works close to the Vaal River, downstream from the Vaal Dam. Iskor's work force was housed in Vanderbijlpark, envisaged as a garden industrial town with river frontage that would eventually house 200 000 people. The town was named after Dr H.J. van der Bijl (1887 to 1948), chairman of Iskor, one of South Africa's leading industrialists during the first half of the 20th century. The town

became a municipality in 1952. Today Vanderbijlpark is part of the Vaal Triangle, one of the economic hubs of South Africa.

The first black township near Vanderbijlpark was proclaimed in 1949 and was named Bophelong. The second black township was named Boipatong. Sebokeng, to the north of Vanderbijlpark, and other black townships gradually developed around the Iscor Vanderbijlpark Works to supply the labour demands that grew from the expanding industrial nucleus that emerged around Iscor in Vanderbijlpark. Many of these labourers also worked in the neighbouring town, Vereeniging.

The South African Coal, Oil and Gas Corporation (Sasol) established its complex and unique chemical plant on a vast coal field south of the Vaal River. Sasol's workers live in the town of Sasolburg. Sasol produces a great variety of chemicals as well as petroleum from coal. It is the only oil from coal plant in the world producing commercial quantities of oil. Several other manufacturers supplied with raw materials by Sasol, have their plants in the vicinity. Fertilizers, plastics, synthetic fibres, detergents and other materials are produced locally.

5.3 Heritage resources in Vereeniging

In 1879 the pioneer geologist George W. Stow, who undertook geological explorations for the Orange Free State, discovered coal fields north of the Vaal River on the farm Leeukuil. This led to the establishment of the Zuid-Afrikaansche en Oranje Vrystaatsche Steenkool en Mineralen Mijn Vereeniging. The owners of this company were Samuel Marks and Isaac Lewis. The company commissioned Stow to purchase and to develop all the coal-bearing farms in the area. Mining began in 1879 and in 1882 the company applied to establish a township on Leeukuil. The town was named Vereeniging. The name was derived from the last word in the company's name. A bust of Stow can be seen in the Vereeniging library and a memorial in the Civic Centre.

Since the late 19th century, quarrying operations in Vereeniging have revealed some fossiliferous sandstone outcrops in the area. Dr T. N. Leslie was one of the first to discover these plant fossils. The discoveries were made at places such as Leeukuil and the Central Colliery Mine as well as at other localities close to the Vaal River. Specimens are displayed at the Bernard Price Institute for Palaeontological Research (Leslie Collection), the Geological Museum in Johannesburg and in the Vereeniging Museum. The most common genera present are *Noeggerathiopsis*, *Gangamopteris* and *Glassopteris*.

The quarrying operations originally undertaken to mine for coal not only revealed the presence of plant fossils in these deposits but also the presence of numerous Stone Age sites along earlier or ancient banks of the Vaal River and the Klip River. ESA and MSA sites were discovered at several localities, such as Klipplaatdrift, the Klip River Quarry site, the Duncanville Archaeological Reserve (also known as the Van Riet Louw Archaeological Reserve). These sites contain thousands of stone tools.

A rock engraving site that was declared a national monument was also discovered at Redan. The Redan rock engraving site contains as many as 244 rock engravings done on an outcrop of rocks. Some of the engravings depict animals, while others illustrate San (Bushmen) weapons. A large number of the engravings are geometric designs, such as circles and other symbolic figures.

The first railway line over the Vaal River linking the Orange Free State Republic and the Zuid-Afrikaanse or Transvaal Republic was officially opened on 21 May 1892 by President Reitz of the OFS and President Kruger of the ZAR. Pillars of the bridge carrying the old railway line can still be seen in the Vaal River.

Vereeniging achieved world prominence at the end of the Anglo-Boer war when the peace negotiations were held in Vereeniging from 15 to 31 May

1902. The site is indicated today by a sawn-off tree trunk near the Vereeniging RefractoriesqRecreation Hall.

The Peace of Vereeniging Monument was erected to commemorate the Peace of Vereeniging that ended the Anglo-Boer War in 1902. (The peace accord was signed in Pretoria). The following inscription is engraved on the monument: ~~Gewond maar onoorwonneq~~(Wounded but not vanquishedq).

A well-preserved British blockhouse still testifies to the Anglo-Boer War (1899-1902). It is located at Witkop, ten kilometres to the north of Meyerton on the main road to Johannesburg.

The Vereeniging concentration camp cemetery is located in the old municipal cemetery, off Beaconsfield Avenue near the abbatoir. A garden of remembrance also exists on the Makauvlei golf course, near the clubhouse. This feature was built to commemorate British soldiers who died during the Anglo-Boer War near the railway line that crosses the Vaal River.

The small Voortrekker Monument celebrating the 100 year anniversary of the Ossewatrek was erected in 1938 in the middle of Voortrekker road in Vereeniging, between Marklaan and Merrimanlaan.

