



HERITAGE

UNIT

Heritage Assessment

Transvaal Gold Mining Company
Ponieskrantz 543 KT, Pilgrim's Rest,
Mpumalanga

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EXECUTIVE SUMMARY

Professional Grave Solutions Heritage Unit was appointed by Transvaal Gold Mining Estates Limited to conduct a Heritage Impact Assessment of the Brown's Hill and the Beta mine area for the proposed new mining development on the farm Ponieskrantz 543 KT, Pilgrim's Rest, Mpumalanga.

During the survey fifty-one find spots associated with heritage structures were identified.

INDIVIDUAL HERITAGE SITES IN THE BROWN'S HILL AND THE BETA AREA TO BE POSSIBLY INFLUENCED BY PROPOSED MINING

It is recommended that TGME develop a Conservation Management Plan for heritage Resources within their mining rights area to conserve, develop and document in a systematic way.

Some of the remains of structures are of such value that it is not worth conserving and in such cases where development need to take place these structures will need to be documented and applied for destruction permits from SAHRA.

The memorialisation of the whole Browns hill area through maps in lookout areas and the conservation of key sites must be central to the working policy on heritage resources.

Brown's Hill Tailings Extension

The Brown's Hill Tailings dam extension will have impacted on four cemetery or single grave sites within the extension area. Earth moving in the area of the extension began in 2006, but was halted after it was discovered that graves were located within the foot print area of the site. Professional Grave Solutions (Pty) Ltd was appointed to conduct a grave relocation process with the aim of identifying the families, obtain their permission, apply for the necessary permitting and ultimately relocate the grave that were impacted on.

The following sites PGS024 and PGS026 were relocated in 2007, after which the site PGS050 and PGS 051 was relocated in May 2008.

No further sites of heritage significance will be impacted on by the proposed tailings extension.

Beta Mining Area

Rock Art Site - PGS034

Due to the proposed mining activities of the Beta section a Rock Mechanics study was commissioned to evaluate the possible impact of blasting on the rock art site.

The summary of findings of the study is as follows (Refer to **Annexure D** for full report):

1. The cliff area is geologically unstable and the geological process of erosion will continue. It is therefore likely that the rock art will be lost at some point in the future due to the progressive natural process observed.
2. The cliff was under mined in the past and this mining is likely to have an effect on the stability of the cliff area as no strategy of stabilising the surface area through the design of non yield pillars were followed or implemented by historic miners. The scale and extent of this influence was not quantified as it was not part of the scope of this study.
3. The effect of planned mining will be minimal as the planned mining will not be conducted under the rock art site. Further the mining operations will be design to have no influence on the surface through the design and implementation of a proper pillar system.
4. Blasting operations will result in a maximum expected PPV of 8mm/s. This is below the stringent criteria of 10mm/s set for poorly constructed or historic buildings. The vibrations caused by blasting operations are not expected to have a significant impact on the stability of the cliff area.
5. The rock art is under threat, however, this not due to the planned mining but rather due to the unstable geological conditions and the presence of historical mining.

The recommendations from the Rock Mechanics study area:

1. Future mining needs to be planned with non yield pillars to minimise the influence of mining on surface.
2. Blasting operations in the decline and stoping must be planned to not exceed 50kg per blast.

3. It would be advisable to conduct blast vibration monitoring during the initial stages of the decline development to quantify the actual effects of blasting. The results of the monitoring should be correlated with the design chart to ensure its validity.

It is further recommended that a monitoring program be developed whereby the rock art site is monitored on a frequency determined by the Rock Art Specialist and agreed upon by the mine.

In the event that it is determined that the site is deteriorating due to mining activities the possibility of relocation of the rock art site must be considered and investigated.

PGS041 - Beta North

Beta North will only be utilised to obtain water samples during mining and no further impacts are foreseen.

If at any stage mining is going to impact on the site by the removal of foundations or the ore tip. Documentation and permits for such work will have to be obtained from SAHRA.

PGS033 - Beta South

The Beta South incline has been opened up recently for the purpose of the current mining project. It is however envisaged that a new incline shaft will be opened to the south of the Beta South incline, to facilitate easier access to the gold reserves still available.

If at any stage mining is going to impact on the site by the removal of foundations or the opening of the adit. Documentation and permits for such work will have to be obtained from SAHRA

General

A heritage resources management plan must be developed for managing the heritage resources in the study area during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations and communication routes to follow in the case of a discovery.

If during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

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1. INTRODUCTION

Professional Grave Solutions Heritage Unit was appointed by Transvaal Gold Mining Estates Limited to conduct a Heritage Impact Assessment of the Brown's Hill and the Beta mine area for the proposed new mining development on the farm Ponieskrantz 543 KT, Pilgrim's Rest, Mpumalanga.

The aim of the study is to identify all heritage sites, document, and assess their importance within Local, Provincial and National context. From this we aim to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

The report outlines the approach and methodology utilised before and during the survey, which includes in Phase 1: Information collection from various sources and public consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

During the survey fifty-one find spots associated with heritage structures were identified.

General site conditions and features on site were recorded by means of photos, GPS location, and description. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA's provincial office for scrutiny.

2. APPROACH AND METHODOLOGY

The aim of the study is to extensively cover all data available to compile a background history of the study area; this was accomplished by means of the following phases.

2.1. PROJECT DESCRIPTION

The project entails the extension of the current tailings dam of TGME situated on the Brown's Hill area of Pilgrim's Rest. Further to this TGME aims to access previously unmined reserves of the historical Beta mine situated to the north-west of the TGME plant. The mined ore will then be trucked by haul road to the current plant.

The planned mining will consist of the opening of a new incline shaft to the south of the current Beta south shaft. This incline will then be utilised to access unmined reserves of the Beta mine. Refer to Annexure D for Maps

2.1 PHYSICAL SURVEYING

Due to the nature of cultural remains, the majority that occur below surface, a physical walk through of the study area was conducted. The total area of impact comprised an area of approximately 400 ha in total. The study area was surveyed over a period of one day, by means of vehicle and extensive surveys on foot by PGS.

Aerial photographs and 1:50 000 maps of the area were consulted and literature of the area were studied before undertaking the survey. The purpose of this was to identify topographical areas of possible historic and pre-historic activity. All sites discovered both inside and bordering the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. 35mm photographs on digital film were taken at all the sites.

2.2 TERMINOLOGY AND ABBREVIATIONS USED

ASAPA: Association of South African Professional Archaeologists

BPEO: Best Practicable Environmental Option

CRM: Cultural Resource Management

DEA&DP: Department of Environmental Affairs and Development Planning

DEAT: Department of Environmental Affairs and Tourism

EIA practitioner: Environmental Impact Assessment Practitioner

EIA: Environmental Impact Assessment

EIA: Early Iron Age

ESA: Earlier Stone Age

GPS: Global Positioning System

HIA: Heritage Impact Assessment

I&AP: Interested & Affected Party

IDP: Integrated Development Plan

LSA: Later Stone Age

LIA: Late Iron Age

MSA: Middle Stone Age

MIA: Middle Iron Age

NEMA: National Environmental Management Act

NHR Act: National Heritage Resources Act

PHRA: Provincial Heritage Resources Agency

PSSA: Palaeontological Society of South Africa

ROD: Record of Decision

SAHRA: South African Heritage Resources Agency

SAIA: South African Institute of Architects

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 representation;
- 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 the 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 hoardings;
- 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

Stakeholders

A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities and all interested and affected parties.

MINING TERMINOLOGY

Adit - A horizontal or gently inclined passage or opening from the surface into a hillside, for the purposes of exploring, accessing an ore deposit, removing mined material, drainage, or ventilation. Sometimes called drive.

Alluvial gold, alluvial deposit - Gold removed from its parent rock by erosion and incorporated in water deposited alluvium (silt, sand, clay, gravel etc)

Battery / stamper battery - A machine with sets of stampers that rise and fall onto metal bearing ore to crush and separate the components in the presence of water. The stamps operate in a mortar box with a metal screen regulating the size of the discharged material (slimes).

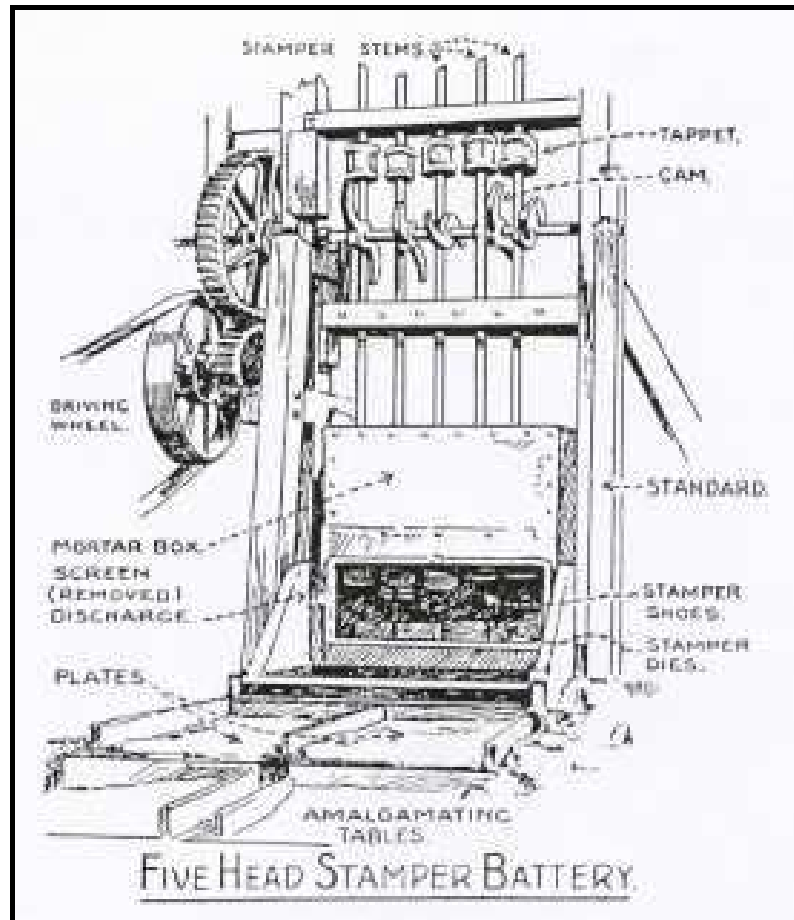


Figure 1 - Stamper battery with parts labelled, including amalgamating plates and tables
Flume - A trough or launder usually mounted on trestles and used to carry water over a depression, a water course, or around the side of a cliff. Used in combination with races and pipes to carry water to or from workings and mills.

