PGS
HERITAGE & GRAVE
RELOCATION CONSULTANTS

Phase 1 Heritage Impact Assessment

Proposed Development of Reiger Park Ext. 18
Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province

Project No: HU-2010-P112-RP18

Version 01

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EXECUTIVE SUMMARY

PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 18 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

An archival and historical study was undertaken which has revealed various aspects of the area's history. It showed that no significant heritage features can be associated with the study area during the period 1906 to 1952.

A field survey of the study area identified one ash or rubbish heap. This study has indicated that it is highly unlikely for the site to be older than 100 years. This means that it is not an archaeological site and has no heritage significance.

No significant heritage resources were identified within the study area. As a result no mitigation measures are required.

It is the opinion of the author of this report that in terms of the heritage aspects addressed as part of the defined scope of work of this study (see Section 3), the development may be allowed to continue.

Polke D. Birkholtz
Director

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1. INTRODUCTION

PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 18 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

2. DESCRIPTION OF STUDY AREA AND PROPOSED DEVELOPMENT

2.1 Study Area

The study area comprises for the most part flat topography and is largely covered by medium sized eucalyptus and pine trees. It seems likely that these trees were planted by one of the nearby gold mines for use in the underground mine workings. Along the northern to north-western end of the site an extensive rubbish dump is located. It extends towards the western boundary of the study area and is approximately 5m high.

The south-eastern boundary of the study area is defined by St. Anthony's Road, with an informal settlement area located on the opposite side of this road. On paper the north-western boundary of the study area is defined by a railway line which passes along the southern end of the Angelo Dump to end up at an ERPM gold mine located west and north-west of the present study area. In the field very little evidence for this railway line could be found.

An old shop is located just outside the north-eastern boundary of the study area, whereas the old Central Compound is located roughly 100m to the south-east. This compound dates to at least 1910, and may be even older than that.

2.2 Proposed Development

The proposed development comprises three individual sections, two of which are earmarked for Residential 3 development. The third section will be used for commercial development and will be zoned as Business 4. All three components of the proposed development will have access from St. Anthony's Road.

Refer Figure 1 below.

Plate 1 General view of the study area as seen from its north-eastern boundary.

Plate 2 View along the south-eastern boundary of the study area. This road is known as St. Anthony's and defines the boundary of the site on this side.

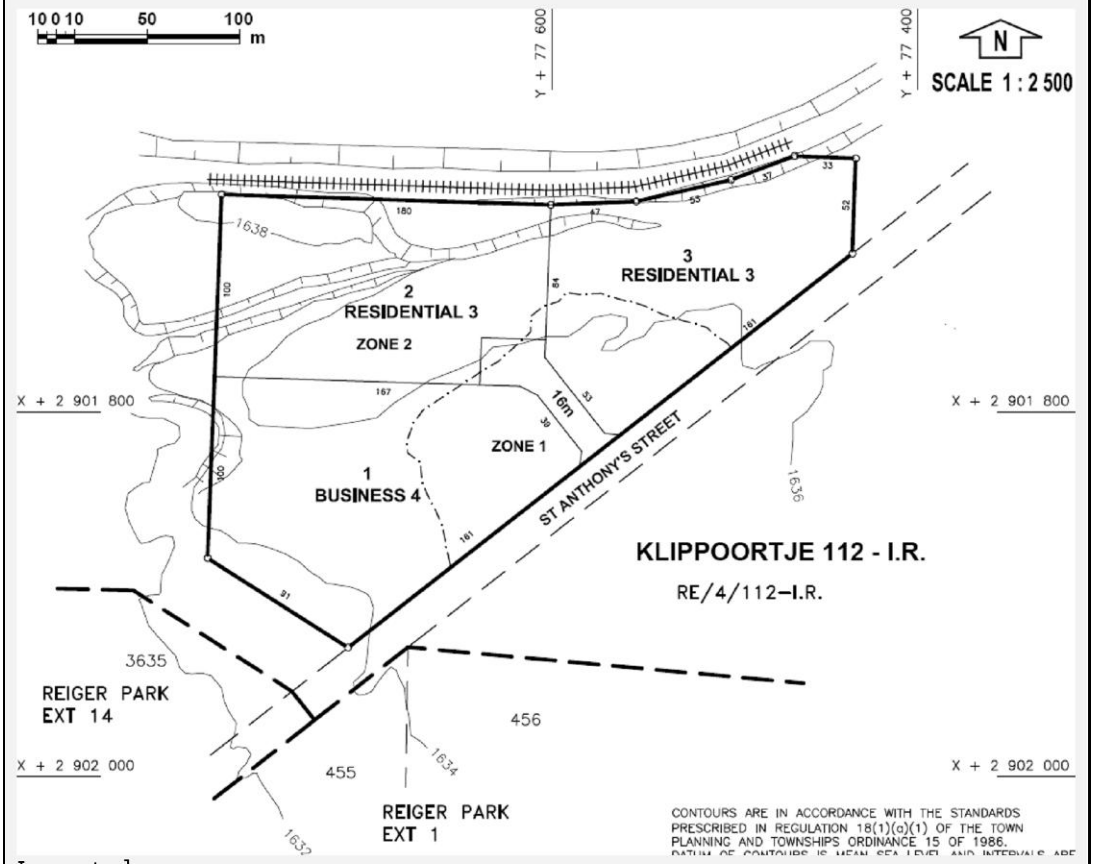
Plate 3 View along the north-western boundary of the study area. A section of Angelo Dam can be seen in the distance on the left.

Plate 4 For the most part the study area is covered in pine and eucalyptus trees. This said it is worth noting that a significant number of these trees were found chopped down.

Plate 5 Excavations such as these were found across the study area where old ash and rubbish dumps are to be found. Conversations held with the individuals who undertake these excavations revealed that they salvage chunks of charcoal from the dumps to sell to local residents.

Plate 6 This old shop with associated buildings and walls is located directly outside of the study area's north-western boundary.

Figure 1: Aerial photo of proposed Reiger Park X 18



Layout plan

Figure 1 This image was supplied by the client. It shows a Google Image (top) with the study area's boundaries depicted in red line. The bottom image depicts the development layout plan.

3. SCOPE OF WORK

The aim of the Heritage Impact Assessment is to locate any heritage resources situated within the study area, assess their respective levels of significance, evaluate the impact of the proposed development on these sites and provide mitigation measures should these sites be negatively impacted upon.

The National Heritage Resources Act (25 of 1999) provides a very comprehensive list of what the national estate may consist of. This list includes:

1. Places, buildings, structures and equipment of cultural significance
2. Places to which oral traditions are attached or which are associated with living heritage
3. Historical settlements and townscapes
4. Landscapes and natural features of cultural significance
5. Geological sites of scientific or cultural importance
6. Archaeological and palaeontological sites
7. Graves and burial grounds
8. Sites of significance relating to the history of slavery in South Africa
9. Movable objects such as military objects and ethnographic art.

With the exception of 'geological sites of scientific or cultural importance' as well as 'palaentological sites' all these items are covered in the scope of this study's work.

Furthermore, it must be noted as well that this study focussed on the identification of tangible heritage resources. As a result very little work was undertaken in terms of intangible heritage (i.e. ritual or spiritual aspects of the area, indigenous knowledge systems and living heritage).