Several coal mines were established on both sides of the Vaal River, such as the Cornelia and Springfield coal mines. A memorial for five miners who died in South Africa's first mining disaster in 1905 was erected at the Vereeniging cemetery. The National Monuments Council has unveiled a bronze plaque to commemorate the 100 year anniversary of the discovery of coal at Dickinson Park.

The extensive Makauvlei plantations near the town of Vereeniging consist of pines, oaks and apple trees and were initially established by August Pistorius. One of the first apple processing factories in South Africa was established at Makauvlei. Since 1912 a number of important industries have been established in the municipal industrial township known as Duncanville. These

industries are involved in the manufacture of a wide range of iron and steel products, steel tubes, steel wire, bolts and nuts, electric cables, glass, bricks and tiles, etc.

The townships in Vereeniging include Sharpeville. There are at least two cemeteries, namely the Vuka cemetery in Dabula Street and the Pelindaba cemetery on the corner of Rafuba and Tessum Mareka Streets, in Sharpeville in Vereeniging. These graves are classified as struggle graves. These cemeteries are associated with the Sharpeville massacre.

Vereeniging, like Vanderbijlpark, provides excellent opportunities for fishing, rowing and aquatic sports along the Vaal River.

5.4 The Coalbrook North Mine disaster

During the 1950s and the 1960s the Coalbrook North and Coalbrook South Mines were important suppliers to the Highveld and Taaibos Power Stations which on their turn were pivotal electricity suppliers to the gold mining industry stretching across the Witwatersrand from Klerksdorp in the west to Springs in the east. These power stations were operated with coal and water as thermal power stations.

The Coalbrook North Mine disaster occurred on 21 January 1960. Four hundred and thirty seven men lost their lives in the worst disaster in South Africa's mining history. These men today lie buried 500 feet below the surface near the junction between the roads from Oranjeville and Heilbron.

The disaster arose as a result of the collapse of strata across an area of about 1,25 square miles which in turn collapsed the mine workings below.

According to the British and international coal mining authority, Andrew Bryan's finding on the disaster it was unique in two respects, namely that the loss of life by such an occurrence was the highest ever recorded whilst the

collapse, within a few minutes, of such an extensive area of underground workings is unprecedented in the history of coal mining.

Seismographic recordings indicated that the shock waves took place within four minutes which set in motion the most dedicated rescue operation in the history of South African mining. The official enquiry confirmed nobody could have survived the rock fall or the awful shock waves stemming from it.

On 5 February 1960 all rescue attempts were stopped. The then Prime Minister of South Africa, Dr. H.F. Verwoerd read to parliament a message from the directors of Clydesdale:

It is with deep sorrow that we have to report to you that it is the grave and considered view of the technical management of the company that no further hope can be held out for the trapped men. It is accordingly intended that rescue operations should be discontinued, but the sinking of the shaft adjacent to the mine workings is being continued with the object of reaching the mine workings.

It was decided that no attempts should be made to recover the bodies of the victims. Five of them were married South Africans living on the mine; one was an unmarried Hungarian and the rest migratory workers from Mozambique and Lesotho.