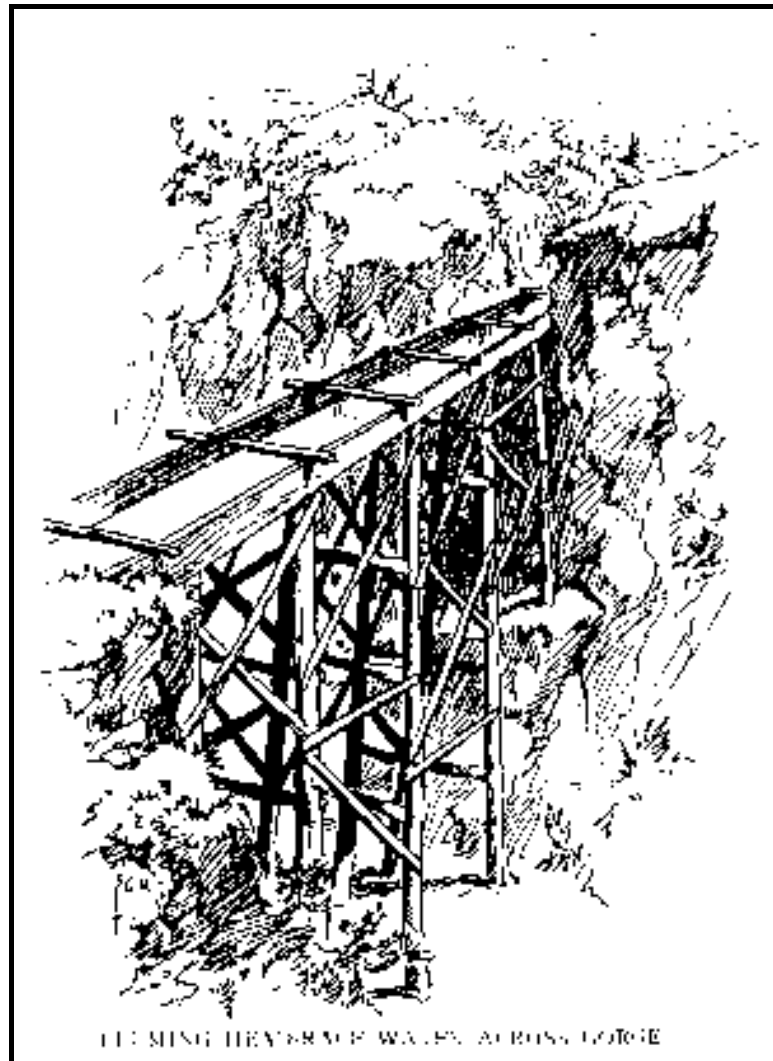


Figure 2 - Flume

Placer mining - The American synonym for alluvial mining. The term "placer" is a Spanish word, meaning "a place where gold can be recovered from gravel." As this suggests, placer mining is the technique of recovering gold from gravel

Race - An open channel for conveying water. It can be a simple earth ditch, or lined with timber or metal, or a masonry structure, and often incorporated flumes (which see) to cross declivities and maintain a constant fall. Races ranged from short earthen ditches gathering storm water for opportunistic alluvial mining, to company-operated water supply channels many miles long and linked to supply and storage dams. A race supplying water to a workings or mill was a 'head race' while that removing water or tailings was a 'tail race'.

Referred to as 'ditches' in the US literature, and often as 'leats' in British usage

Shaft - A hole that is deeper than its maximum dimension across at ground level. It may be vertical or inclined. Commonly seen on alluvial fields where they are dug to access washdirt, and in hard-rock country to access ore-bearing leads or coal seams. Usually equipped with a windlass or poppet head. Major shafts are commonly divided into two or three sections, one or two being for raising and lowering cages, and the third for a ladderway and piping.

Slimes - Finely-divided tailings resulting from the crushing process, which remain in suspension in water for a long period.

Tailings - Rock, earth, gravel, sand etc that is the residue from the separation or other treatment of washdirt or ore by water. Different types of tailing can indicate different mining processes

Water wheels - Generally over-shot or back-shot water wheels used to power machinery at some mines.

CONSERVATION PROCESSES

(Terms as defined in the Burra Charter)

Preservation

(Maintaining the fabric of the place in its existing condition and retarding deterioration)

Preservation will be the main conservation process applied to historic mining places. Because most sites will be managed as ruins, the objective will be to retard the deterioration of the places. For generic alluvial diggings, reef mining workings, tracks etc, this will simply involve avoidance of management practices that would otherwise cause damage (eg inappropriate track work etc). For more complex or fragile sites with machinery and huts, it may involve specific and minor interventions, such as removal of a destabilising influence (eg a particular tree). Rarely, for presented sites or highly significant artefacts, it may involve application of preservative processes (eg. rustproofing etc).

Restoration

(Returning the existing fabric of a place to a known earlier state, by reassembling components or removing accretions, without the introduction of new materials)

Restoration will not be a major focus of conservation of historic mining sites and landscapes. The principal use of restoration may be as a response to any future damage at presented sites, resulting from vandalism, accidental damage or natural events. It

would be confined to restoration of machinery, huts & other structures, etc, if appropriate in the particular case.

Reconstruction

(Returning a place as nearly as possible to a known earlier state of the fabric)

Reconstruction will not be a major focus of conservation of historic mining sites and landscapes. Maintenance of existing values through preservation will generally apply, and reconstruction, as defined in the Burra Charter, will be limited to activities such as mining hut maintenance (re-roofing, replacing bearers etc) where required.

Adaptation

(Modifying a place to suit a proposed compatible use)

This will require introduction of new elements such as pathways, signage, interpretations, risk & protective works etc. This must be done in a manner that is sympathetic to the heritage values of the place.

3. WORKING WITH 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:

- i. National Environmental Management Act (NEMA) Act 107 of 1998
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- iv. 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.

- i. National Environmental Management Act (NEMA) Act 107 of 1998
 - a. Basic Environmental Assessment (BEA) – Section (23)(2)(d)
 - b. Environmental Scoping Report (ESR) – Section (29)(1)(d)
 - c. Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
 - d. Environmental Management Plan (EMP) – Section (34)(b)
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
 - a. Protection of Heritage resources – Sections 34 to 36; and
 - b. Heritage Resources Management – Section 38
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

- a. Section 39(3)
- iv. Development Facilitation Act (DFA) Act 67 of 1995
 - a. The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

3.1 CURRENT HERITAGE STATUS OF SITE

Pilgrim's Rest and the farm Ponieskrantz was identified as a National Heritage Site in 2000. Current information from the SAHRA: National Heritage Sites: Consolidated nomination, Grading & Declaration list (2007) indicates no grading or declaration as a National Heritage Site has been done on the Pilgrim's Rest area.

A tentative application as World Heritage Site for the Reduction works was lodged in November 2006, and is currently under review and dependant on World Heritage Operational Guidelines reviewed in 2007.

4. ASSESSMENT CRITERIA

This chapter describes the evaluation criteria used for the sites listed below.

The significance of archaeological sites was based on four main criteria:

- **site integrity** (i.e. primary vs. secondary context),
- **amount of deposit, range of features** (e.g., stonewalling, stone tools and enclosures),
- **uniqueness** and
- **potential** to answer present research questions.

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

Impacts on these sites by the development will be evaluated as follows

4.1 IMPACT

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

4.1.1 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.

4.2 EVALUATION

4.2.1 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

4.2.2 Impact Rating

Each impact identified will be assessed in terms of probability (likelihood of occurring), extent (spatial scale), intensity (severity) and duration (temporal scale). To enable a scientific approach to the determination of the impact significance (importance), a numerical value will be linked to each rating scale. The sum of the numerical values will define the significance. The following criteria will be applied to the impact assessment for the EIA / EMP.

•Table 1: Probability

Category	Rating	Description
Definite	3	More than 90 percent sure of a particular fact or of the likelihood of that impact occurring
Probable	2	70 to 90 percent sure of a particular fact or of the likelihood of that impact occurring
Possible	1	40 to 70 percent sure of a particular fact or of the likelihood of that impact occurring
Improbable	0	Less than 40 percent sure of a particular fact or of the likelihood of that impact occurring

•Table 2: Extent

Category	Rating	Description
Site	1	Immediate project site
Local	2	Up to 5 km from the project site
Regional	3	20 km radius from the project site
Provincial	4	Provincial
National	5	South African
International	6	Neighbouring countries/overseas

•Table 3: Duration

Category	Rating	Description
Very short-term	1	Less than 1 year
Short-term	2	1 to 5 years
Medium-term	3	5 to 10 years
Long-term	4	10 to 15 years
Very long-term	5	Greater than 15 years
Permanent	6	Permanent

•Table 4: Intensity

Category	Rating	Description
Very low	0	Where the impact affects the environment in such a way that natural, cultural and social functions are not affected
Low	1	Where the impact affects the environment in such a way that natural, cultural and social functions are only

		marginally affected
Medium	2	Where the affected environment is altered but natural, cultural and social function and processes continue albeit in a modified way
High	3	Where natural, cultural or social functions or processes are altered to the extent that they will temporarily cease
Very high	4	Where natural, cultural or social functions or processes are altered to the extent that they will permanently cease

• Table 5: Significance Rating

Score	Significance Rating
2 – 4	Low
5 – 7	Low to Moderate
8 – 10	Moderate
11 - 13	Moderate to High
14 – 16	High
17 – 19	Very High

5. HISTORICAL BACKGROUND OF AREA

As heritage surveys deal with the locating of heritage resources in a prescribed cartographic landscape, the study of archival and historical data, and especially cartographic material, can represent a very valuable supporting tool in finding and identifying such heritage resources.

The historical background and timeframe can be divided into the Stone Age, Iron Age and Historical timeframe. These can be divided as follows:

Stone Age

The Stone Age is divided in Early; Middle and Late Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Earlier Stone Age: The period from \pm 2.5 million yrs - \pm 250 000 yrs ago. Acheulean stone tools are dominant.

Middle Stone Age: Various lithic industries in SA dating from \pm 250 000 yrs – 22 000 yrs before present.

Later Stone Age: The period from \pm 22 000-yrs before present to the period of contact with either Iron Age farmers or European colonists.

Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. Similar to the Stone Age it can be divided into three periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

Historic Timeframe

The historic timeframe intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available.

5.1 METHODOLOGY

The surface of the study area ranged from heavily degraded eroded soils, to a young forestry plantation, to heavily wooded gullies with impenetrable thickets. Visibility was largely very poor and it was therefore impossible to find all structures. An area on Browns Hill which have been cleared by heavy earth working equipment, made the assessment of cultural features in this area impossible.

The research was conducted by means of:

- Archival research, Pilgrim's Rest Museum Archives;
- Consulting Barlow Rand Archives, Johannesburg;
- A survey on foot of the entire study area;
- Personal (oral) information acquired from individuals;

Archival research:

Archival research was conducted in the Pilgrim's Rest Museum Archives with the assistance of Judith Mason, (Principal Museum Human Scientist).

A total of nine primary and secondary sources in the form of information files and reports, and thirty six maps and plans were consulted.

Survey on foot:

The fieldwork for the archival study was conducted on foot and a total of 200 hectares was covered. Throughout the survey the consultant was accompanied by the Head of the Pilgrim's Rest Museum (Christine Rowe, Ass. Dir), and for part of the time by local informants, Sendra Mthuke, Sharon Kahts and Steve Barrow.