4. METHODOLOGY

4.1 Desktop Study

The desktop study's aim is to compile as much available information as possible on the heritage resources of the area and thereby also providing historical context for any located sites. The focus in the study was placed on archival and historical maps.

4.2 Field Surveys

The field surveys were undertaken on Thursday, 28 April 2011. Location data was captured with a Garmin MAP60CS handheld GPS receiver, loaded with a Garmap South Africa Topographic & Recreation v1.00 base map. Photographs were taken with a Canon Powershot A550 digital camera.

4.3 Consulting with Local Interested and/or Affected Parties

A public participation process was undertaken by Marsh (Pty) Ltd. The process comprised newspaper advertisements, site notices and distribution of Background Information Documents to residents, homeowners associations, ward councillor and interest groups. No Interested and Affected Parties (I&APs) registered for the process.

A number of informal discussions took place with members of the public encountered during the fieldwork undertaken by PGS Heritage & Grave Relocation Consultants. These individuals were asked whether they knew of any graves, old buildings or other heritage sites in the area.

4.4 Aspects regarding Visibility and Constraints

Not subtracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not necessarily represent all the heritage resources located there. This may be due to various reasons, including the subterranean nature of some archaeological sites and dense vegetation cover. As such, should any heritage features and/or objects not included in the present inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well.

5. LEGISLATIVE REQUIREMENTS AND TERMINOLOGY

5.1 Legislation

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

- National Environmental Management Act (NEMA) Act 107 of 1998
- National Heritage Resources Act (NHRA) Act 25 of 1999
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources:

- National Environmental Management Act (NEMA) Act 107 of 1998
    - Basic Environmental Assessment (BEA) – Section (23)(2)(d)
    - Environmental Scoping Report (ESR) – Section (29)(1)(d)
    - Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
    - Environmental Management Plan (EMP) – Section (34)(b)
- National Heritage Resources Act (NHRA) Act 25 of 1999
    - Protection of Heritage resources – Sections 34 to 36; and
    - Heritage Resources Management – Section 38
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
    - Section 39(3)
- Development Facilitation Act (DFA) Act 67 of 1995
    - The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

Refer Annexure C for an overview of the National Heritage Resources Act (25 of 1999).

5.2 Terminology

Archaeological resources

This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such;
- wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in

the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;

- features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

This 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 change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land;
- any removal or destruction of trees, or removal of vegetation or topsoil

Heritage resources

This means any place or object of cultural significance

6. ASSESSMENT CRITERIA

This chapter describes the evaluation criteria used for the sites listed below. The four main criteria used in the evaluation of archaeological sites are:

- **site integrity** (i.e. primary vs. secondary context),
- **amount of deposit, range of features** (e.g. stonewalling and stone tools),

- **uniqueness** and
- **potential** to answer present research questions.

In terms of heritage sites, Section 3 (3) of the National Heritage Resources Act 25 of 1999 states that a place or object is considered part of the national estate if it has cultural significance or other special value because of:

(a) its importance in the community, or pattern of South Africa's history;

(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;

(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(d) 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) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and

(i) sites of significance relating to the history of slavery in South Africa.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed 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 of the site; and
D - Preserve site

6.1 Impact

The potential environmental impacts that may result from the proposed development.

6.1.1 Nature and existing mitigation

Natural conditions and conditions inherent in the project design that alleviate (control, moderate, curb) impacts. All management actions, which are presently implemented, are considered part of the project design and therefore mitigate against impacts.

6.2 Evaluation

6.2.1 Site significance

Site significance classification standards prescribed 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 for the purpose of this report.

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)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	-	Low Significance	Destruction

6.2.2 Impact rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) 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 HIGH significance 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 (in this case people growing crops on the soil) 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 society as constituting a fairly important and usually medium 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 the public and/or the specialist as constituting a fairly unimportant and usually short 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 change in the water table of a wetland habitat, as these systems is 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 who live some distance away.

NO SIGNIFICANCE

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

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

6.2.3 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 impact occurring.
POSSIBLE: Only over 40% sure of a particular fact or of the likelihood of an impact.
UNSURE: Less than 40% sure of a particular fact or likelihood of an impact occurring.

6.2.4 Duration

SHORT TERM: 0 to 5 years
MEDIUM: 6 to 20 years
LONG TERM: more than 20 years
DEMOLISHED: site will be demolished or is already demolished

Evaluation Example

Impact	Impact Significance	Heritage Significance	Certainty	Duration	Mitigation
Negative	Moderate	Grade GP.B	Possible	Short term	B

7. FINDINGS

7.1 Desktop Study Findings

7.1.1 Cartographic findings

7.1.1.1 ERPM General Mine Surface Plan, 1906

In Figure 2 below sections of a mine plan titled '*ERP Mines Ltd General Surface Plan of the Angelo Deep Section*' can be seen. The plan was originally compiled and surveyed by the Survey Office under supervision of the mine's surveyor at the time J. Forbes Hodgson and dated 30 June 1906. In the subsequent years revisions of the plan was made on an annual basis, with the last revision appearing on the plan dated to 30 June 1909. This indicates that the features and structures depicted on the plan are at least 102 years old.

While it is always very difficult to accurately establish the exact position of the study area on historical maps such as the one under discussion, the approximate position of the study area is demarcated in red dotted line in the depicted sheet below.

One heritage sites or feature is depicted within this area (see red marker with arrow on depicted sheet below):

- Feature 1

  This feature comprises that section of the depicted brickfield located within the study area. It comprises a building or structure indicated as a 'Pugmill' as well as part of the brickfield where one can assume the clay bricks were left to dry. It is at present impossible to say whether this feature depicted on the plan does indeed fall within the study area. No evidence for it was identified during the fieldwork, and if one considers the number of changes and activities which have taken place across this area over the last 100 or more years, this is certainly understandable.

  A pug mill (or pugmill) is still the term used today for a machine that simultaneously mixes and ground materials with water (www.wikipedia.org). It was probably used in this context to mix powdered clay with water during the brick manufacturing process. From here the mixture would have gone to the moulding process (www.brickcollecting.com).

Six heritage sites or features are depicted in the areas surrounding the study area (see red markers on depicted sheet below):

- Feature 2

  This feature comprises that section of the depicted brickfield located outside of the study area. It comprises two more pug mills, three mud huts further south as well as a large part of the brickfield where one can assume the clay bricks were left to dry. The mud huts to the south must have been used by the brickfield workers as housing.

- Feature 3

  A mine magazine is depicted here. These features were always located away from the other mine surface structures and features as it was used to house the explosives such as dynamite. Note the buffer area of 200 yards indicated on the plan which must have been the legal requirement at the time.

- Feature 4

  The compound that was later to be known as Central Compound is located here. It is not presently certain when exactly it was built, though one can assume that it was constructed after the end of the South African War in 1902 and before 1906. The compound was extensively expanded since these early years, and still exists today.

- Feature 5

  The old shop that was associated with the compound is located here. As indicated elsewhere, this shop still exists today.

- Feature 6

  The compound manager's house is depicted here. It also still exists today.