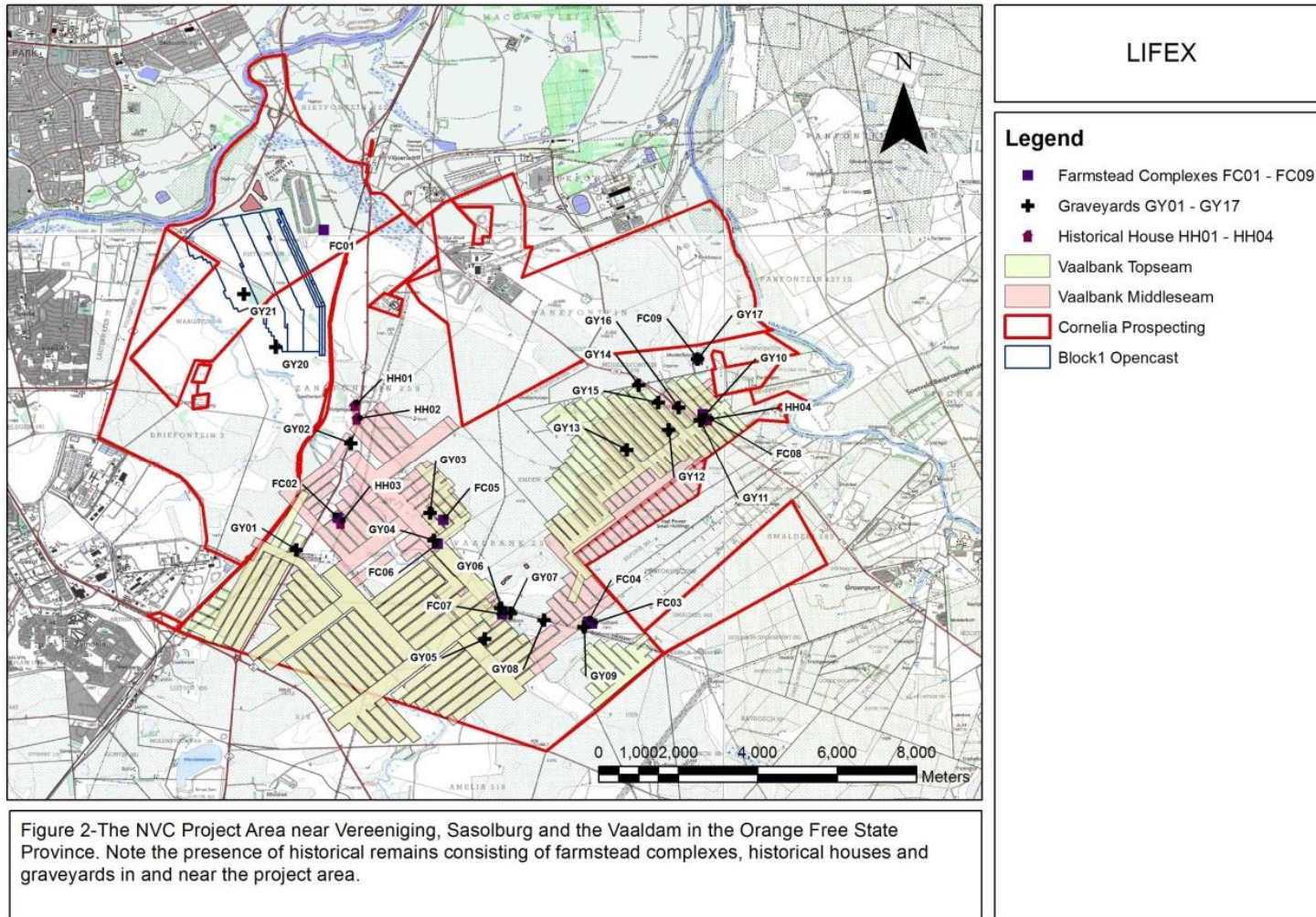
6 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY

6.1 Types and ranges of heritage resources

The Phase I HIA study for the proposed NVC Project Area revealed the following types and ranges of heritage resources in the project area as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Farmstead complexes associated with historical houses, outbuildings (second residences, wagon sheds, rondavels) and in some instances cattle enclosures.
- Informal and formal graveyards.

These heritage resources were geo-referenced and mapped (Figure 2, Tables 1-3). The significance of these resources, any possible impact on these resources as well as mitigation measures for heritage resources that may be affected by the NVC Lifex Project is discussed in the report.



6.2 Historical remains

Historical remains consisting of farmstead complexes, historical houses and other historical features such as an oak tree plantation were documented in the NVC Project Area.

6.2.1 Farmstead complexes

At least nine farmstead complexes consisting of historical houses with outbuildings were documented inside the NVC Project Area, namely:

6.2.1.1 Farmstead complex 01

This farmstead complex (FC01) on Sandfontein 259 comprises of the following structures and features:



Figure 3- A single, massive Oak tree indicates the position where FC01 was located on Sandfontein 259 (above).

- The foundation stones of a single room structure which was constructed with dolerite.
- The foundation stones of a two-room structure which was constructed with dolerite.
- Two large middens which contain coal, porcelain, glass wares and potsherds.
- A single, massive Oak Tree. Oak trees are usually found in association with nineteenth and/or twentieth century farm stead complexes as these trees were brought from south of the Vaal River by the first white colonists who settled on the Highveld.



Figure 4- Foundations of a one-roomed structure which was constructed with dolerite. The cement wall probably replaced an original mud wall (above).

6.2.1.2 Farmstead complex 02

This farmstead complex (FC02) on Vaalbank 238 includes the following:

- A dwelling which was constructed with dolerite and which is fitted with a pitched corrugated iron roof. This residence may date from the 1930s or 1940s. A second structure or outbuilding, which probably dates from a younger period, was built directly adjacent to the dolerite house. It is also possible that the outbuilding may have been constructed with dolerite but that its walls were plastered and therefore appearing younger than the dolerite structure.
- A small rectangular structure which foundation was built with dolerite and its walls with clay. It is partly demarcated with a fence which was constructed with clay. This structure, which probably served as a dwelling, is fitted with a pitched corrugated iron roof. It is highly likely that this structure dates from the nineteenth century.



Figure 5- A residence with outbuilding on Vaalbank 358. The house was built with dolerite and is fitted with a pitched corrugated iron roof. Together with a clay dwelling these structures constitute FC02 (above).