Personal information:

Discussions were held with local informants regarding information:

- Mr. & Ms. Steven Barrow (amateur historians and IT assistant);
- Mr. Jan Hattingh (local inhabitant);
- Ms. Judith Mason (Principal Museum Human Scientist, Pilgrim's Rest Museum);

- Ms. Sendra Mthuke (local community, born on Brown's Hill);
- Ms Sharon Kahts (local inhabitant);
- Ms. Irene Reinders (Principal Museum Human Scientist, Pilgrim's Rest Museum);
- Ms. Christine Rowe (Ass. Dir, Pilgrim's Rest Museum);

Consultation:

Barlow Rand Archives, Johannesburg:

Ms. Annelie Kriel of the Barlow Rand Archives, Johannesburg conducted an archival search and was consulted telephonically.

5.2 HISTORICAL BACKGROUND

Brown's Hill

During the early 1870's the first payable gold on the farm Geelhoutboom near Sabie on the Mpumalanga escarpment was discovered. Alec "Wheelbarrow" Patterson left to prospect further afield and discovered rich gold deposits in the Pilgrim's Creek, in 1873. This initiated the first major gold rush in South Africa which moved to Barberton in 1884, and ended at the gold fields of the Witwatersrand in 1886. Pilgrim's Rest was declared a gold field on 22 September 1873, by the end of which year 1500 diggers were working 4000 claims.

In the 1870's a large community of diggers had settled at Brown's Hill, which was named after Charles Brunnau, known on the diggings as Charlie Brown.

'In the meantime digging operations were carried on at Eersteling, near Narabastad, and in the district of Lydenburg, but it was not before the 14th May, 1873, that the gold-fields in the ward Ohrigstad river mere proclaimed and set open as a payable gold-field. Spitzkop, Mac BIac, on the farm Geelhoutboon~, and Pilgrim's Rest, on the farm Poniiskrantz, became the chief centres of the New Caledonia gold-fields.

Two banks were established, hotels, canteens, and stores were built, and the digging population increased to about 000 men, scattered over a distance of six miles along the creek. There was not much reef-mining; alluvial was principally prospected for and worked, but this was found, from the bed of the creek to the very top of the high ridge facing the creek. The largest nuggets, weighing 119, 123, and 215 ounces, were found in 1873, the 123-ounce nugget 30 feet below the surface at the head of the creek' (Jeppe, 1888).

In 1876 the diggers were divided as to where to build a defensive fort at the start of the

Sekhukuni wars, some opting for the bottom of the hill, others for the top, and a divided community arose. The fort however, was never built.

David Benjamin, with a controlling interest in the Transvaal Gold Exploration and Land Company, obtained the concession for gold mining in the area, and Brown's Hill was one of the first places at which they started to mine.

O'Donoghue states in his report to the Transvaal Gold Exploration and Land Company in July 1884 that "the old workings on Brown's Hill were very extensive with the upper part honeycombed with shafts and drives, interspersed with heaps of quartz, tailings and rock piles". These disturbances are still visible.

The first stamp mills were erected in the 1880's driven by water turbines and gas engines, powered by locally produced charcoal.

In 1884 one of the first South African hydro-electric power stations was built to supply electricity to Brown's Hill mine. When the river was high it supplied enough power to run a small mill, but in winter production came to a standstill. The engineer, Wertheman enlarged the plant and built a water race (Farmer's race) which ran from a point higher up the river to Brown's Hill.

Of the two reservoirs on top of Brown's Hill, and fed by Lockhead's race and Dreard's race, only traces are visible. The reservoirs were unequal to the task of keeping the workings at Brown's Hill going and additional water from the Blyde River was used.

"About the year 1890 the old Transvaal Gold Exploration and Land Company Ltd., excavated a large water race for the purpose of driving their ten stamp mill and dry crushing plant at Brown's Hill. The water was used for driving a Frances turbine under about a twenty five foot head made by McAdam of Belfast Ireland, the capacity of this plant being about 45 horse power.

In 1894 the discharge from this turbine was further used for driving another McAdam turbine under a 42 foot head, which supplied power for driving a 600 volt continuous generator of 60 h.p. Power was transmitted about three miles and was used for driving a twenty stamp battery at Kameel's Creek."

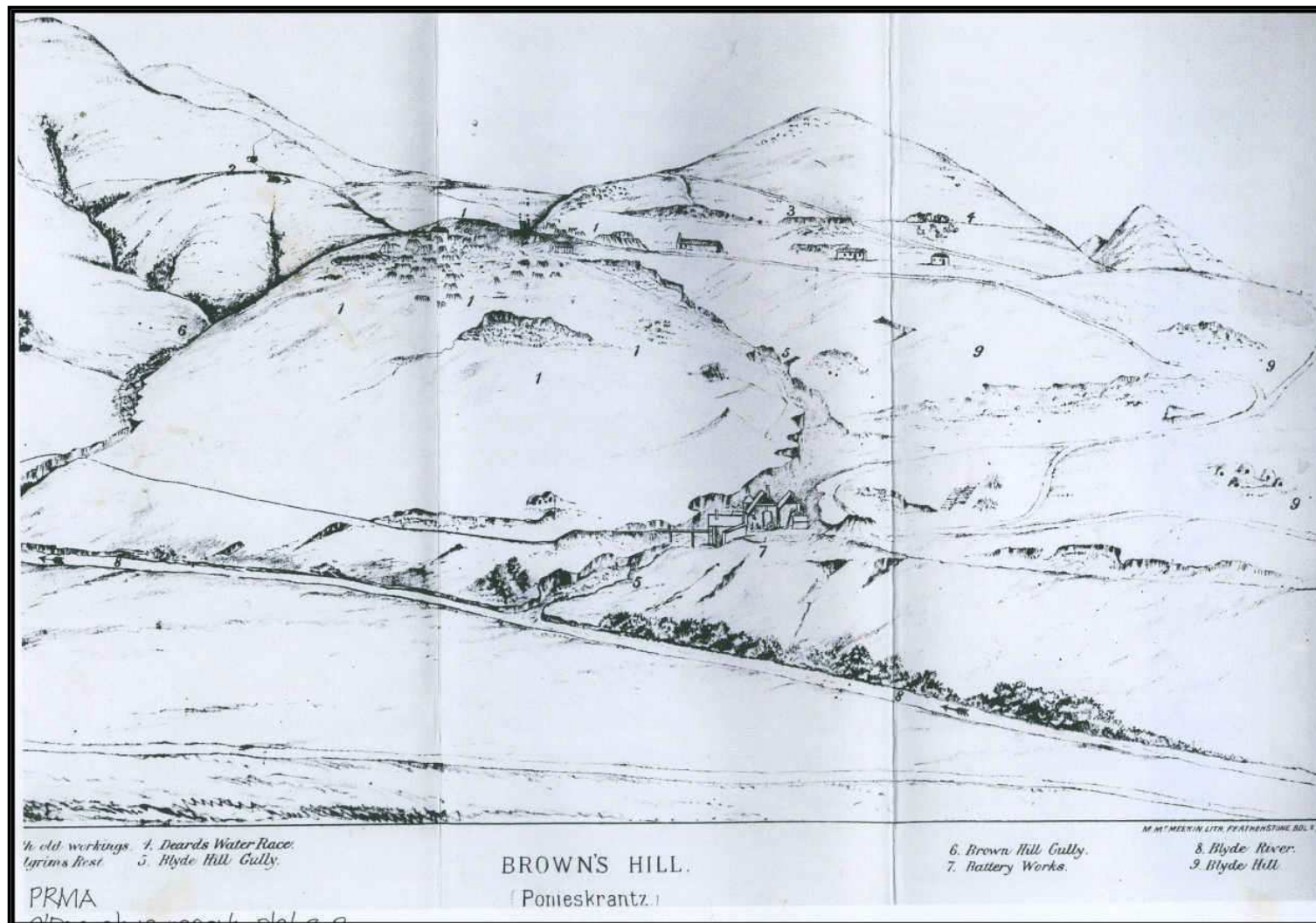


Figure 3 - Brown's Hill dated 1880's

In 1896 numerous small mines were consolidated to form the Transvaal Gold Mining Estates Company (TGME). The increased gold processing needs necessitated the establishment of a central reduction works in Pilgrim's Rest, which was the first industrial plant for the reduction of gold in South Africa.

During the TGME's running period, a small community stayed on at Brown's Hill. One of the old prospectors, Charlie Robinson, later discovered the Columbia Reef, which provided a turning point for TGME. He then discovered Beta Mine, some rich deposits on the lower part of Jubilee Hill, and lastly the Theta Mine deposits. Robinson was never compensated for these discoveries and died in poverty at Brown's Hill, where he had lived.

Mining at Brown's Hill, after richer deposits were found elsewhere in the 1890's, was put on hold for a number of years, re-opened by TGME in 1906, and worked until the 1930's. It was noted for a stoping width as low as 20 cm on the Beta and Theta horizons. Total ore production from Brown's Hill was 370 000 tons.

The Brown's Hill power station was destroyed by fire in 1912.

When the mines closed down in 1972 and the farm Ponieskrantz was sold to the Transvaal Provincial Administration (TPA), the Brown's Hill Compound and buildings were used as accommodation by local families until the building of New Town in 1986, when all inhabitants were moved to the new housing development and the compound was demolished.

Beta Mine

Beta Mine was one of the first mines started by the Transvaal Gold Exploration and Land Company. A.L. Neale wrote in a report in 1910 that Beta was worked out after 19 years. It was however, the longest functioning mine in the Pilgrim's Rest area, and apart from interruptions, it functioned from 1890 to 1971. During 1957, TGME wanted to liquidate due to the poor yield from other mines, and only Beta kept them going. By 1967 Beta was worked out but a state subsidy kept it alive for another three years. The mine finally closed down in June 1971.

Corrugated iron structures served as offices and machine sheds, the married quarters were behind the offices.

North west of Beta, lay Beta North or "New Mine". Mule drawn coco pans transported

the ore to ore bins from where it was transported by large electrically powered coco pans to the Central Reduction Works. The mine became increasingly poor in yield, and more dangerous as it expanded. Sink holes on Mount Sheba are a result of numerous tunnel collapses.

Coston's report from 20/11/1981 describes many complete structures in good condition and a plan to restore Beta to a condition in which it could be used as a site museum was in place, which did not however materialize, due to the demolition of the structures by the TGME after 1986 when mining operations resumed.

On 20/11/1981, ten structures existed on the main Beta site:

- Electric substation
- Compressor room
- Dynamite store and perimeter fence
- Mine Captain's office
- Change rooms
- Shift bosses' office
- Storeroom
- Workshop
- Blacksmith shop
- Heating oven and water tank where picks were heated for sharpening and tempering

Additional structures associated with Beta:

- Ore bin
- Two dumps
- Suspension bridge over Blyde River

Beta North:

- Ore bin
- Tram tunnel
- Columbia cable way
- Adit

Beta West: Tunnel to convey water out of the mine via pipes.

5.3 FURTHER INFORMATION RELATING TO DATES IN STUDY AREA

5.3.1 Chieftainships around turn of 1900

The collaboration between chief Kobeng and the TGME company dates from the early mining days in Pilgrims Rest.