- Feature 7

  Although not given a name, the Angelo Dam already existed at his early stage.

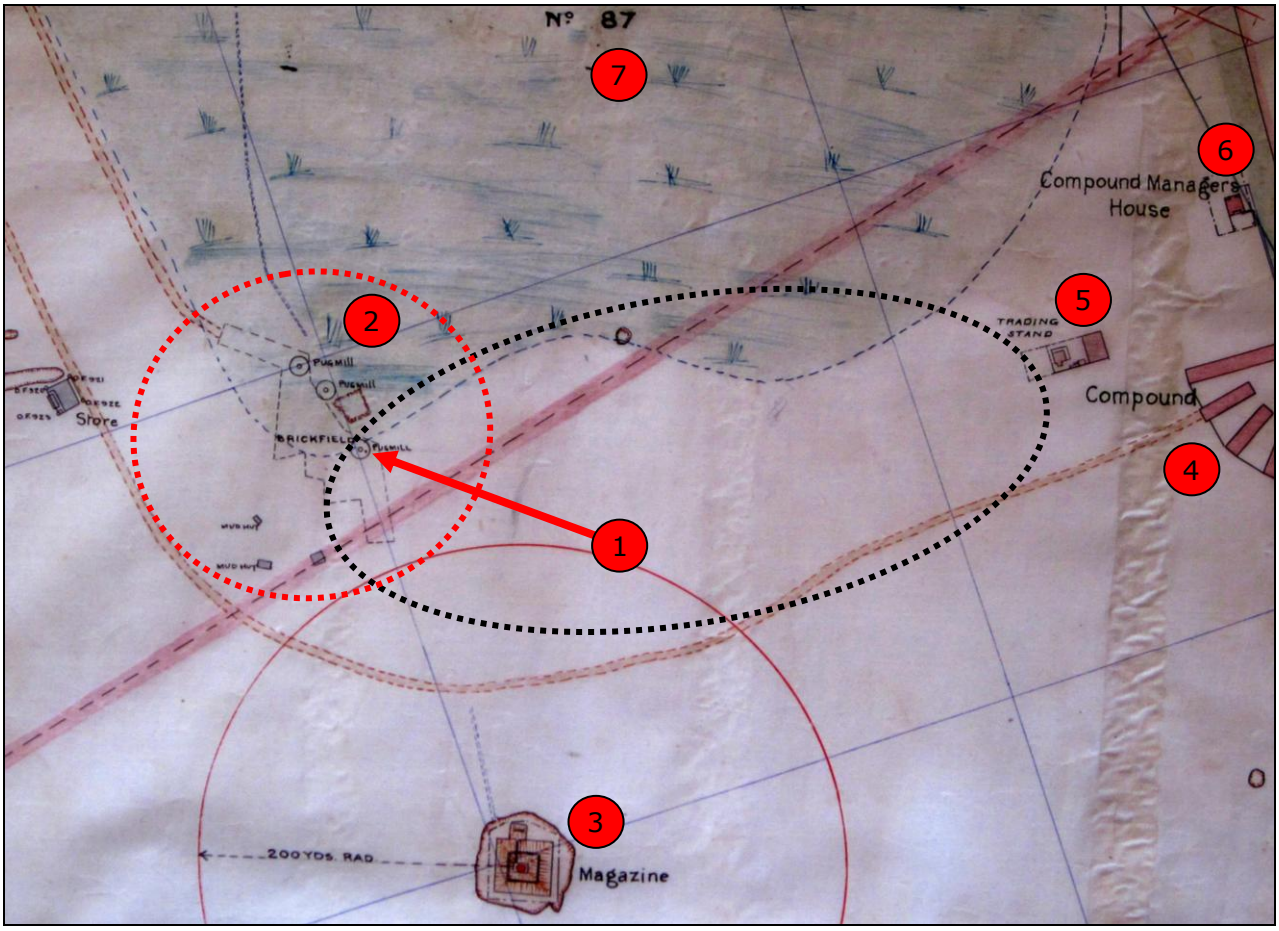


Figure 2 An enlarged section of the general surface plan dated to 30 June 1906.

7.1.1.2 1938 Aerial Photograph

An enlarged section of the 1938 aerial photograph is depicted in Figure 3.Three heritage sites or features are depicted within the study area (see red markers with arrows):

- Feature 1

  A railway track passing across the north-western section of the study area into the ERPM Gold Mine situated to the west of the present study area.

- Feature 2

  Two ash or rubbish dumps are depicted within the study area.

- Feature 3

  An unidentified feature is depicted running across a section of the study area. It seems likely that this feature is a water pipe, canal or something similar.

Four heritage sites or features worth mentioning are depicted outside of the study area:

- Feature 4

  An old gold mine is located here and was known as the Central Vertical Shaft of the East Rand Proprietary Mines group. Work on the mine's shaft started in 1910.

- Feature 5

  The compound is located here. It was started between 1902 and 1906.

- Feature 6

  The old shop that was associated with the Central Compound is located here.

- Feature 7

  The Angelo Dam is located here.