Figure 6- A dwelling with dolerite foundations and clay walls in FC02. Note the clay sods (bricks) with which the walls were constructed. This may be one of the oldest buildings in the NVC Project Area (above).



Figure 7- FC06 consists of a residence and wagon shed dating from the 1930's (above).

6.2.1.3 Farmstead complex 03

FC03 on Vaalbank 238 comprises the following structures, namely:

- A residence which dates from the 1920s or 1930s. This house was built with clay bricks and with cement and is fitted with a pitched corrugated iron roof. The house is fitted with steel window frames.
- A milk-shed which is located adjacent to the residence and which was constructed with the same building material.

6.2.1.4 Farmstead complex 04

FC04 on Vaalbank 238 comprises of a residence which was constructed during the late 1950s or early 1960s. It is associated with two small outbuildings and possibly with a shed as well. The house and outbuildings were constructed with red face bricks and cement and fitted with a pitched corrugated iron roof and steel window frames.



Figure 8- FC04 includes a residence with two outbuildings and perhaps one shed (above).

6.2.1.5 Farmstead complex 05

FC05 on Vaalbank 238 comprises the following two structures, namely:

- A severely dilapidated residence which was constructed with dolerite.
- An outbuilding located directly next to the larger residence which was also constructed with dolerite.

6.2.1.6 Farmstead complex 06

FC06 on Vaalbank 238 consists of the following two structures, namely:

- A residence which was constructed with sandstone. This square structure is fitted with a corrugated iron roof. (According to a spokesperson this residence was constructed with material which is derived from a British blockhouse which used to occur on the ridge overlooking the Taaibosspruit).



Figure 9- A sandstone dwelling with pitched corrugated iron roof is part of FC06. It seems as if this structure was constructed with building material which once was part of a British blockhouse (above).

- A cattle enclosure which was constructed with dolerite stone but which was restored in more recent times.

6.2.1.7 Farmstead complex 07

This farmstead complex (FC07) on Vaalbank 238 incorporates the following:

- A residence which dates from the 1920s or 1930s. This house was built with clay bricks and cement and is plastered. It is fitted with a pitched corrugated iron roof. A lean-to was added to the back-side of the house.
- A shed with a lean-to which was constructed with the same building material.



Figure 10 - A shed with a lean-to is part of FC07 which also incorporates a residence which was also constructed with bricks and cement (above).



Figure 11 - The main residence in FC08 was constructed with dolerite. It is associated with a wagon shed and a rondavel which has been turned into a silo (above).

6.2.1.8 Farmstead complex 08

This farmstead complex (FC08) on Khadie 1309 holds a single historical house as well as a farmstead complex comprising of the following structures, namely:

- A residence which was constructed with dolerite and which is fitted with a pitched corrugated iron roof.
- A wagon shed which was constructed with the same building material.
- A rondavel which was turned into a silo.

6.2.1.9 Farmstead complex 09

FC09 on Modderfontein 1279 comprises of the following structures.

- A main residence which dates from the 1920~~d~~1930~~s~~.

- A wagon shed whose foundations were constructed with dolerite and its walls with clay bricks. The structure is plastered and fitted with a pitched corrugated iron roof.
- A rondavel next to the main residence.

Historical structures: Farmstead complexes	Coordinates	Significance
<u>Farmstead complex (FC01)</u> Foundations and middens on Sandfontein 259 Massive oak tree Midden Midden Dolerite foundation Dolerite foundation	 26° 44.945' 27° 54.547' 26° 46.928' 27_54.574' 26° 46.926' 27_54.565' 26° 46.928' 27_54.590' 26° 46.956' 27_54.552'	Older than 60 years. HIGH
<u>Farmstead complex (FC02)</u> On Vaalbank 238 Dolerite house Outbuilding Clay building	 26° 48.865' 27° 54.734' 26° 48.880' 27° 54.710'	Older than 60 years. HIGH
<u>Farmstead complex (FC03)</u> This farmstead complex on Vaalbank 238 consists of the following structures: A residence Milk-shed	 26° 50.305' 27_58.190' Adjacent	Older than 60 years. HIGH
<u>Farmstead complex (FC04)</u> On Vaalbank 238 consisting of: A residence Two outbuildings	 26° 50.275' 27_58.136' Adjacent	Older than 60 years. HIGH
<u>Farmstead complex (FC05)</u> On Vaalbank 238 consisting of: A residence constructed with dolerite An outbuilding constructed with dolerite A second outbuilding constructed with dolerite	 26° 48.899' 27° 56.169' 26° 48.895' 27_56.176' 26° 48.865' 27_56.121'	Older than 60 years. HIGH
<u>Farmstead complex (FC06)</u> On Vaalbank 238 consisting of: A residence constructed with sandstone A cattle enclosure constructed with dolerite	 26° 49.220' 27_56.091' Adjacent	Older than 60 years. HIGH
<u>Farmstead complex (FC07)</u> On Vaalbank 238 consisting of: A residence dating from the 1930s	 26° 50.178' 27° 56.972'	Older than 60 years. HIGH