Between 1850 to 1860 Kobeng and his people moved into an area to be later known as the farm Hermansburg. Koboeng reputedly assisted the Boers during the Transvaal War of Retrocession (1880-81) and provided sanctuary and succour to Boer commandos during the second Anglo-Boer War (1899-1902). In return for his assistance, Kobeng's beneficiaries helped to install him as chief over both his Mogane rivals and over the previously dominant Mashego lineage. Kobeng's co-operation carried over into the period following the Anglo-Boer War, when TGME resumed full-scale mining operations. The relationship between Kobeng and company officials was one of mutual benefit. In return for helping with the provision of labour, Kobeng enjoyed considerable rights (Bonner, 1993).

5.3.2 Historical catastrophes and event influencing the history of TGME

Floods inundated Pilgrim's Rest in **1909, 1914, 1918, 1919, 1925 and 1939**, sometimes bringing mining to a total halt.

1909 - a cloudburst swept every bridge away, destroyed Jubilee Power station, 'practically drowned out Elandsdrift mine' for six weeks, closed the central mill for two months, and claimed fifteen black lives.

12 May 1915 - Riots erupted. The white rioters targeted German shops, many of which they sacked and burned.

February 1918 - heavy rain caused flooding and numerous cave-ins, again bringing mining operations to a halt.

14 October 1918 - Spanish Flu. *'Within a week, the disease had reached epidemic proportions, as the number of cases on Central Mines swelled from four to five hundred. Three weeks after the outbreak, the 'drie dag siekte' (three day sickness) had claimed the lives of fifty people at Central Mines, sixty at Vaalhoek and seventy at Elandsdrift. Even this loss of life represented only the tip of the iceberg. Countless other men died on the roads and on the farms'... 'In January 1919 TGME could only fill about half of its labour complement. By February the number had only crept up to about 70%. Labour shortages lingered on -mine officials still reported problems at Elandsdrift as late as 1920' (Bonner 1993).*

June 1920 - General Strike

1921 - Cyclone, tore off the Vaalhoek mine offices, blowing away all of its records


1925 - Torrential downpours collapsed workings in many mines, particularly damaging the Vaalhoek mine.

While intervening droughts brought forth greater supplies of labour, they also created periodic power supply shortages, since the company relied on the hydroelectric energy provided by the nearby Blyde River.

6. SITES OF SIGNIFICANCE

6.1 2430DC-PGS001


Description of Site:			
Site Number	PGS001		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	HOUSE FOUNDATIONS		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Foundations of several structures, making up the manse of the Roman Catholic Church in Pilgrim's Rest, are visible in the area directly north of the gravel road, with associated terraces leading down to the foot of dump "A".		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	20 x 20 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, extent of site can be ascertained through vegetation clearing		

<p><i>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i></p>	<p>Debris occur in area</p>
<p>Photographs and diagrams (Figure numbers)</p>	 <p><i>Figure 4 - House foundation</i></p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; <p>The site is intrinsically linked with the mining operations of Brown's Hill and displays the era's religious and social development.</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a High significance and graded as Local Significance Grade 3B</p>
<p>Impact Evaluation of development on site</p>	<p>It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.</p>

Recommendations <i>including:</i>	<p>It is recommended that the site be preserved and included in the overall Heritage Management Plan (HMP) for the area.</p> <p>The possibility of developing and restoring sections of the site and/or providing site specific information for visitors in the form of plaques is recommended.</p> <p>This must be done within the development framework identified through the HMP.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	LS.3B	0	1	2	0

6.2 2430DC-PGS002


Description of Site:			
Site Number	PGS002		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	Mine Dump		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	MINE DUMP "A": Mine dump associated with historic mining activities from 1896, as well as the Central Reduction Works, in Pilgrim's Rest		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	130 x 150 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<p>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</p>	<p>Archival research indicates age of pre 1930's</p>
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 5 - Mine Dump</p>
<p>Statement of Significance (Heritage Value)</p>	<p>(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;</p> <p>(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;</p> <p>(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;</p> <p>The tailings dam is associated with the Reduction works and as such is seen as significant. It also demonstrates the utilisation of groundbreaking mining techniques for the era of mining.</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a High significance and graded as Local Significance Grade 3B</p>
<p>Impact Evaluation of development on site</p>	<p>It is possible that mining activity can impact on the site, as the reworking of this dump is envisaged by the mining company. Direct impacts are rated as High Negative.</p> <p>It must however be noted that the environmental pollution potential of the dump is high.</p>

<i>Recommendations including:</i>	It is recommended that the site be preserved and included in the overall Heritage Management Plan (HMP) for the area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	LS.3B	0	1	2	0


6.3 2430DC-PGS003 AND PGS044, PGS045

Description of Site:			
Site Number	PGS003		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	SQUARE CONCRETE STRUCTURE AND ROY'S RACE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	This structure forms a break in the concrete pipeline (dated 1950 on feature PGS004). The concrete pipeline conveys water from the weir (PGS013) past the remains of the site of the old Brown's Hill mill, leading into Roy's race (PGS044), which leads to the swimming pool in the Caravan Park and ultimately emptying into the Blyde River.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 10 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	Archival research indicates 1950's as date of site				
Photographs and diagrams (Figure numbers)	 <p>Figure 6 - Concrete Structure</p>				
Statement of Significance (Heritage Value)	<p>Although the site is part of the Roy's Race, it was added at a later stage to act as a water conduit, in the same way as Roy's Race.</p> <p>The site is part of a larger pipeline constructed on the same route as Roys's Race and as such forms part of the historic fabric of the area.</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Medium significance and graded as Generally Protected GP.B				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site, as the reworking of the dump in the vicinity is envisaged by the mining company. Direct impacts are rated as Moderate Negative.				
Recommendations including:	The documentation of the pipeline will be required as it follows the alignment of Roy's Race.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	0	1	2	0


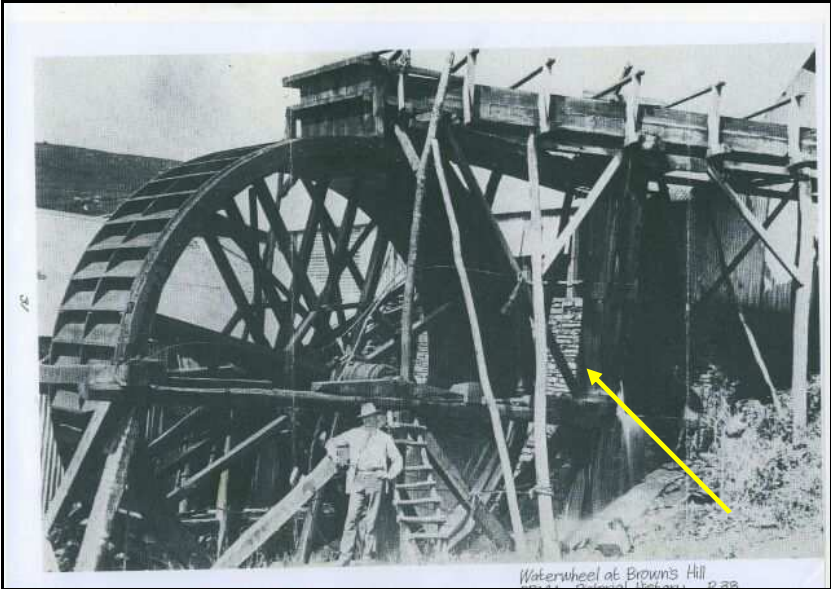
6.4 2430DC-PGS004

Description of Site:			
Site Number	PGS004		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	WATER REGULATOR / SAND TRAP		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	This three angled concrete structure has an iron sluice gate to regulate the flow of water into the concrete pipe, and bears the date of 1950		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 10 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<p>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</p>	<p>Archival research indicates 1950's as date of site</p>				
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 7 - Slues</p>				
<p>Statement of Significance (Heritage Value)</p>	<p>Although the site is part of the Roy's Race, it was added at a later stage to act as a water conduit, in the same way as Roy's Race.</p> <p>The site is part of a larger pipeline constructed on the same route as Roys's Race and as such forms part of the historic fabric of the area.</p>				
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a Medium significance and graded as Generally Protected GP.B</p>				
<p>Impact Evaluation of development on site</p>	<p>It is possible that mining activity can impact on the site, as the reworking of the dump in the vicinity is envisaged by the mining company. Direct impacts are rated as Moderate Negative.</p>				
<p>Recommendations including:</p>	<p>The documentation of the pipeline will be required as it follows the alignment of Roy's Race.</p>				
<p>Summary</p>					
<p>Significance Rating</p>	<p>Field Rating</p>	<p>Probability</p>	<p>Extent</p>	<p>Duration</p>	<p>Intensity</p>
<p>3</p>	<p>GP.B</p>	<p>0</p>	<p>1</p>	<p>2</p>	<p>0</p>

6.5 2430DC-PGS005


Description of Site:			
Site Number	PGS005		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	STRUCTURES ASSOCIATED WITH OLD BROWN'S HILL MILL		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	An unidentified concrete and stone structure, with walls 500mm wide, 1700mm high and an inside width of 3000 mm		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 10 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie	Archival research indicates 1900's as date of site		

<p><i>middens, peat or organic rich deposits.</i></p>	
<p>Photographs and diagrams (Figure numbers)</p>	<div data-bbox="502 465 1319 1075">  </div> <p data-bbox="778 1088 1206 1122"><i>Figure 8 - Stone built structure</i></p> <div data-bbox="494 1153 1329 1740">  </div> <p data-bbox="491 1783 1406 1848"><i>Figure 9 - Brown's Hill water wheel (Yellow arrow indicates footing in Figure 7)</i></p>
<p>Statement of Significance (Heritage Value)</p>	<ul style="list-style-type: none"> (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage; (d) its importance in demonstrating the principal characteristics

	<p>of a particular class of South Africa's natural or cultural places or objects;</p> <p>(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;</p>				
Field Rating (Recommended grading or field significance) of the site:	The area around and upslope of this point is seen as having a High significance and graded as Provincial Significance Grade 2.				
Impact Evaluation of on development site	The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site				
Recommendations including:	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains in the area.</p> <p>This area will also have some remains of the Battery Works, Water Wheel foundations, and possible flume foundations of the Farmers Race.</p> <p>After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.</p> <p>Management of truck movement close to this area must be given priority as to minimise possible vibration damage on structures still intact.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
6	PS.2	1	1	3	1

6.6 2430DC-PGS006

Description of Site:			
Site Number	PGS006		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	ORE FLOOR		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Uneven area of ore and heavily infested by alien vegetation		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	20 x 30 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 10 - Ore floor in background</p>				
Statement of Significance (Heritage Value)	Earlier drawings of Brown's hill indicated the area as being the ore floor area for the Battery Works. The significance of the area lies in the association with the Battery Works area, and thus has an associated significance with site PGS005.				
Field Rating (Recommended grading or field significance) of the site:	The area is seen as having a High significance and graded as Local Significance Grade 3B.				
Impact Evaluation of development on site	The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site.				
Recommendations including:	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains in the area.</p> <p>After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
6	LS.3B	1	1	3	1


6.7 2430DC-PGS007

Description of Site:			
Site Number	PGS007		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	POINT OF RACE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Section of the historic Roy's Race followed by newer pipeline		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie	None		