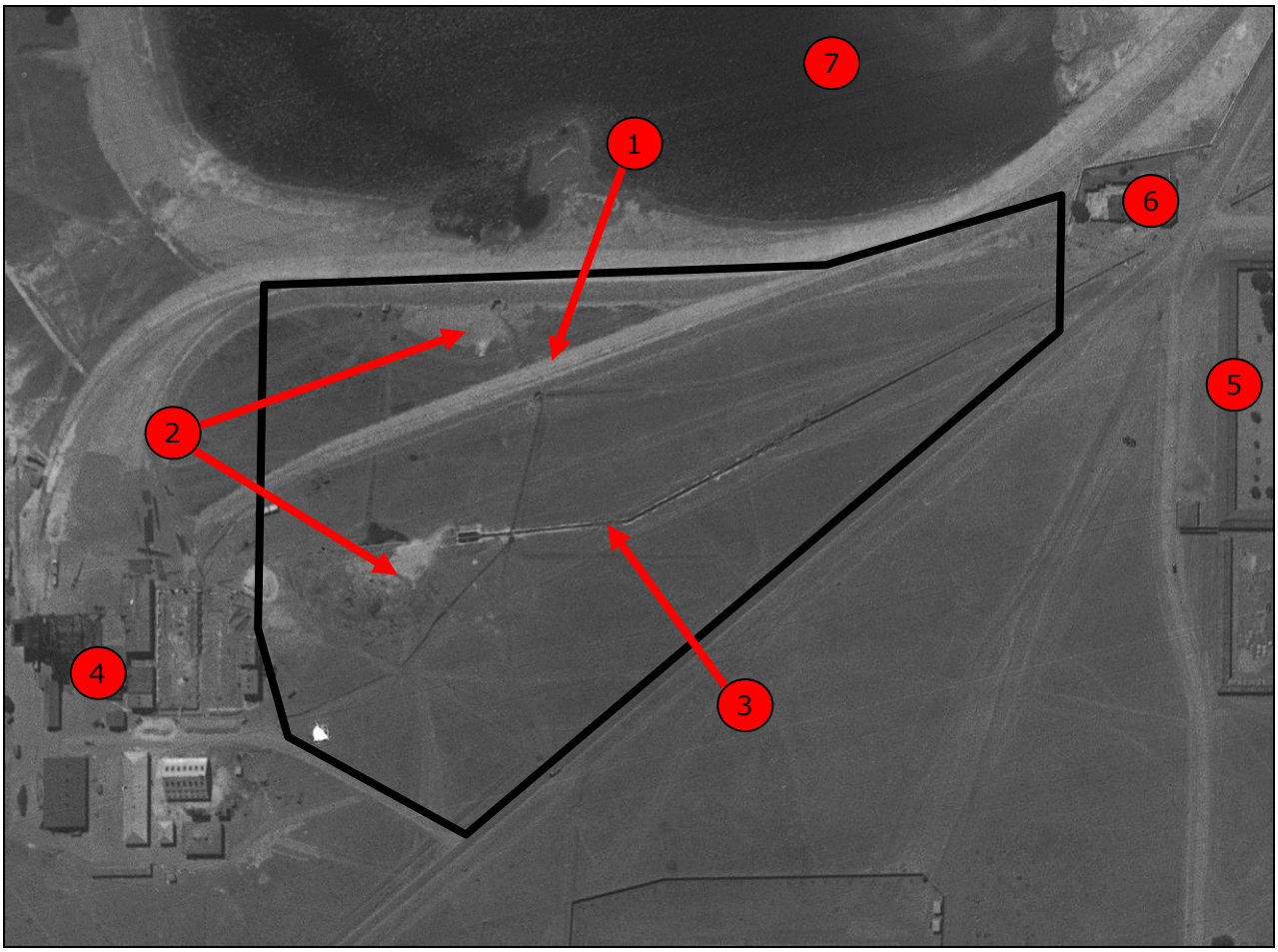


Figure 3 Enlarged section of the 1938 aerial photograph.

7.1.1.3 First Edition of the 2628AA Topographical Sheet

A section of the First Edition of the 2628AA Topographical Sheet is shown in Figure 4. The map was surveyed in 1939 and drawn by the Trigonometrical Survey Office in 1945.

One heritage site or feature is depicted within the study area (see red marker with arrow):

- Feature 1

  A railway track passing across the north-western section of the study area into the ERPM Gold Mine situated to the west of the present study area.

Four heritage sites or features worth mentioning are depicted outside of the study area (see red markers without arrows):

- Feature 2

  An old gold mine is located here and was known as the Central Vertical Shaft of the East Rand Proprietary Mines group. Work on the mine's shaft started in 1910.

- Feature 3

  The old shop that was associated with the nearby Central Compound.

- Feature 4

  A compound is located here. It was started between 1902 and 1906. The compound was later to be known as the Central Compound after the nearby Central Vertical Shaft.

- Feature 5

  The Angelo Dam is referred to at the time as Central Pan.

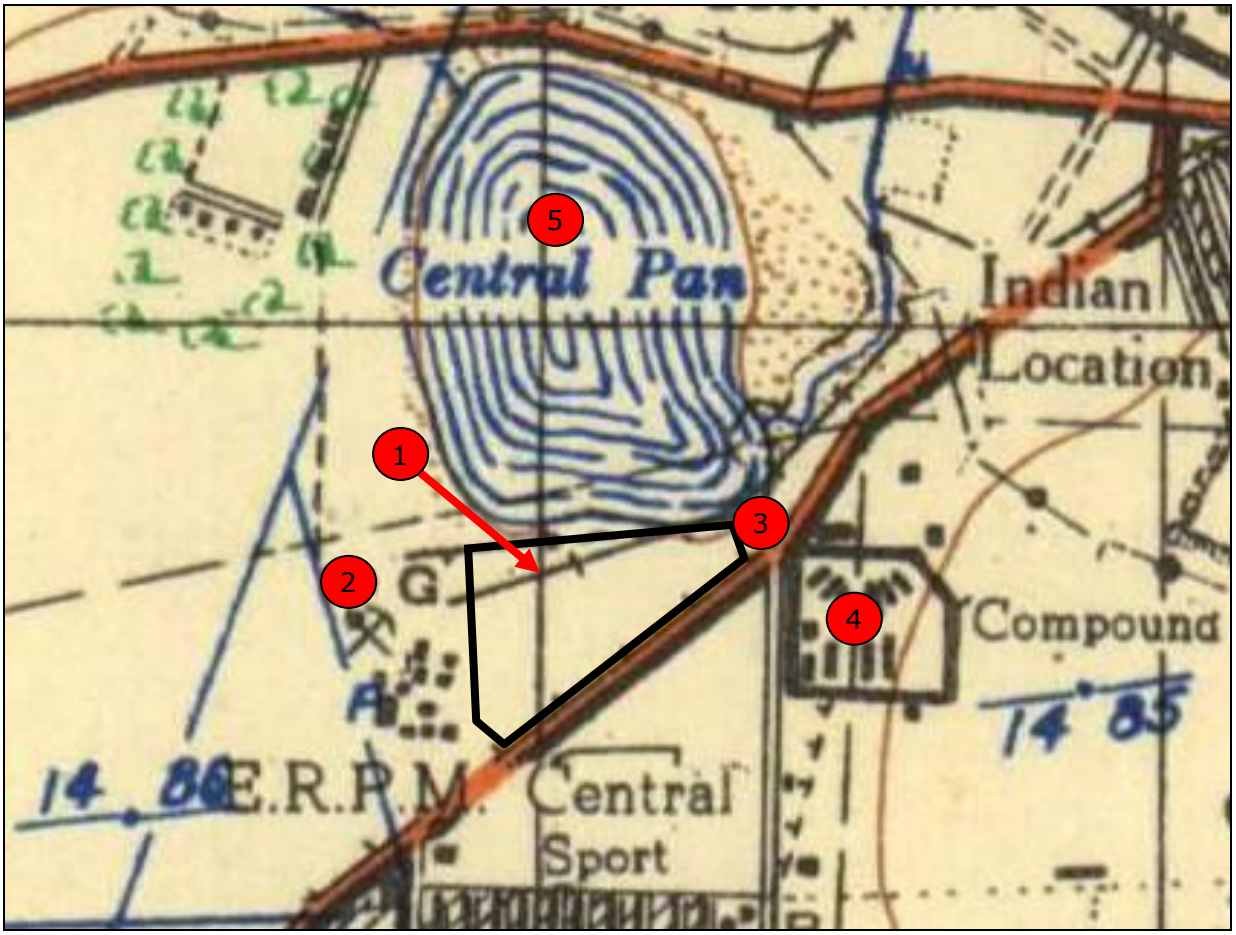


Figure 4 Enlarged section of the First Edition of the 2628AA Topographical Sheet. The approximate boundaries of the study area are shown in black line.

7.1.1.4 1941 Aerial Photograph

An enlarged section of the 1941 aerial photograph is depicted in Figure 5.

Five heritage sites or features are depicted within the study area (see red markers with arrows):

- Feature 1

  A railway track passing across the north-western section of the study area into the ERPM Gold Mine situated to the west of the present study area.

- Feature 2

  Two ash or rubbish dumps are depicted within the study area.