Shed dating from the 1930s	26° 50.226' 27_56.928'	
<u>Farmstead complex (FC08)</u> On Khadie 1309 which holds the following: A residence dating from the 1920s/1930s A wagon shed dating from the 1920s/1930s A rondavel which was turned into a silo	26° 47.449' 27_59.691	Older than 60 years. HIGH
<u>Farmstead complex (FC09)</u> On Modderfontein 1279 which holds the following: A residence dating from the 1920s/1930s A wagon shed dating from the 1920s/1930s A rondavel	26° 46.700' 27_59.628 Adjacent Adjacent to residence	Older than 60 years. HIGH

Table 1- Coordinates and significance rating for Farmstead Complexes in the NVC Project Area (above).

6.2.2 Historical houses

At least four historical houses (outside those that are part of farmstead complexes) were observed in the NVC Project Area.

A few more may occur as access to all farms was not possible. The historical houses that were recorded are the following:

6.2.2.1 Historical House 01

HH01 is located on Sandfontein 259 and probably dates from the 1940s or 1950s.

It was constructed with clay bricks and with cement and is fitted with a pitched corrugated iron roof and steel window frames.

6.2.2.2 Historical House 02

HH02 is located on Sandfontein 259 and probably dates from the 1940s or 1950s. HH02 was constructed with clay bricks and with cement and is fitted with a pitched corrugated iron roof and steel window frames. This residence was altered and extended in the past.

6.2.2.3 Historical House 03

HH03 is located on Vaalbank 238 and probably dates from the 1950s or 1960s.

It was constructed with red face bricks and with cement and is fitted with a pitched corrugated iron roof and steel window frames.



Figure 12- Historical House 03 on Vaalbank 238 was constructed with red face clay bricks and with cement and probably dates from the 1950's or 1960's (above).

6.2.2.4 Historical House 04

HH04 is located on Khadie 1309 and consists of a residence which was built with dolerite stone.

HH04 was renovated in more recent times and part of it was reconstructed with red clay bricks. It is fitted with a pitched corrugated iron roof.

It is in a dilapidated condition.



Figure 13- HH04 on Khadie 1309 was constructed with dolerite. The house was renovated and is currently fitted with steel window frames while a lean-to which was constructed with clay bricks was added to the house's back side (above).

Historical structures: Historical houses	Coordinates	Significance
<u>Historical House 01 (HH01)</u> Sandfontein 259 dates from the 1930s/1940s	26° 47.327' 27_54.967'	Older than 60 years. HIGH
<u>Historical House 02 (HH02)</u> Sandfontein 259 dates from the 1930s/1940s	26° 47.512' 27_54.995'	Older than 60 years. HIGH
<u>Historical House 03 (HH03)</u> Vaalbank 238 dates from the 1950s/60s	26° 48.937' 27_54.777'	Older than 60 years. HIGH
<u>Historical House 04 (HH04)</u> On Khadie 1309 dating from the 1920s/1930s	26° 47.522' 27_59.767'	Older than 60 years. HIGH
Oak Tree plantation (OT)	26° 47.102' 27_54.826'	No context. Low

Table 3- Coordinates and significance rating for Historical Houses and an oak tree plantation in the NVC Project Area (above).

6.3 Graveyards and graves

At least twenty graveyards were observed in the NVC Project Area whilst a graveyard and a single grave occur outside the project area, namely:

6.3.1 Graveyard 01

This graveyard (GY01) on Sandfontein 259 is located near Eskoms 400kV power lines. GY01 holds approximately thirty-five graves most of which are covered with heaps of stone.

A few graves are fitted with cement and granite headstones. Several of the headstones are carved from dolerite rock.



Figure 14- GY01 on Sandfontein 259 holds as many as thirty five graves several of which are fitted with carved dolerite headstones (above).

Inscriptions on some of the headstones in GY01 read as follow:

- ±eroane Johannes Kau, Hlapo 8th May 1859, ? 1949q
- ±n loving memory of Earthirana Mateus Died 16-4-1959, R.I.P.q
- ±Rahaba Machobaq
- ±Nthisane Letanta *1919 «1971 Robala ka khotso Sefela 106q

6.3.2 Graveyard 02

This military graveyard in a fenced-off game reserve on Vaalbank 238 dates from the South African War (AD1899-1902). It holds a considerable number of graves. GY11 was not accessible when the fieldwork was done and could not be inspected from near. However, the graveyard is visible in the game reserve standing at the fence bordering on Road 82 which runs between Vereeniging and Heilbron.

6.3.3 Graveyard 03

GY03 is a large informal graveyard on Vaalbank 238 and is located in open veldt. It may hold as many as hundred graves.