<i>middens, peat or organic rich deposits.</i>					
Photographs and diagrams (Figure numbers)					
Statement of Significance (Heritage Value)	(b) its possession of uncommon, rare or endangered aspects 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; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;				
Field Rating (Recommended grading or field significance) of the site:	The area around and down river of this point is seen as having a High significance and graded as Provincial Significance Grade 2.				
Impact Evaluation of development on site	The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site				
Recommendations including:	It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains of the race in the area. After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
6	PS.2	1	1	3	1


6.8 2430DC-PGS008

Description of Site:			
Site Number	PGS008		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	CULVERT		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Present concrete pipeline follows line of Roy's race		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	Date to 1950's				
Photographs and diagrams (Figure numbers)	 <p>Figure 11 – Culvert</p>				
Statement of Significance (Heritage Value)	<p>Although the site is part of the Roy's Race, it was added at a later stage to act as a water conduit, in the same way as Roy's Race.</p> <p>The site is part of a larger pipeline constructed on the same route as Roys's Race and as such forms part of the historic fabric of the area.</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Medium significance and graded as Generally Protected GP.B				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site, as the reworking of the dump in the vicinity is envisaged by the mining company. Direct impacts are rated as Moderate Negative.				
Recommendations including:	The documentation of the pipeline will be required as it follows the alignment of Roy's Race.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1


6.9 2430DC-PGS009

Description of Site:			
Site Number	PGS009		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	SQUARE CONCRETE STRUCTURE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Section of the historic Roy's Race followed by newer pipeline. Part of PGS003, PGS008		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie	None		

<i>middens, peat or organic rich deposits.</i>					
Photographs and diagrams (Figure numbers)	 <p>Figure 12 - Concrete structure</p>				
Statement of Significance (Heritage Value)	<p>Although the site is part of the Roy's Race, it was added at a later stage to act as a water conduit, in the same way as Roy's Race.</p> <p>The site is part of a larger pipeline constructed on the same route as Roy's Race and as such forms part of the historic fabric of the area.</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Medium significance and graded as Generally Protected GP.B				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site, as the reworking of the dump in the vicinity is envisaged by the mining company. Direct impacts are rated as Moderate Negative.				
Recommendations including:	The documentation of the pipeline will be required as it follows the alignment of Roy's Race.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1

6.10 2430DC-PGS010


Description of Site:			
Site Number	PGS010		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	FARMER'S RACE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	This race was built in 1884 by the Transvaal Gold Exploration and Land Company to supply water to the hydro-electric power station at Brown's Hill. It was 4.5 kms in length, 1800 mm wide and 1200mm deep. It was lined with metal plates screwed together. The race is clearly visible on the satellite image and the current slimes dam partially covers it. It followed the contour line to Kameel's Creek. GPS reference at point where fragmentary metal plates are still to be seen.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 13 - Farmer's race steel plate lining</p>
<p>Statement of Significance (Heritage Value)</p>	<p>(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;</p> <p>(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;</p> <p>(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The area around and down river of this point is seen as having a High significance and graded as Provincial Significance Grade 2.</p>
<p>Impact Evaluation of development on site</p>	<p>The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site</p>
<p>Recommendations including:</p>	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains of the race in the area.</p> <p>After identification of the different structures it is recommended</p>

	that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	PS.2	1	1	0	1

6.11 2430DC-PGS011


Description of Site:			
Site Number	PGS011		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	FOUNDATIONS OF STRUCTURE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Possible historic mining		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 10 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<p>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</p>	<p>None</p>
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 14 - Brick structure</p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; <p>The site is intrinsically linked with the mining operations of Brown's Hill and displays the era's social development. Sections might also be associated with the Battery Works.</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a High significance and graded as Local Significance Grade 3B</p>
<p>Impact Evaluation of</p>	<p>It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.</p>

<i>development on site</i>					
Recommendations including:	<p>It is recommended that the site be preserved and included in the overall Heritage Management Plan (HMP) for the area.</p> <p>The possibility of developing and restoring sections of the site and/or providing site specific information for visitors in the form of plaques is recommended.</p> <p>This must be done within the development framework identified through the HMP.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	LS.3B	1	1	0	1

6.12 2430DC-PGS012


Description of Site:			
Site Number	PGS012		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	FOUNDATIONS OF STRUCTURE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Possibly associated with historic mining activity		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 10 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 15 - Foundation of structure</p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is possibly significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a moderate significance and graded as Generally Protected A.</p>
<p>Impact Evaluation of development on site</p>	<p>It is possible that mining activity can impact on the site. Direct impacts are rated as Moderate Negative.</p>
<p>Recommendations including:</p>	<p>It is recommended that the site be cleared of all vegetation to determine the extent and significance of the structure. This will then determine the conservation status of the site.</p>

<p>If significant it must be preserved and included in the overall Heritage Management Plan (HMP) for the area.</p> <p>The possibility of developing and restoring sections of the site and/or providing site specific information for visitors in the form of plaques must be investigated.</p> <p>This must be done within the development framework identified through the HMP.</p>					
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.13 2430DC-PGS013



Description of Site:			
Site Number	PGS013		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	WEIR		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The weir was the starting point for the pipeline which followed the old line of Roy's race		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
Photographs and diagrams (Figure numbers)	 <p>Figure 16 - Weir with slues in background</p>
Statement of Significance (Heritage Value)	<ul style="list-style-type: none"> (b) its possession of uncommon, rare or endangered aspects 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; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
Field Rating (Recommended grading or field significance) of the site:	<p>The area around and down river of this point is seen as having a High significance and graded as Provincial Significance Grade 2.</p>
Impact Evaluation of development on site	<p>The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site</p>
Recommendations including:	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains of the race in the area.</p> <p>After identification of the different structures it is recommended</p>

	that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	PS.2	1	1	0	1

6.14 2430DC-PGS014


Description of Site:			
Site Number	PGS014		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	CONCRETE BASE FOR SUSPENSION BRIDGE "a"		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The suspension bridge was used by pedestrians to cross the Blyde River		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	5 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<p><i>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i></p>	<p>None</p>
<p>Photographs and diagrams (Figure numbers)</p>	<div data-bbox="502 551 1236 1099">  </div> <p><i>Figure 17 - Suspension bridge base on northern side of Blyde River</i></p> <div data-bbox="502 1178 1279 1753">  </div> <p><i>Figure 18 - Remains of suspension bridge</i></p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (c) its potential to yield information that will contribute to an

	<p>understanding of South Africa's natural or cultural heritage;</p> <p>(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a moderate significance and graded as Generally Protected A.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as Moderate Negative.				
Recommendations including:	<p>It is recommended that the site be cleared of all vegetation to determine the extent of the structure. This will then determine the conservation status of the site.</p> <p>If significant it must be preserved and included in the overall Heritage Management Plan (HMP) for the area.</p> <p>The possibility of developing and restoring sections of the site and/or providing site specific information for visitors in the form of plaques must be investigated.</p> <p>This must be done within the development framework identified through the HMP.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.15 2430DC-PGS015

Description of Site:			
Site Number	PGS015		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	SQUARE CONCRETE STRUCTURE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Possibly part of newer pipeline on Roy's Race		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	5 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 19 - Concrete pipe</p>				
Statement of Significance (Heritage Value)	<p>Although the site is part of the Roy's Race, it was added at a later stage to act as a water conduit, in the same way as Roy's Race.</p> <p>The site is part of a larger pipeline constructed on the same route as Roys's Race and as such forms part of the historic fabric of the area.</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Medium significance and graded as Generally Protected GP.B				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site, as the reworking of the dump in the vicinity is envisaged by the mining company. Direct impacts are rated as Moderate Negative.				
Recommendations including:	The documentation of the pipeline will be required as it follows the alignment of Roy's Race.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1


6.16 2430DC-PGS016

Description of Site:			
Site Number	PGS0016		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	CONCRETE & DRESSED STONE STRUCTURE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Possible position of Brown's Hill Mill and Water Wheel. Refer to attached drawings.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	10 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie	None		

<i>middens, peat or organic rich deposits.</i>					
Photographs and diagrams (Figure numbers)					
Statement of Significance (Heritage Value)	<p>(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;</p> <p>(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;</p> <p>(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;</p>				
Field Rating (Recommended grading or field significance) of the site:	The area around and down slope of this point is seen as having a High significance and graded as Provincial Significance Grade 2.				
Impact Evaluation of development on site	The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site				
Recommendations including:	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains in the area.</p> <p>This area will also have some remains of the Battery Works, Water Wheel foundations, and possible flume foundations of the Farmers Race.</p> <p>After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.</p> <p>Management of truck movement close to this area must be given priority as to minimise possible vibration damage on structures still intact.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	PS.2	1	1	0	1

6.17 2430DC-PGS017


Description of Site:			
Site Number	PGS017		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	LARGE DOLOMITE ANCHOR FOR SUSPENSION BRIDGE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Part of northern section of suspension bridge of PGS014		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	5 x 5m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 20 - Suspension bridge anchor on southern side of Blyde River</p>
<p>Statement of Significance (Heritage Value)</p>	<p>The site is significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a moderate significance and graded as Generally Protected A.</p>
<p>Impact Evaluation of development on site</p>	<p>It is possible that mining activity can impact on the site. Direct impacts are rated as Moderate Negative.</p>
<p>Recommendations including:</p>	<p>It is recommended that the site be cleared of all vegetation to determine the extent of the structure. This will then determine the conservation status of the site.</p> <p>If significant it must be preserved and included in the overall Heritage Management Plan (HMP) for the area.</p>

	<p>The possibility of developing and restoring sections of the site and/or providing site specific information for visitors in the form of plaques must be investigated.</p> <p>This must be done within the development framework identified though the HMP.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.18 2430DC-PGS018 AND PGS019


Description of Site:			
Site Number	PGS018 & 19		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	INTERSECTIONS WITH ROAD AND COCO PAN TRACK		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The coco pan track ran from Beta Mine to the Central Reduction Works. The entire rail system is almost complete		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	2000 x 10m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 21 - Coco pan rail road</p>
<p>Statement of Significance (Heritage Value)</p>	<ul style="list-style-type: none"> (b) its possession of uncommon, rare or endangered aspects 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; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The coco pan rail track is seen as having a High significance and graded as Provincial Significance Grade 2.</p>
<p>Impact Evaluation of development on site</p>	<p>The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site.</p>
<p>Recommendations including:</p>	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains in the area.</p>

	After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	PS.2	1	1	0	1

6.20 2430DC-PGS020

Description of Site:			
Site Number	PGS020		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	MINE DUMP "C"		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The historic mine dumps are of crucial importance as an associated feature for the World Heritage listing of the Central Reduction Works		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	400 x 150 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
<p>Photographs and diagrams (Figure numbers)</p>	 <p>Figure 22 – Mine dump o the left</p>
<p>Statement of Significance (Heritage Value)</p>	<ul style="list-style-type: none"> (b) its possession of uncommon, rare or endangered aspects 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; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period; <p>The tailings dam is associated with the Reduction works and as such is seen as significant. It also demonstrates the utilisation of groundbreaking mining techniques for the era of mining.</p>
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a High significance and graded as Local Significance Grade 3B</p>
<p>Impact Evaluation of development on site</p>	<p>No impact is envisaged</p>