- Feature 3

  An unidentified feature is depicted running across a large section of the study area. It seems likely that this feature is a water pipe, canal or something similar.

- Feature 4

  The entire study area is covered with small trees. This is the first indication of the planted eucalyptus and pine trees still found within the study area today. The depiction of these trees on this 1941 aerial photograph indicates that the trees were planted either within that year, or during the previous year

- Feature 5

  An unidentified linear feature is depicted here. It may have been a small road or track between the shop and the mine.

Four heritage sites or features worth mentioning are depicted outside of the study area (see red markers without arrows):

- Feature 6

  An old gold mine is located here and was known as the Central Vertical Shaft of the East Rand Proprietary Mines group. Work on the mine's shaft started in 1910.

- Feature 7

  A compound is located here. It was started between 1902 and 1906. The compound was later to be known as the Central Compound after the nearby Central Vertical Shaft.

- Feature 8

  The old shop that was associated with the Central Compound is located here.

- Feature 9

  The Angelo Dam is located here.

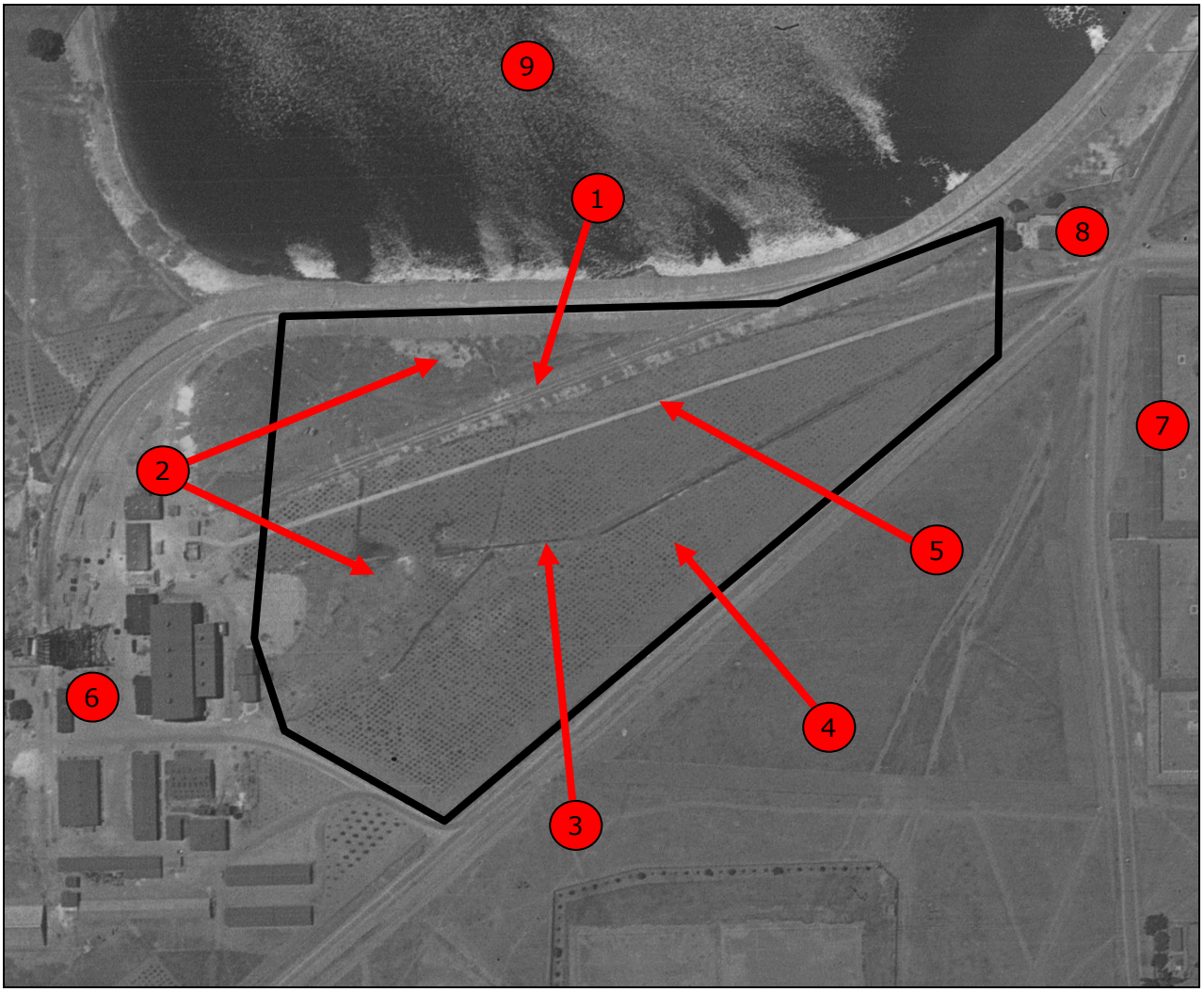


Figure 5 Enlarged section of the 1941 aerial photograph. The approximate boundaries of the study area are shown in black line.

7.1.1.5 1952 Aerial Photograph

An enlarged section of the 1952 aerial photograph is depicted in Figure 6.

Four heritage sites or features are depicted within the study area (see red markers with arrows):

- Feature 1

  A railway track passing across the north-western section of the study area into the ERPM Gold Mine situated to the west of the present study area.

- Feature 2

  One ash or rubbish dump is visible within the study area. While it is possible that the second rubbish or ash dump depicted on the earlier aerial photographs may still be located here, it is not visible due to the trees found across the study area.

- Feature 3

  The entire study area is still covered with trees. A comparison between this and the 1941 photograph clearly indicates the amount of growth the trees have shown.

- Feature 4

  An unidentified linear feature is depicted here. It may have been a small road or track between the shop and the mine.

- Feature 5

  Another unidentified linear feature is depicted here. It may also have been a small road or track between the road and the mine.

Four heritage sites or features worth mentioning are depicted outside of the study area (see red markers without arrows):

- Feature 5

  An old gold mine is located here and was known as the Central Vertical Shaft of the East Rand Proprietary Mines group. Work on the mine's shaft started in 1910.

- Feature 6

  A compound is located here. It was started between 1902 and 1906. The compound was later to be known as the Central Compound after the nearby Central Vertical Shaft.

- Feature 7

  The old shop that was associated with the Central Compound is located here.

- Feature 8

  The Angelo Dam is located here.