Most of the graves are covered with stones, other are edged with bricks or are covered with bricks and roof tiles. A number of the graves are also fitted with cement strips, covered with cement slabs while a number has cement headstones, some with inscriptions. A few are decorated with granite strips and headstones with inscriptions.



Figure 15- GY03 on Vaalbank 238 holds as many as one hundred graves and is located in open veldt (above).

The inscriptions on some of the graves read as follow:

- Maphulo Mofokeng Ohlo kahetsi kali 26-12-19?q

- In loving memory of Mrs Anna Motsamami Matshediso Mokoena Died 6-6-1970 Remembered by your childrenq
- Selina Mokoena Ohloka hletse ka le 14-1981q
- Lettie Dirame 18-12-1902q16-5-1956q

6.3.4 Graveyard 04

This historical graveyard (GY04) on Vaalbank 238 holds as many as nine graves some dating from the nineteenth century. Four of the graves do not have any headstones with inscriptions, two of these graves are covered with stones and the other two are merely represented by fragmented pieces of cement.



Figure 16- GY04 on Vaalbank 238 is a historical graveyard which holds the remains of the Bannister family (above). Charles Williams Bannister worked for the Vereeniging Estates Company during the first part of the 20th century.

Inscriptions on the headstones of three of the graves read as follow:

- ₤Susanna Maria Bannister *30-7-1863 «7-5-1954 Rest in peaceq
- ₤J.H. Coetzee 27-4-1927 19-5-1933 Rus sagq
- ₤Charles William Bannister (Jnr) Born 1 Oct 1920 Died 1 Dec 1932 R.I.P.q

6.3.5 Graveyard 05

GY05 is located on Vaalbank 238 near a quarry. This graveyard is composed of two sections, namely an older smaller component which holds some graves which are fitted with cement headstones. The larger, younger component contains graves which are decorated with granite trimmings and headstones with inscriptions.



Figure 17- Graveyard 05 on Vaalbank 238 holds as many as thirty graves and is located near a quarry (above).

GY05 holds as many as 30 graves. Inscriptions on some of the granite headstones read as follow:

- ~~Ɔ~~Dimakatio Joyce *26-09-1965 «03-03-1966q
- ~~Ɔ~~Molois Mokwena R.I.P. 29 Dec 69q
- ~~Ɔ~~Abram Makakala 144 years Died 26-8-1966q

6.3.6 Graveyard 06

GY06 is located near Eskom's power lines on Vaalbank 238 and holds as many as forty graves, most of which are covered with piles of stone. A few of the graves are fitted with granite headstones with the following inscriptions:

- ~~Ɔ~~Sameul Sekoane Mokone Born 20-05-1938 Died 05-07-1993q
- ~~Ɔ~~Solomyn Moreki Hlahile 9-2-1916 Hlkahetse 20-1-92q
- Danie Mopeki Hlahile 27-5-70 Hlokahele 7-8-84q

6.3.7 Graveyard 07

This graveyard (GY07) is situated next to a line of Blue Gum trees on Vaalbank 238. It holds eight graves, four of which are covered with fragmented pieces of cement. Two are fitted with cement headstones with no inscriptions.

6.3.8 Graveyard 08

This graveyard (GY08) merely comprises two graves which are located on Vaalbank 238 under Eskom's power lines. Both are fitted with cement headstones. The grey painted headstone contains the following inscription:

- ~~Ɔ~~Bethuel Motlpathedi Born 19-6-1912 Died 14-5-1935q

6.3.9 Graveyard 09

GY09 is located at the Nienaber residence and holds five graves which are all decorated with granite trimmings and headstones.

Inscriptions on some of the headstones read as follow:

- † In liefdevolle herinneringe aan my geliefde eggenoot ons vader en oupa Josef Jooste Nienaber 19-12-1924 20-11-2007 Laat ons drome en gedagtes heilig wees tot U eerq

6.3.10 Graveyard 10

The graveyard (GY10) of the Latsky family is located on Khardie 1309. It holds two graves which are fitted with granite headstones and trimmings.

The inscriptions on the tombstones read as follow:

- † In liefdevolle herinnering aan ons dierbaarste moeder en ouma Elsie Wilhelmina Latsky (gebore van Aard) 23 Julie 1897 Oorl 13 Julie 1949 Ons swyg dit was U wil Ges 86:7q
- † In liefdevolle herinnering aan ons dierbare eggenoot en vader Nicolaas Albertus Latsky Geb 4 Maart 1874 Oorl 6 Mei 1945 Ges 182V4q



Figure 18- GY10 on Khadie 1039 belongs to the Latsky family and dates from the nineteenth century (above).

6.3.11 Graveyard 11

GY11 on Khardie 1039 holds the remains of two individuals in a single grave.