<i>Recommendations including:</i>	It is recommended that the site be preserved and included in the overall Heritage Management Plan (HMP) for the area.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	LS.3B	1	1	0	1

6.21 2430DC-PGS021

Description of Site:			
Site Number	PGS021		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BROWN'S HILL COMPOUND ON BLYDE HILL		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Remains of the historic compound are still visible although it was demolished in 1986 when the inhabitants were relocated to New Town in Pilgrim's Rest. This was one of several "informal" compounds built by TGME, and did not serve as a movement restricting element. It consisted of 50 square units built with sundried bricks, clay, plastered and thatched. Most had a room added by the occupant as well a traditional grain store and chicken run. It had a communal laundry, kitchen and cold water showers. Poplar trees were planted between the units and a large bluegum plantation was situated to the south. Mealie and pumpkin fields surrounded the compound. Some of the poplar trees are still to be seen at the site.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	100 x 100 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		


<p><i>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i></p>	<p>None</p>
<p>Photographs and diagrams (Figure numbers)</p>	 <p><i>Figure 23 - Brown's Hill Compound remains</i></p>



Figure 24 - Brown's Hill Compound (1971)

Statement of Significance <i>(Heritage Value)</i>	The site is possibly significant due to: (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;				
Field Rating <i>(Recommended grading or field significance) of the site:</i>	The site is seen as having a moderate to low significance and graded as Generally Protected B.				
Impact Evaluation <i>of development on site</i>	It is possible that mining activity can impact on the site. Direct impacts are rated as Moderate Negative.				
Recommendations <i>including:</i>	It is recommended that the site be cleared of all vegetation to determine the extent and significance of the structure.				
Summary					

Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1


6.22 2430DC-PGS022

Description of Site:			
Site Number	PGS022		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	GRAVES: SHABANGU FAMILY		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The graves of the Shabangu family were pointed out to the Pilgrim's Rest Museum officials on 28 March 2007, by a family member, Sendra Mthuke		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	20 x 20 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<i>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i>	None				
Photographs and diagrams (Figure numbers)					
Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a High significance and graded as Generally Protected A.				
Impact Evaluation of development on site	No impact is foreseen on the grave site				
Recommendations including:	It is recommended that the site be preserve in situ with a buffer zone of 20 m around the graves.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.23 2430DC-PGS023

Description of Site:			
Site Number	PGS023		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BROWN'S HILL CEMETERY		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	This cemetery was used by the inhabitants of Browns Hill, although graves are also scattered all over the area. There are approximately 60 graves in the cemetery, but they could not be accurately counted as the cemetery is overgrown with invader plants which form impenetrable thickets in places.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	100 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 25 - Brown's Hill Cemetery</p>				
Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a High significance and graded as Generally Protected A.				
Impact Evaluation of development on site	Mining is not to impact on the site				
Recommendations including:	It is recommended that the site be preserve in situ with a buffer zone of 20 m around the graves.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.24 2430DC-PGS024

Description of Site:			
Site Number	PGS024		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	GRAVE: BHATINISE LUKULENI		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Single grave. Grave relocated on the 4 th of May 200, through full Social Consultation Process by Professional Grave Solutions (Pty) Ltd		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	5 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie	None		

*middens, peat or
organic rich
deposits.*

**Photographs and
diagrams** (Figure
numbers)



Figure 26 - Grave dressing before relocation

6.25 2430DC-PGS025

Description of Site: Site Number			
	PGS025		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	GRAVE: CABBAGE MOGANE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	After social consultation it was confirmed that this was not a grave and not the grave of Mr Mogane		

6.26 2430DC-PGS026

Description of Site:			
Site Number	PGS026		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	GRAVE: THULANI MASHELE		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Single grave. Grave relocated on the 4 th of May 200, through full Social Consultation Process by Professional Grave Solutions (Pty) Ltd		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	5 x 5 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible		

<p><i>Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i></p>	<p>None</p>
<p>Photographs and diagrams (Figure numbers)</p>	<div data-bbox="576 517 1321 1500" data-label="Image"> </div> <p><i>Figure 27 - Grave dressing before relocation</i></p>

6.27 2430DC-PGS027

Description of Site:			
Site Number	PGS027		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	GRAVE: ROBERT MTIMKULU		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Precise position unknown		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);			
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<i>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i>	None				
Photographs and diagrams (Figure numbers)					
Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a High significance and graded as Generally Protected A.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	Identify position of grave through social consultation				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

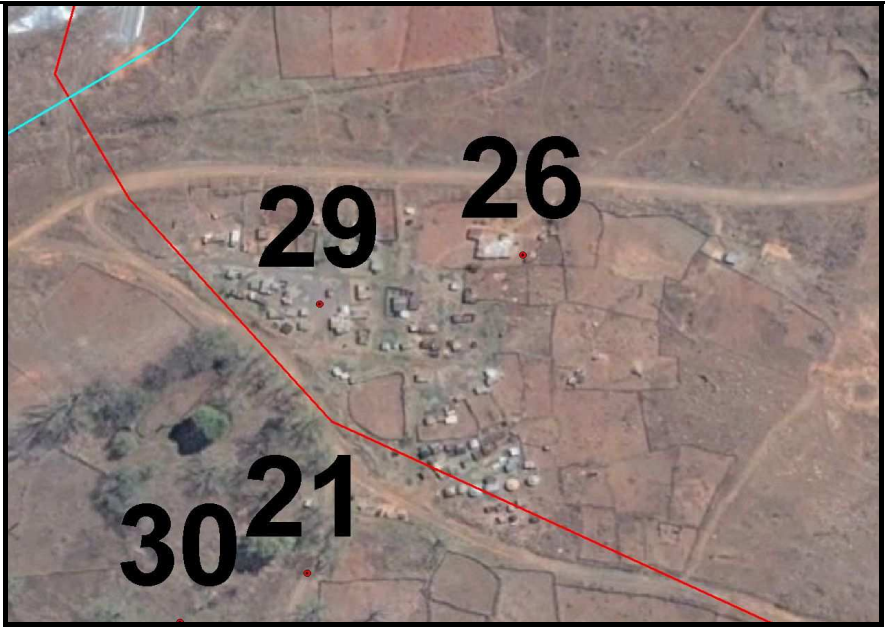
6.28 2430DC-PGS028

Description of Site:			
Site Number	PGS028		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	REMAINS OF PREVIOUS INFORMAL SETTLEMENT AND THREE POSSIBLE GRAVES		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	<p>The area was pointed out by Sendra Mthuke. There are three possible but very indistinct graves.</p> <p>The rest of the area is characterised by the foundations of numerous houses that was present before the area was planted with pine trees.</p>		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	100 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

<i>Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.</i>	None				
Photographs and diagrams (Figure numbers)					
Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a High significance and graded as Generally Protected A.				
Impact Evaluation of development on site	The site is not to be impacted by the current mining project				
Recommendations including:	Identify position and or existence of graves through social consultation				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.A	1	1	0	1

6.29 2430DC-PGS029

Description of Site:			
Site Number	PGS029		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	INFORMAL SETTLEMENT		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Small informal settlement consisting of approximately 60 houses.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	150 x 250 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 28 - Layout of current informal settlement</p>				
Statement of Significance (Heritage Value)	The site is possibly significant due to: (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected B.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	Complete social consultation process on the relocation of the residents to other acceptable sites in the Pilgrim's rest area				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1


6.30 2430DC-PGS030

Description of Site:			
Site Number	PGS030		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BLACKLOW'S CUTTING		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Blacklow's cutting is situated on the opposite side of the Blyde River, to the site of the Brown's Hill Power station. The course of the cutting is still clearly visible.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	100 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie	None		

<i>middens, peat or organic rich deposits.</i>					
Photographs and diagrams (Figure numbers)	Refer to Layout Map of sites				
Statement of Significance (Heritage Value)	<p>(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;</p> <p>(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;</p> <p>(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;</p>				
Field Rating (Recommended grading or field significance) of the site:	The area around and down river of this point is seen as having a High significance and graded as Provincial Significance Grade 2.				
Impact Evaluation of development on site	The possible impact of mining on this site is seen as Highly Negative if mining occurs in the vicinity of the site				
Recommendations including:	<p>It is firstly recommended that the whole area is subject to brush and vegetation clearing to determine the extent of the remains of the race in the area.</p> <p>After identification of the different structures it is recommended that the structures be documented and included as a major part of the HMP and further development of the site as conservation area.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	PS.2	1	1	0	1

6.31 2430DC-PGS032

Description of Site:			
Site Number	PGS032		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	REMAINS OF SECOND PREVIOUSLY INHABITED AREA		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The informant Sandra Mthuke, born on Brown's Hill, pointed out the area as a previously inhabited area. Due to extensive vegetation coverage, visibility was very poor. The new TGME Reduction plant is in the background.		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 29 - Recent Historic Settlement area in fore ground</p>				
Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; 				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected B.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	No further work required.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1

6.32 2430DC-PGS033, 36, 37, 38, 39, 40 AND 43

Description of Site:			
Site Number	PGS033, PGS036 PGS037 PGS038, 39 PGS040, 43		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	<p>FOUNDATIONS OF MAIN BETA MINE STRUCTURES: There are very few traces of the foundations. (See the list of buildings, which were demolished by the TGME mine after 1986, in the above text)</p> <p>The current remains consist of that of the electric substation /compressor house 50 metres to the north of the main Beta shaft (PGS39). The shaft has recently been opened up and is being prepared for the planned mining activities.</p> <p>Further associated with the site is the remains of the ore bin (PGS40), foundations of the footbridge over the Blyde river and the main waste rock dump of the Beta Mine.</p>		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	Nonw		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	200 x 200 m		

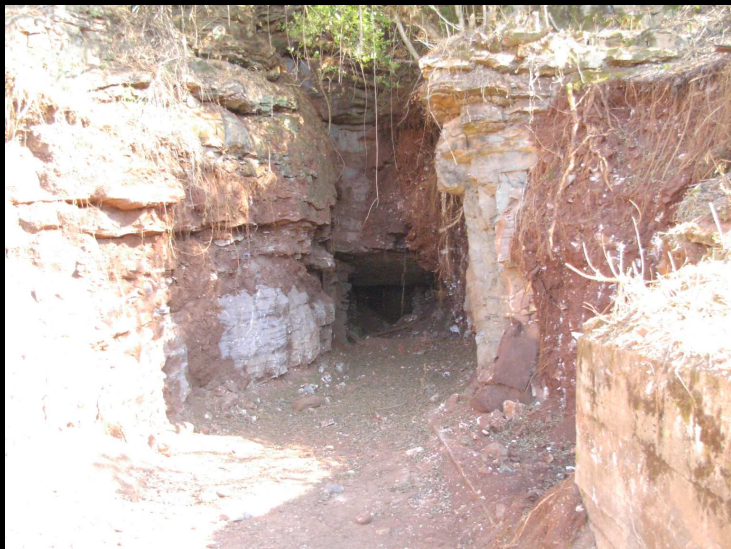
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact
Possible sources of information about past environments, such as stalactites/stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
Photographs and diagrams (Figure numbers)	 <p>Figure 30 – Opened Up Beta main shaft</p>