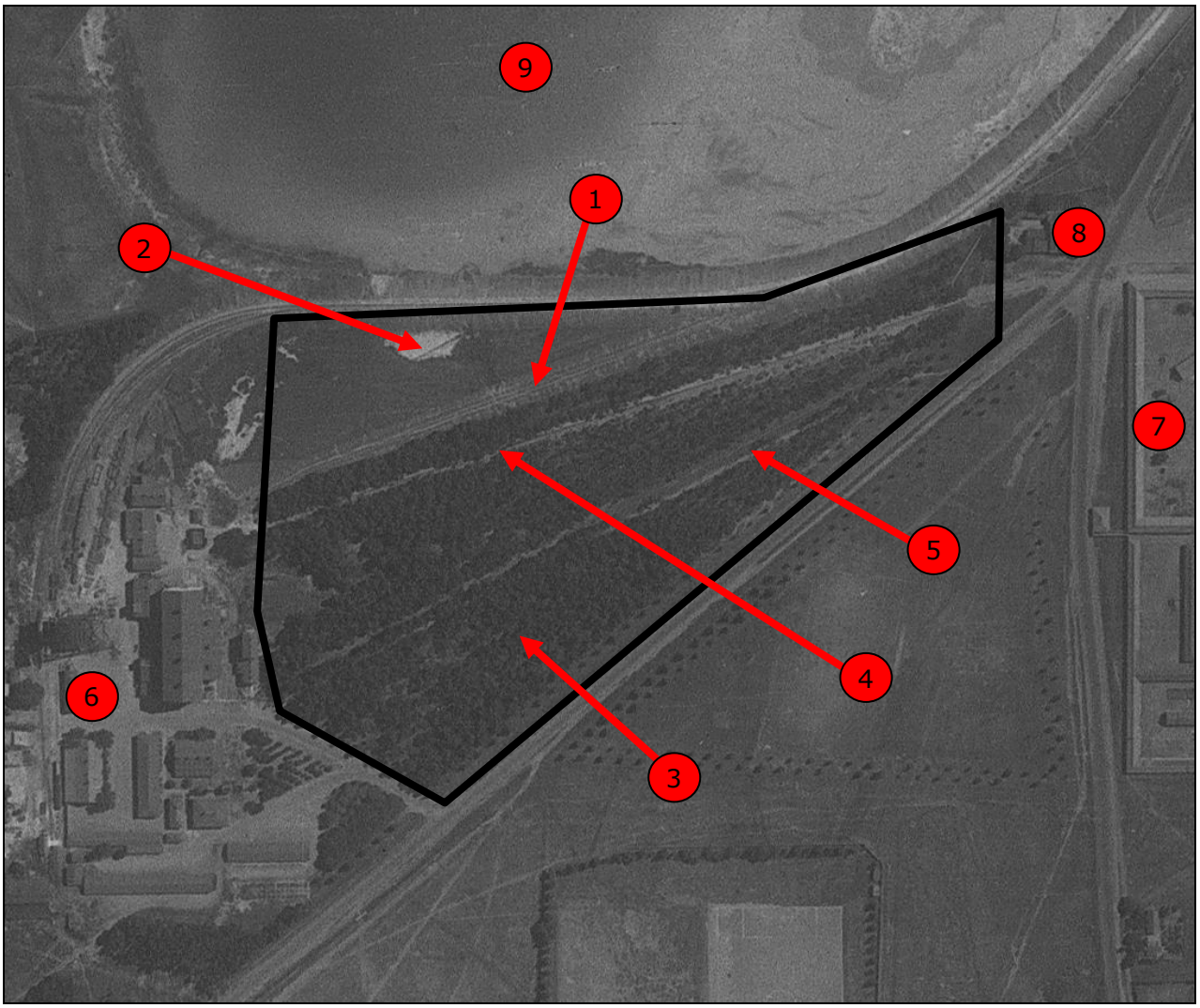


Figure 6 Enlarged section of the 1952 aerial photograph. The approximate boundaries of the study area are shown in black line.

7.1.2 Historic overview of the wider area

DATE	DESCRIPTION
2.5 million to 250,000 years ago	The Earlier Stone Age is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these phases is known as the Oldowan which is associated with crude flakes and hammer stones and dates to approximately 2 million years ago. The second technological phase is known as the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial handaxe. The Acheulian phase dates back to approximately 1.5 million years ago.
250,000 to 40,000 years ago	The Middle Stone Age is the second oldest phase identified in South Africa's archaeological history. It is associated with flakes, points and blades manufactured by means of the prepared core technique.
40,000 years ago to the historic past	The Later Stone Age is the third phase identified in South Africa's archaeological history. It is associated with an abundance of very small stone artefacts known as microliths.
September 1886	A young man by the name of Pieter J.J.D Killian discovered gold-bearing reefs on the farms Leeuwpoort and Vogelfontein (Boksburg Town Council, n.d.).
March 1887	The farms Leeuwpoort and Vogelfontein were proclaimed as public diggings (Boksburg Town Council, n.d.).
July 1887	The new village which appeared as a result of the gold discoveries on the farms Leeuwpoort and Vogelfontein was named Boksburg in honour of the State Secretary of the *Zuid-Afrikaansche Republiek*, Dr. W.E. Bok (Boksburg Town Council, n.d.).
December 1887	Coal was discovered by J.L. Gauf on the eastern end of present-day Boksburg. The discovery of coal meant that the severe shortage of fuel in the surroundings of Boksburg which hampered the development of early gold mining activities, could be addressed (Boksburg Town Council, n.d.).
1889	A number of gold mining companies were established in the Boksburg area. These included the *Blue Sky Gold Mining Company*, the *Cinderella Gold Mining Company*, the *Agnes Munro Gold Mining Company*, the *Comet Main Reef Gold Mining Company*, the *St. Angelo Gold Mining Company* and the *Driefontein Gold Mining Company* (Letcher, 1936).
November 1890	The Boksburg Goldfields were proclaimed a separate administrative unit with Montagu White as it's first Mining Commissioner. During the two years that White filled this post he constructed the Boksburg Lake and also planted some 40,000 trees in a higher lying area north-west of the lake (Boksburg Town Council, n.d.).

1892	Sir George Farrar and his associate Carl Hannau bought large quantities of shares in gold mining companies experiencing financial difficulties during this time, including the Blue Sky, Cinderella, Agnes Munro, Comet, St. Angelo and Driefontein (Letcher, 1936).
September 1892	The shares acquired by Farrar and Hannau were ceded to the H.F. Syndicate (Letcher, 1936).
May 1893	During this time these shares in the mining companies were taken over by the newly established East Rand Proprietary Mines (or ERPM) (Letcher, 1936). This company was established on 8 May 1893 with Sir George Farrar as chairman and C.S. Goldmann, Lionel Phillips, J.C.A. Henderson and S.W. Jameson as directors.
1894 - 1895	During this time ERPM reconstructed the Comet, Driefontein and St. Angelo gold mines through the provision of both working capital and land. The latter mine was re-established as the *Angelo Gold Mining Company Limited*. By the mid 1890s ERPM held great sway across the goldfields of Boksburg.
1899 – 1902	The South African War between Great Britain and the two Boer republics of the Zuid-Afrikaansche Republiek and the Free State. By the time that hostilities commenced on 11 October 1899, a massive exodus of British subjects from the Witwatersrand had already started. This exodus was supported by large numbers of black mineworkers who returned to their homes. Although the mining companies tried to stem the flood by offering attractive bonuses and salary increases, this had little effect. Before long all the gold mines along the Witwatersrand were forced to shut down. While the government of the *Zuid-Afrikaansche Republiek* intervened by appointing a State Board to carry on with mining activities on some of the mines, this proved a losing battle. During roughly the last two years of the war (a period known as the guerrilla phase) a number of the gold mines in the vicinity of Boksburg were attacked by Boer Commandoes. For example, the New Kleinfontein Gold Mine on the farm Driefontein was attacked by a Boer force under General Piet Viljoen. The mine manager E.J. Way was taken prisoner, but released on the same day. Another attack took place at the Moddefontein Mine as well. These attacks led to the establishment of a British force known as the Rand Rifles Mine Division to protect the mines. The force repulsed a number of attacks on the mines along the Witwatersrand. During November 1901 the mines were declared safe from attack and the unit was disbanded. On 4 May 1901 the Meyer and Charlton became the first gold mine along the Witwatersrand to start working again. A number of other gold mines followed suit, though it would take another three to four years before the mines managed to return to their pre-war production figures (Lang, 1986).