The inscriptions on a single gravestone read as follow:

- Hier rus my newe eggenoot en kind Frederik J Bell Geb 2 Maart 1884 Oorlede 14 Oktober 1941 en Mimmie Bell Geb 18 Oct 1930 Oorl 21 Julie 1938 Rus sag dierbareq

6.3.12 Graveyard 12

GY12 is a large informal graveyard in a Blue Gum bush on Kruisementfontein 84. It holds as many as thirty five graves, most of which are covered with heaps of soil. Some are fitted with granite headstones. The inscription on one of the cement headstones reads as follows:

- Susanna Makhalema Date of birth 20-3-1970 Die in 17-6-89q



Figure 19- GY12 in a Blue Gum bush on Kruisement 84 holds approximately thirty five graves (above).

6.3.13 Graveyard 13

GY13 on Kruisementfontein 84 is located in a maize field. It holds approximately twelve graves. Most of the graves are heaps of stone and are edged with upright stones.

One of the cement headstones contains the following inscription:

- †John Gowa Born 11-9-1908 Die 6-11-1957q



Figure 20- GY13 with twelve graves in a maize field on Kruisementfontein 84 (above).

6.3.14 Graveyard 14

GY14 is located next to a dirt track road. It holds five graves which are all decorated with granite and cement headstones.

Inscriptions on two of the headstones read as follow:

- Madiphapane Monyau 28-05-1901 30-07-1981 Robala ka kgotso Mokgatleq
- David Masilo Ramodise Birth 1919 Died 1969q
- Albina Lekhe-Themasilo Born 1879 Died 12-76q

6.3.15 Graveyard 15

GY15 is located on Kruisementfontein 84 in the middle of a maize field. It holds approximately forty graves most of which are covered with piles of dolerite stone. A few of the graves are fitted with headstones.



Figure 21- GY15 on Kruisementfontein 84 is located in the midst of a maize field. It holds approximately forty graves (above).

6.3.16 Graveyard 16

GY16 is located next to the Deneysville road and holds the remains of seven individuals. All of the graves are fitted with granite headstones and trimmings. All the headstones contain inscriptions.

6.3.17 Graveyard 17

GY17 represent two graves under an Oak tree on Modderfontein 1279. The graves have not been decorated.

6.3.18 Graveyard 18

This graveyard is located on Weenen 1152, outside the NVC Project Area and holds approximately six graves. All of the graves are decorated with granite slabs and headstones.

6.3.19 Graveyard 19

GY19 is a large formal cemetery on Bankfontein 9 which holds the remains of several hundred individuals.

6.3.20 Graveyard 20

This informal graveyard is located in tall grass on the banks of the Taaibosspruit where the proposed open cast mine will be established.

GY20 holds approximately twenty graves some of which are fitted with cement slabs and headstones. Inscriptions on two of the headstones read as follow:

- Sophia Malebeka Maschobane Born 1922-01-20 Died 1967-08-27
RIPq
- Jacob Selepe Machobane Born 1888 Died 1922q

6.3.21 Graveyard 21

This informal graveyard near a Blue Gum lot holds a limited number of unmarked graves.

6.3.22 Grave 01

A single grave which is edged with face brick is located on Mooiplaats 581, outside the NVC Project Area. It is not fitted with any headstone.

Graveyards	Coordinates	Significance
GY01. Informal graveyard on Sandfontein 259 near Eskom power line. Approximately 35 graves	26° 49.305' 27_54.173'	HIGH
GY02. Military graveyard on Sandfontein 259.	26° 47.847' 27_54.917'	HIGH
GY03. Large informal graveyard with more than 100 graves on Vaalbank 238	26° 48.802' 27_55.995'	HIGH
GY04. Historical Bannister graveyard on Vaalbank 238. Holds nine graves	26° 49.175' 27_56.047'	HIGH
GY05. Informal graveyard near quarry on Vaalbank 238. Holds approximately 30 graves	26° 50.513' 27_56.733'	HIGH
GY06. Informal graveyard near Eskom power line on Vaalbank 238. Holds approximately 40 graves	26° 50.096' 27_56.955'	HIGH
GY07. Informal graveyard with eight graves near Blue Gum trees on Vaalbank 238	26° 50.160' 27_57.087'	HIGH
GY08. Two graves under Eskom power lines on Vaalbank 238.	26° 50.259' 27_57.538'	HIGH
GY09. Graveyard on Vaalbank 238 near the Nienaber residence	26° 50.350' 27_58.082'	HIGH
GY10. Latsky graveyard with two graves on Khardie 1039.	26° 47.530' 27_59.661'	HIGH
GY11. Graveyard with two graves in close proximity of Latsky graveyard on Khardie 1039	26° 47.539' 27_59.663'	HIGH
GY12. Graveyard in Blue Gum bush on Kruisementfontein 1279	26° 47.663' 27_59.233'	HIGH
GY13. Graveyard in maize field on Kruisementfontein 1279	26° 47.937' 27_58.663'	HIGH
GY14. Located next to two track road on Kruisementfontein 1279	26° 47.058' 27_58.825'	HIGH
GY15. Located in maize field on Kruisementfontein 1279	26° 47.290' 27_59.093'	HIGH