Figure 31: Remains of compressor house



Figure 32 - Ore bin remains



Figure 33 - Footbridge foundation

Statement of Significance <i>(Heritage Value)</i>	The site is possibly significant due to: (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;					
Field Rating <i>(Recommended grading or field significance) of the site:</i>	The site is seen as having a Low significance and graded as Generally Protected B.					
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.					
Recommendations including:	No further work required. The current structures and previous structures have been documented previously.					
Summary						
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity	
10	GP.B	3	1	3	3	

6.33 2430DC-PGS034

Description of Site:			
Site Number	PGS034		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	<p>LATE WHITE ROCK ART SITE: This site is above the area known by the current local community in Pilgrim's Rest as "Mapotlela". The paintings are of extreme archaeological value, as it is one of a few sites of this nature in the Mpumalanga Province. It may depict early contact between the black community and European diggers, and it is in a very fragile condition.</p> <p><i>The paintings were done in black pigment (possibly charcoal mixed with some permanent substance) and are by now quite faded. The topic depicts various animals such as a giraffe, a lion (or feline species) and antelope (specific species not known), which might be an indication that the paintings were done before European settlement in 1873, when the valley still abounded with game. The painting at the bottom left is very unclear but could possibly be interpreted as a man on a horse, which might put the possible date for these paintings to when the Voortrekkers moved through the area in early 1840's or when the first prospectors appeared in 1873 (Rowe 2003 and Pistorius, 2003).</i></p>		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Rock Art		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	According to Christine Rowe who has recorded and studied the painting, it belongs to the category known as 'Late Whites', which were done by Northern Sotho-speakers over quite a large part of the Limpopo Province. These paintings were usually done in thick white pigment and were sometimes superimposed on older San paintings (Pistorius, 2003)		
Estimation or measurement of the extent (maximum dimensions) and orientation of the	10 x 10 m. Physical area of drawing 1000cm ²		


site(s);	
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact
Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None
Photographs and diagrams (Figure numbers)	 <p>Figure 34 – Position of rock art site on cliff</p>



Figure 35 - Position of rock art on boulder



Figure 36 - Rock art



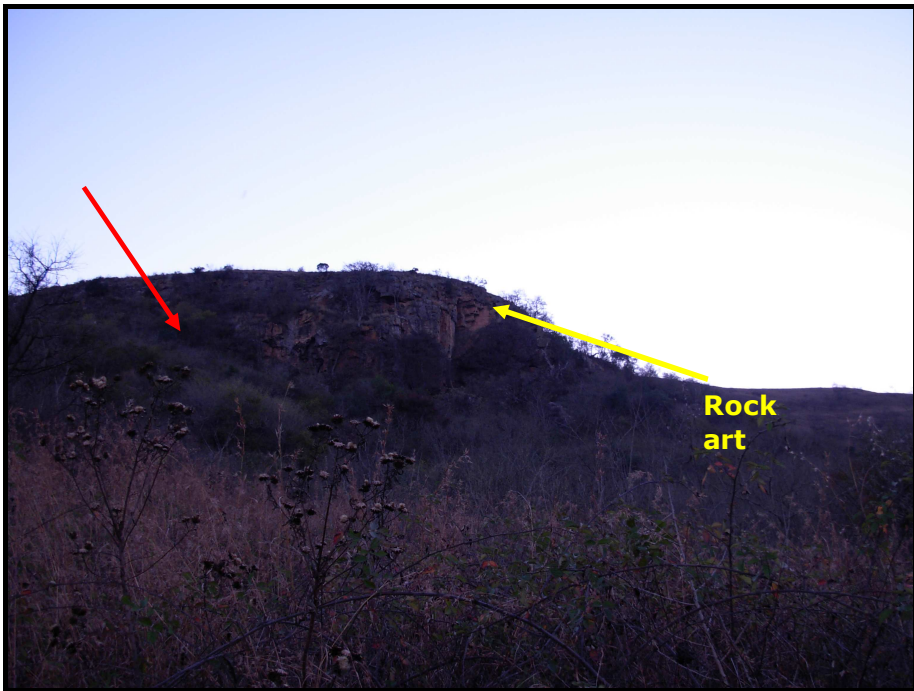
Figure 37 - Tracing of rock art

<p>Statement of Significance (Heritage Value)</p>	<p>The site is of significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
<p>Field Rating (Recommended grading or field significance) of the site:</p>	<p>The site is seen as having a high significance and graded as Provincial Significance Grade 2.</p>
<p>Impact Evaluation of development on site</p>	<p>Due to the proposed mining activities of the Beta section a Rock Mechanics study was commissioned to evaluate the possible impact of blasting on the rock art site.</p> <p>The summary of findings area as follows (Refer to Annexure C for full report):</p> <ol style="list-style-type: none"> 1. The cliff area is geologically unstable and the geological process of erosion will continue. It is therefore likely that the rock art will be lost at some point in the future due to the progressive natural process observed.

	<ol style="list-style-type: none"> 2. The cliff was under mined in the past and this mining is likely to have an effect on the stability of the cliff area as no strategy of stabilising the surface area through the design of non yield pillars were followed or implemented by historic miners. The scale and extent of this influence was not quantified as it was not part of the scope of this study. 3. The effect of planned mining will be minimal as the planned mining will not be conducted under the rock art site. Further the mining operations will be design to have no influence on the surface through the design and implementation of a proper pillar system. 4. Blasting operations will result in a maximum expected PPV of 8mm/s. This is below the stringent criteria of 10mm/s set for poorly constructed or historic buildings. The vibrations caused by blasting operations are not expected to have a significant impact on the stability of the cliff area. 5. The rock art is under threat, however, this not due to the planned mining but rather due to the unstable geological conditions and the presence of historical mining. 				
Recommendations including:	<p>The recommendations from the Rock Mechanics study area:</p> <ol style="list-style-type: none"> 1. Future mining needs to be planned with non yield pillars to minimise the influence of mining on surface. 2. Blasting operations in the decline and stoping must be planned to not exceed 50kg per blast. 3. It would be advisable to conduct blast vibration monitoring during the initial stages of the decline development to quantify the actual effects of blasting. The results of the monitoring should be correlated with the design chart to ensure its validity. <p>It is further recommended that a monitoring program be developed whereby the rock art site is monitored on a frequency determined by the Rock Art Specialist and agreed upon by the mine.</p> <p>In the event that it is determined that the site is deteriorating due to mining activities the possibility of relocation of the rock art site must be considered and investigated.</p>				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
10	PS.2	1	4	3	2

6.34 2430DC-PGS035 AND 48

Description of Site:			
Site Number	PGS035 PGS048		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	Historical settlement area with some remains of mud and stone houses.		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	The area above Beta Mine is known by the local community as Mapotlela. Some of the older inhabitants were born on this hill and traces of habitation, such as the upper grindstone can still to be seen		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	100 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Possible sources of information about past environments, such as stalactites/ stalagmites, flowstone, dassie middens, peat or organic rich deposits.	None				
Photographs and diagrams (Figure numbers)	 <p>Figure 38 – View of site from Beta Rock dump</p>				
Statement of Significance (Heritage Value)	The site is possibly significant due to: (a) its importance in the community, or pattern of South Africa's history;				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected C.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	No further work required.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.C	1	1	0	1

6.35 2430DC-PGS041

Description of Site:			
Site Number	PGS041		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BETA NORTH ADIT & ASSOCIATED STRUCTURES: The associated structures of Beta North have been vandalized by scrap metal dealers. However, the entrance to the adit is still intact		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;			
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		

Photographs and diagrams (Figure numbers)



Figure 39 – Beta North with winch platform in foreground

Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected B.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	If at any stage mining is going to impact on the site by the removal of foundations or the ore tip. Documentation and permits for such work will have to be obtained from SAHRA.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
7	GP.B	1	1	2	3

6.36 2430DC-PGS042

Description of Site:			
Site Number	PGS042		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BETA WEST WATER DRAINAGE ENTRANCE & PIPES Beta West was used for draining the water, which was pumped out of the mine into Peach Tree Creek. It has been sealed with expanded metal and is in good condition. The pipes at the entrance are intact.		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	None		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Photographs and diagrams (Figure numbers)			



Figure 40 – Beta west adit

Statement of Significance <i>(Heritage Value)</i>	<p>The site is possibly significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; 					
Field Rating <i>(Recommended grading or field significance) of the site:</i>	<p>The site is seen as having a Low significance and graded as Generally Protected B.</p>					
Impact Evaluation <i>of development on site</i>	<p>It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.</p>					
Recommendations <i>including:</i>	<p>If at any stage mining is going to impact on the site by the removal of foundations or the opening of the adit. Documentation and permits for such work will have to be obtained from SAHRA.</p>					
Summary						
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity	
7	GP.B	1	1	2	3	

6.37 2430DC-PGS046

Description of Site:			
Site Number	PGS046		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	COCO PAN BRIDGE The coco pan bridge over the Blyde River is still standing, though fragile		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;			
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Photographs and diagrams (Figure numbers)			



Figure 41 – Coco pan bridge over the Blyde river

Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected B.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	If at any stage mining is going to impact on the site, documentation and permits for such work will have to be obtained from SAHRA.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1

6.38 2430DC-PGS047

Description of Site:			
Site Number	PGS047		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	PUMPHOUSE & TRAMLINE The tram line was constructed to cart ore from Beta North to the reduction works. The tram line is in large part intact.		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	1910		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	50 x 50 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Photographs and diagrams (Figure numbers)			



Figure 42 – Tram line with electrical overhead pole visible

Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <p>(a) its importance in the community, or pattern of South Africa's history;</p> <p>(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</p>				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Generally Protected B.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	If at any stage mining is going to impact on the site, documentation and permits for such work will have to be obtained from SAHRA.				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	GP.B	1	1	0	1

6.39 2430DC-PGS049

Description of Site:			
Site Number	PGS049		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	BROWN'S HILL / BLYDE HILL Mining activity during the late 1800's has left a large impact on the landscape of the area.		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Primary		
Cultural affinities, approximate age and significant features of the site;	1870's		
Estimation or measurement of the extent (maximum dimensions) and orientation of the site(s);	400 x 400 m		
Depth and stratification of the site (where shovel test permits have been given), both in the text and through photographs of the sections;	None visible, site still intact		
Photographs and diagrams (Figure numbers)			



Figure 43 – Diggings evident around number 49

Statement of Significance (Heritage Value)	<p>The site is possibly significant due to:</p> <ul style="list-style-type: none"> (a) its importance in the community, or pattern of South Africa's history; (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; 				
Field Rating (Recommended grading or field significance) of the site:	The site is seen as having a Low significance and graded as Local Significant Grade 3A.				
Impact Evaluation of development on site	It is possible that mining activity can impact on the site. Direct impacts are rated as High Negative.				
Recommendations including:	If at any stage mining is going to impact on the site, documentation and permits for such work will have to be obtained from SAHRA. However the area must be preserved as far as possible intact				
Summary					
Significance Rating	Field Rating	Probability	Extent	Duration	Intensity
3	LS.3A	1	1	0	1

6.40 2430DC-PGS050 AND 51

Description of Site: Site Number			
	PGS0350 PGS051		
Map reference	Topo-sheet number	Number of Map in report	
	2430DC		
GPS coordinates: Garmin 60 Csx - WGS 84	X	Y	
Site Data	Description		
Type of site (e.g. open scatter; shell midden, cave /shelter);	<p>PGS050 - GRAVES: KIMBEL MITCHELL: The informant Sendra Mthuke, pointed out the area of approximately three graves of the Mitchell family, currently living in Sabie. The area indicated by her as having been the grave site, was already covered by approximately 2m of topsoil, which TGME is in the process of moving downhill on Brown's Hill.</p> <p>PGS051 -GRAVES: MTHUKE FAMILY: Three children of the Mthuke family were buried inside a house, Elijah Mthuke, Eliot Mthuke and Donald Mthuke. This area has already been bulldozed and destroyed, but it is still possible that the graves are below the surface.</p>		
Site categories (e.g. Earlier Stone Age, Late Iron Age);	Historic		
Context (i.e. primary or secondary);	Disturbed		
Cultural affinities, approximate age and significant features of the site;	After social consultation a process of grave relocation has been completed and all families involved consented to the process followed. Not included on heritage map, due to relocation.		
Photographs and diagrams (Figure numbers)			



Figure 44 – Exhumation of Mitchell graves



Figure 45 - Exhumation of Mathuke remains

7. ASSUMPTIONS AND LIMITATIONS

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.