22 June 1904	After years of debate and deliberation, the first group of Chinese mine workers finally arrived at the East Rand Station to start working at the New Comet mine. This meant that the New Comet mine became the first gold mine anywhere along the Witwatersrand to make use of Chinese mine workers (Lang, 1986). A large number of other gold mines along the Witwatersrand followed suit as a way of addressing the serious shortage of labour brought about by the recent war. By the end of 1904 the number of Chinese mine workers employed on the Witwatersrand gold mines stood at 21,000 individuals, and by the end of the following year increased to 47,000 (Von Ketelhodt, 2007).
1909	The Anglo-French Group under chairmanship of Sir George Farrar undertook the reconstruction of the East Rand Proprietary Mines as an amalgamated entity. The amalgamation entailed the absorption of a number of smaller mining companies by ERPM, including *Driefontein Consolidated Mines Limited*, *Angelo Gold Mines Limited*, *New Comet Gold Mining Company Limited*, *Cason Gold Mines Limited*, *New Blue Sky Gold Mining Company Limited*, *Hercules Company Limited*, *Angelo Deep Gold Mines Limited* and the *H.F. Company Limited*. At the end of the reconstruction process ERPM held some 4,000 mining claims, several water rights and a few mining stands. ERPM was now one of the largest gold mines in the world.
March 1910	The last of the Chinese mineworkers left the Witwatersrand gold mines to return back home (Chilvers, 1932).
1914-1918	The First World War took place during this time, and was essentially a war between Great Britain and Germany. It had a significant negative impact on the gold mines of the Witwatersrand in that it did not only result in a rise of mining cost, but also led to a shortage of skilled European workers with many of them responding to the call to fight. However, apart from these one aspect which specifically had a very detrimental effect on the financial position of the gold mines along the Witwatersrand was the fact that all these mines had signed an agreement in 1914 that all the gold produced in South Africa would be sold for the duration of the war to the Bank of England at a fixed price of £3 17s 9d. Although this agreement initially looked very attractive, as the war carried on the rising cost of mining made the fixed price increasingly unprofitable (Cartwright, 1968).
1915	ERPM came under the control of the Central Mining and Investment Corporation (Lang, 1986).
1926	ERPM acquired the Cinderella Gold Mining Company (Cartwright, 1968). Through this acquisition a considerable body of payable ore became available to ERPM.
28 December 1932	On this day South Africa abandoned the gold standard (www.sahistory.org.za). This resulted in the price of gold shooting up by an incredible 66% to £7.10 per ounce (wwwpamodzigold.co.za). A boom in gold mining shares was the result with everyone buying shares in South Africa's gold mines.

November 1955	Underground workings at ERPM reached a depth of 10,000 feet (Cartwright, 1968).
May 1958	A winze at ERPM reached a depth of 11,000 feet. This meant that ERPM was officially the deepest mine in the world (Cartwright, 1968), a record it held until 2008.

7.1.2 Historic overview of the study area

DATE	DESCRIPTION
30 June 1906 – 30 June 1909	A brick manufacturing facility with features such as pug mills was partially located within the north-western corner of the study area at the time. It seems likely that the brick manufacturing facility was operated by *Angelo Deep Gold Mining Company Limited*, the mining company on whose land the facility was located. Angelo Dam was already in existence at the time. It is not known when this dam was established, but it is known to be associated with Water Right No. 87.
1909 - 1938	During this period a lot of mining development took place in the surrounding area, evidence of which can also be found within the study area. A railway line was constructed along the northern boundary of the study area, but had a branch leading across the north-western corner of the study area as well. During this time two different features similar to a rubbish or ash dump appear for the first time. A linear feature which has the appearance of a pipeline or water canal crossing over the study area was also constructed. At the time a number of small tracks and secondary roads already crossed over the study area.
1938 -1939	No changes to the study area appear during this stage.
1939 -1941	The entire study area was planted with small trees. These trees can still be seen across the study area today. A linear feature not unlike a small track was constructed across the study area from a point in the vicinity of the old shop on the eastern end of the study area all the way to the Central Vertical Shaft to west of the study area. It may have provided a shortcut for persons working at the shaft to access the shop. While a faint track did exist during the period before 1938, the available evidence indicates that this track was upgraded, developed or increasingly more often used during the time under discussion.

1941 -1951	The lower of the two rubbish heaps or ash middens from the western end of the study area disappears, as does the linear feature which may have been a water furrow or pipeline. It must be noted that the trees covering the study area were evidently becoming bigger, and this may have resulted in the fact that these two features are not visible on the aerial photographs from this period. A second road or track between the shop and the Central Vertical Shaft becomes visible. While a faint track did exist here during the period before 1938, the available evidence indicates that this track was upgraded, developed or increasingly more often used during the time under discussion.

7.2 Public Participation Findings

No heritage related issues were raised during the public participation process undertaken by Marsh (Pty) Ltd.

No heritage sites or features were identified during the informal discussions with local residents.

7.3 SURVEY FINDINGS

7.3.1 Site 1

7.3.1.1 Coordinates

WGS84 Map Datum:	26° 13′ 29.8″ S	26° 13′ 31.4″ S	26° 13′ 29.6″ S
	28° 13′ 24.4″ E	28° 13′ 19.6″ E	28° 13′ 21.1″ E

7.3.1.2 General Site Description

A large extensive rubbish heap is located along the northern boundary of the study area. In some places the feature is roughly 5m high and stretches over an area of approximately 100m in length. The heap comprises for the most part ash and charcoal, with cultural material in the form of bone, broken glass bottles and ceramic ware observed in places.

As indicated elsewhere, local residents were found excavating the heap searching for coal. The coal they find are used and sold as fuel. One of these residents consulted with indicated that the ash and rubbish heap is derived from the nearby Central Compound.

The desktop study indicates that only a small rubbish heap existed here in 1938. This suggests that the heap was only started a short while before this date and very likely is not older than 100 years. The 100 year age bracket is important in that any sites older than that would be considered an archaeological site.

As a further way of dating the site three artefacts excavated from the lower (older) sections of the ash heap by local residents were taken to Ms. Corine Meyer at the Ditsong National Museum of Cultural History. These arefacts were a broken lid from a porcelain dish, a fragment from a glass bottle as well as a near complete bottle. Ms. Meyer tentatively dated the broken lid to c. 1905, the bottle fragment to roughly the 1930s and the near complete bottle to the 1940s (Meyer, pers. comm.)