GY16. Located next to Deneysville road on Kruisementfontein 1279	26° 47.363' 27_59.368'	HIGH
GY17. Two graves under an Oak tree on Modderfontein 1279	26° 46.700' 27_59.628'	HIGH
GY18. Located on Weenen 1152 outside the Project Area	26° 48.076' 28_00.802'	HIGH
GY19. Large formal graveyard on Bankfontein 9	See maps	HIGH
GY20. Informal graveyard on the banks of the Taaibosspruit in proposed open cast mining area. Approximately 20 graves in tall grass	26.77570S 27.89829E	HIGH
GY21. Informal graveyard with limited number of graves near Blue Gum lot	26°45'49.049" 27°53'27.648"	
<u>Outside the Project Area</u>		
G01. A single grave on Mooiplaats 581 in open veldt and edged with face bricks.	26° 54.552' 28_03.932'	HIGH

Table 3- Coordinates and significance rating for graveyards in the NVC Project Area (above).

7 POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

7.1 Possible impact on the heritage resources

It is highly likely that GY20 and GY21 will be impacted by the open cast mining activities in the New Cornelia Block 01 mining area.

The significance of the graveyards therefore is indicated as well as mitigation measures should these heritage resources be affected by the proposed mining activities.

7.2 The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. The significance of the graveyards therefore has been indicated as High (Table 3).

Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

7.3 Mitigating the graveyards

The graveyards can be mitigated by means of the following strategies, namely:

- If the graveyards are to be affected directly (by the open cast mines and/or other mine infrastructure which will be established on top of the graveyards) the graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graves and graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic

archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

- If the graveyards are to be affected indirectly (by the open cast mines and/or other mine infrastructure which will be established in close proximity but not on top of the graveyards) the graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.

8 CONCLUSION AND RECOMMENDATION

The Phase I HIA study revealed the following types and ranges of heritage resources in the NVC Project Area as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Farmstead complexes associated with historical houses, outbuildings (second residences, wagon sheds, rondavels) and in some instances cattle enclosures.
- Informal and formal graveyards.

These heritage resources were geo-referenced and mapped (Figure 2, Tables 1-3).

Impact on heritage resources

It is highly likely that GY20 and GY21 will be impacted by the open cast mining activities in the New Cornelia Block 01 mining area.

The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. The significance of the graveyards therefore has been indicated as **High** (Table 3).

Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Mitigating the graveyards

The graveyards can be mitigated by means of the following strategies, namely:

- If the graveyards are to be affected directly (by the open cast mines and/or other mine infrastructure which will be established on top of the

graveyards) the graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graves and graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

- If the graveyards are to be affected indirectly (by the open cast mines and/or other mine infrastructure which will be established in close proximity but not on top of the graveyards) the graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.

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10 SPOKESPERSONS CONSULTED

Clinton Loyd. Son of Raymond Loyd, tenant on Sandfontein 259.

Raymond Loyd. Tenant on Sandfontein 259.

J. D. Cilliers. Owner of the farm Rietfontein 150.

C. B. Bierman. Owner of the farm Rosendal on Mooiplaats 581.

George Masoka. Farm labourer on Mooiplaats 581.

Johan Danhauser. Farm owner of Slangheuwel 1030.

Dawie Cilliers. Farm owner of Mooiplaats 581.

Lukas Mokwena. Farm labourer on Mooiplaats 581.

Miriam Mofokeng. Farm labourer on Mooiplaats 581.

Lucas Kanye. Farm labourer on Scotvale.

Gert du Plooy. Son of farm owner of Rietfontein 150.

Sameul Matebele. Tenant on Rosendal 1406.

Amos Motlalane. Tenant on Rosendal 1406.

Paulus Rabulou. Tenant on Rosendal 1406.

Sameul Khumalo. Farm worker on Rietfontein 150.

Pula Taung. Farm worker on Rietfontein 150.

Rida Nienaber. Owner of Vaalbank 238

Solly Maduna. Farm worker on Vaalbank 238

Isak Venter. Visitor to George Schwartzel 238.

George Schwartzel. Farm owner on Kruisementfontein 84

Renier van Rooyen. Foreman on Modderfontein 1279

Efraim Maoba. Farm labourer on Khadie 1039.

Josef Makhuma. Farm labourer on Khadie 1039.

Aaron Makoena. Farm labourer on Khadie 1039.

Ronald Myburg. Farm labourer on Khadie 1039.

C B Swartz. Farm owner Weenen 1152

Johan Burger. Tenant on Weenen 1152