Although the relative date obtained for the broken lid is slightly older than 100 years, this date provides an indication of the date of manufacture for the dish and not when it was discarded on the rubbish heap. As some time would likely have elapsed between the manufacture and discarding of the artifact, the author is of the opinion that it seems very likely for the rubbish dump to date to the period younger than 100 years. As a result the rubbish dump cannot be considered an archaeological site.

7.3.1.3 Current Protection Status

The rubbish dump cannot be considered a archaeological site, and as a result is not protected by any heritage legislation.

7.3.1.4 Evaluation of Site Significance

The site has no heritage significance.

7.3.1.5 Impact of Proposed Development on Site

The site is located within the development footprint and will be destroyed by the proposed development.

7.3.1.6 Mitigation

No mitigation measures are required.

Plate 7 General view of Site 1.

Plate 8 PGS's Nathi Tomose assessing a bottle that was excavated by local residents in their search for coal.

8. COMPARISON OF SOCIO-ECONOMIC BENEFITS AND THE HERITAGE IMPACT

The following socio-economic benefits are expected from the proposed development:

- Short-term employment opportunities will be created during construction
- The proposed development will assist in addressing the housing shortage experienced in the Boksburg area
- The development will represent a financial investment into the local economy

If one considers the fact that the fieldwork did not identify any significant heritage resources within the study area, the heritage impact of the proposed development will be very low. If a comparison is made between the socio-economic benefits of the proposed development and this very low impact on the heritage resources of the area it is believed that the envisaged socio-economic benefits will far outweigh the heritage impact.

9. CONCLUSIONS AND GENERAL RECOMMENDATIONS

PGS Heritage and Grave Relocation Consultants was appointed by Marsh (Pty) Ltd to undertake a Phase 1 Heritage Impact Assessment for the proposed Reiger Park Ext. 18 development located near Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proponent is DRD Gold Limited.

An archival and historical study was undertaken which has revealed various aspects of the area's history. It showed that no significant heritage features can be associated with the study area during the period 1906 to 1952.

A field survey of the study area identified one ash heap. This study has indicated that it is highly unlikely for the site to be older than 100 years. This means that it is not an archaeological site and has no heritage significance.

No significant heritage resources were identified within the study area. As a result no mitigation measures are required.

It is the opinion of the author of this report that in terms of the heritage aspects addressed as part of the defined scope of work of this study (see Section 3), the development may be allowed to continue.

BIBLIOGRAPHY

Published References

Bergh, J.S. 1999. *Geskiedenisatlas van Suid-Afrika: die Vier Noordelike Provinsies*. Van Schaik, Pretoria.

Boksburg Town Council. n.d. *Boksburg: The Spirit of Progress.* Felstar Publishers (Pty) Ltd, Johannesburg.

Boksburg Town Council. 1937. *Boksburg: Mining and Industrial Activity.*

Boksburg Town Council. 1979. *Boksburg: 75 years of municipal management.*

Cartwright, A.P. 1968. *Golden Age*. Purnell & Sons (Pty) Ltd, Cape Town.

Chilvers, H.A. 1932. *Out of the Crucible*. Cassell and Company Ltd. London

East Rand Express. 19 March 1904. *E.R.P.M.: Eighth Annual Meeting*, p. 35.

East Rand Express. 26 March 1910. *Sir George Farrar: Last Saturday's Speech*, pp. 25-27.

Fraser, M & A. Jeeves. 1977. *All that Glittered: Selected Correspondence of Lionel Phillips 1890-1924*. Oxford University Press, Cape Town.

Goldmann, C.S. 1892. *The Witwatersrand Gold Fields: The Financial, Statistical and General History of the Gold and other companies of the Witwatersrand, South Africa*. Argus Printing and Publishing Company, Johannesburg.

Goldmann, C.S. 1895/1896. *South African Mines: Their Position, Results and Developments*. Argus Printing and Publishing Company, Johannesburg.

Lang, J. 1986. *Bullion Johannesburg: Men, Mines and the Challenge of Conflict*. Jonathan Ball Publishers, Johannesburg.

Letcher, O. 1936. *The Gold Mines of Southern Africa: The History, Technology and Statistics of the Gold Industry,* Waterloo & Sons Ltd, London.

Van Onselen, C. 1982. *New Babylon New Nineveh: Everyday life on the Witwatersrand 1886-1914*. Jonathan Ball Publishers, Johannesburg.

Von Ketelhodt, G.F. 2007. *The Golden Crown of Johannesburg*. Willsan Mining Publishers, Gauteng.

Internet References

www.drd.co.za
www.michaelstevenson.com
www.mineweb.com
www.wikipedia.com

ANNEXURE A

GOOGLE EARTH IMAGE OF STUDY AREA SHOWING LOCATED SITE


1
Image © 2011 DigitalGlobe
215 m
©2010 Google
Imagery Date: May 2, 2007
26°13'28.21" S
28°13'07.51" E
elev 1628 m
Eye alt 2.38 km

ANNEXURE B

LEGISLATIVE FRAMEWORK

LEGISLATIVE FRAMEWORK

South Africa has a number of legislative measures in place aimed at protecting its heritage resources. Of these the most important is the National Heritage Resources Act 25 of 1999.

1. National Heritage Resources Act 25 of 1999

The promulgation of the National Heritage Resources Act 25 of 1999 brings the conservation and management of heritage resources in South Africa on par with international trends and standards.

Section 38 (3) of the act provides an outline of ideally what should be included in a heritage report. The act states:

"(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;
(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
(c) an assessment of the impact of the development on such heritage resources;
(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
(g) *plans for mitigation of any adverse effects during and after the completion of the proposed development."*

Replacing the old National Monuments Act 28 of 1969, the Heritage Resources Act offers general protection for a number of heritage related features and objects (see below).

Structures are defined by the Heritage Resources Act as *"…any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated with it."* In section 34 of the Act the general protection for structures is stipulated. It is important to note that only structures older than 60 years are protected. Section 34(1) of the National Heritage Resources Act reads as follows: *"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."

The second general protection offered by the Heritage Resources Act which is of relevance for this project, is the protection of **archaeological sites and objects (as well as paleontological sites and meteorites)**. Section 35(4) of the National Heritage Resources Act states that:

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

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites."

In order to understand exactly what is protected, it is important to look at the definition of the concept "**archaeological**" set out in section 2(ii) of the Heritage Act:

"(a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;

(b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

(c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and

(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found;…"

The third important general protection offered by the Heritage Resources Act that is of importance here, is the protection of **graves and burial grounds**. Section 36(3) of the National Heritage Resources Act states that:

"*No person may, without a permit issued by SAHRA or a provincial heritage resources authority –*

a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals."

Of importance as well is section 36 (5), which relates to the conditions under which permits will be issued by the relevant heritage authority should any action described in section 36 (3), be taken. Section 36(5) reads that:

"SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsecion (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –

a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
b) *reached agreements with such communities and individuals regarding the future of such grave or burial ground."*

This section of the Act refers to graves and burial grounds which are older than 60 years and situated outside of a formal cemetery administered by a local authority.

Section 36 (6) of the act refers to instances where previously unknown graves are uncovered during development and other activities.

"*Subject to the provision of any other law, any person who in the course of development or any other activity discovers 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 resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

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

2. Other Legislation

In terms of graves, other legislative measures which may be of relevance include the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.