8. LEGAL AND POLICY REQUIREMENTS

8.1 General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In the new legislation, permits are required to damage, destroy, alter, or disturb them. People who already possess material are required to register it.

The management of heritage resources are integrated with environmental resources and this means that before development takes place heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves, which are older than 60 years and are not in a cemetery (such as ancestral graves in rural areas), are protected. The legislation protects the interests of communities that have interest in the graves: they may be consulted before any disturbance takes place.

The graves of victims of conflict and those associated with the liberation struggle will be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resource authority and if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the developer's cost. Thus developers will be able to proceed without uncertainty about whether work will have to be stopped if a heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:

An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video 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), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection, to all historic and pre-historic cultural remains, including graves and human remains.

8.2 Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinterment must also be

obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are the jurisdiction of the South African Heritage Resource Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation. If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

9. ASSESSMENT AND RECOMMENDATIONS

*A locality map is provided in **Annexure B** and Heritage Sites in **Annexure C***

Evaluation of the Brown's Hill area must be done on a National, Provincial and Local level.

9.1 BROWN'S HILL AS A SITE AND PART OF PILGRIM'S REST

The Brown's Hill area on the farm Ponieskranz is part of the larger Pilgrim's Rest heritage landscape and cannot be separated as such. It forms part of a larger historic landscape that is seen as highly significant and of National significance.

The commencement of mining in the Brown's Hill area, after cessation in 1972, needs to be handled with the utmost care. The design and planning must show sympathy towards the heritage resources as single structures and the historic landscape presented by structures and views in the area.

Pilgrim's Rest and the farm Ponieskranz was identified as a National Heritage Site in 2000. Current information from the SAHRA: National Heritage Sites: Consolidated nomination, Grading & Declaration list (2007) indicates no grading or declaration as a National Heritage Site has been done on the Pilgrim's Rest area.

A tentative application as World Heritage Site for the Reduction works was lodged in November 2006, and is currently under review and dependant on World Heritage Operational Guidelines reviewed in 2007

Brown's Hill and the Beta area as a historic landscape and association with the Reduction works can be rated on its National heritage significance through Section 3(3) of the National Heritage Resources Act, as follows:

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

Brown's Hill as part of Pilgrim's Rest represents a historic epoch in which the mining of gold helped to bankroll a spectacular period of world trade, industrial and commercial expansion. It had a major influence on the drawing of thousands of immigrants to the goldfields of South African and the subsequent discovery of gold on the Witwatersrand.

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

The conservation of our mining heritage has been one of the most neglected aspects in heritage conservation in South Africa. The development on historical mining areas such as Baberton and the Witwatersrand in the past 50 years has largely destroyed the remains of early mining activities.

Pilgrim's Rest, and to a lesser extent the Brown's Hill area, is one of the final places where the early days of gold mining and the gold rushes of the late 1800's are still displayed through heritage structures and landscapes.

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

The rich cultural heritage and heritage structures within the area still holds research interest and can provide valuable information on social, mining and rural development within the framework of the historic gold rushes.

(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;

The Brown's Hill and Beta mine development and layout and linkage with the subsequent Pilgrim's Rest town layout demonstrates the evolution of a small mining community over the period of three decades and the subsequent demise of mining activities and social structures.

It also has the potential to produce a successful example of the change between historic mining use of a town to the current tourism driven and proposed mining developments.

(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;

The Brown's Hill and Beta mine area and associated Reduction Works, demonstrates the development of mining activities from primitive panning techniques for placer gold in the Blyde River, the working of alluvial deposits through sluicing, the discovery of gold bearing reefs and the working of the ore through batteries, the use of water races and water wheels, to the development of a reduction works over a period of 20 years.

9.2 MINING LANDSCAPE

Given the extent to which mining activity represents a human activity that modifies the natural features of the earth, many mining properties will qualify as historic landscapes.

The Pilgrim's Rest landscape may represents the most dramatic visual images of mining. The landscape evokes images of time, place, and historical patterns associated with past mining epochs. The mining landscape include ravaged landscapes denuded by nineteenth-century hydraulic mining, gaping holes in the earth dredging landscapes characterised by mounded tailings piles lining great stretches of the Blyde river and Pilgrim's Creek. In addition to the visual impact of the mining landscape, the land forms created by mining provide clues to past activity.

The mining landscape of Pilgrim's Rest is unique and new mining should be done in such a way as to shield historic landscapes as much as possible from new developments.

9.3 PROPOSED MINING ACTIVITIES

The project entails the extension of the current tailings dam of TGME situated on the Brown's Hill area of Pilgrim's Rest. Further to this TGME aims to access previously unmined reserves of the historical Beta mine situated to the north-west of the TGME plant. The mined ore will then be trucked by haul road to the current plant.

The planned mining will consist of the opening of a new incline shaft to the south of the current Beta south shaft. This incline will then be utilised to access unmined reserves of the Beta mine.

9.4 INDIVIDUAL HERITAGE SITES IN THE BROWN'S HILL AND THE BETA AREA TO BE POSSIBLY INFLUENCED BY PROPOSED MINING

It is recommended that TGME develop a Conservation Management Plan for heritage Resources within their mining rights area to conserve, develop and document in a systematic way.

Some of the remains of structures are of such value that it is not worth conserving and in such cases where development need to take place these structures will need to be documented and applied for destruction permits from SAHRA.

The memorialisation of the whole Browns hill area through maps in lookout areas and the conservation of key sites must be central to the working policy on heritage resources.

9.4.1 Brown's Hill Tailings Extension

The Brown's Hill Tailings dam extension will have impacted on four cemetery or single grave sites within the extension area. Earth moving in the area of the extension began in 2006, but was halted after it was discovered that graves were located within the foot print area of the site. Professional Grave Solutions (Pty) Ltd was appointed to conduct a grave relocation process with the aim of identifying the families, obtain their permission, apply for the necessary permitting and ultimately relocate the grave that were impacted on.

The following sites PGS024 and PGS026 were relocated in 2007, after which the site PGS050 and PGS 051 was relocated in May 2008.

No further sites of heritage significance will be impacted on by the proposed tailings extension.

9.4.2 Beta Mining Area

Rock Art Site - PGS034

Due to the proposed mining activities of the Beta section a Rock Mechanics study was commissioned to evaluate the possible impact of blasting on the rock art site.

The summary of findings of the study is as follows (Refer to **Annexure C** for full report):

1. The cliff area is geologically unstable and the geological process of erosion will continue. It is therefore likely that the rock art will be lost at some point in the future due to the progressive natural process observed.
2. The cliff was under mined in the past and this mining is likely to have an effect on the stability of the cliff area as no strategy of stabilising the surface area through the design of non yield pillars were followed or implemented by historic miners. The scale and extent of this influence was not quantified as it was not part of the scope of this study.

3. The effect of planned mining will be minimal as the planned mining will not be conducted under the rock art site. Further the mining operations will be design to have no influence on the surface through the design and implementation of a proper pillar system.
4. Blasting operations will result in a maximum expected PPV of 8mm/s. This is below the stringent criteria of 10mm/s set for poorly constructed or historic buildings. The vibrations caused by blasting operations are not expected to have a significant impact on the stability of the cliff area.
5. The rock art is under threat, however, this not due to the planned mining but rather due to the unstable geological conditions and the presence of historical mining.

The recommendations from the Rock Mechanics study area:

1. Future mining needs to be planned with non yield pillars to minimise the influence of mining on surface.
2. Blasting operations in the decline and stoping must be planned to not exceed 50kg per blast.
3. It would be advisable to conduct blast vibration monitoring during the initial stages of the decline development to quantify the actual effects of blasting. The results of the monitoring should be correlated with the design chart to ensure its validity.

It is further recommended that a monitoring program be developed whereby the rock art site is monitored on a frequency determined by the Rock Art Specialist and agreed upon by the mine.

In the event that it is determined that the site is deteriorating due to mining activities the possibility of relocation of the rock art site must be considered and investigated.

PGS041 - Beta North

Beta North will only be utilised to obtain water samples during mining and no further impacts are foreseen.

If at any stage mining is going to impact on the site by the removal of foundations or the ore tip. Documentation and permits for such work will have to be obtained from SAHRA.

PGS033 - Beta South

The Beta South incline has been opened up recently for the purpose of the current mining project. It is however envisaged that a new incline shaft will be opened to the south of the Beta South incline, to facilitate easier access to the gold reserves still available.

If at any stage mining is going to impact on the site by the removal of foundations or the opening of the adit. Documentation and permits for such work will have to be obtained from SAHRA

General

A heritage resources management plan must be developed for managing the heritage resources in the study area during construction and operation of the development. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, excavations and communication routes to follow in the case of a discovery.

If during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find.

10. LIST OF PREPARES

Wouter Fourie, BA (Hon) Archaeology (UP)

Archival research

Ruth McGuire, Adansonia Heritage Consultants

11. REFERENCES

11.1 ARCHAEOLOGICAL PAPERS

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11.2 CULTURAL HERITAGE PAPERS

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PEARSON, M. AND MCGOWAN, B. 2000. Mining Heritage Places Assessment Manual. Australian Council of National Trusts and the Australian Heritage Commission.

11.3 ELECTRONIC INFORMATION SOURCES

GOOGLE EARTH 'Satellite image Pilgrim's Rest'

< <http://www.googleearth.com>

11.4 ARCHIVAL INFORMATION PILGRIM'S REST MUSEUM ARCHIVES (PRMA)

PRMA: Pilgrim's Rest Museum Archives

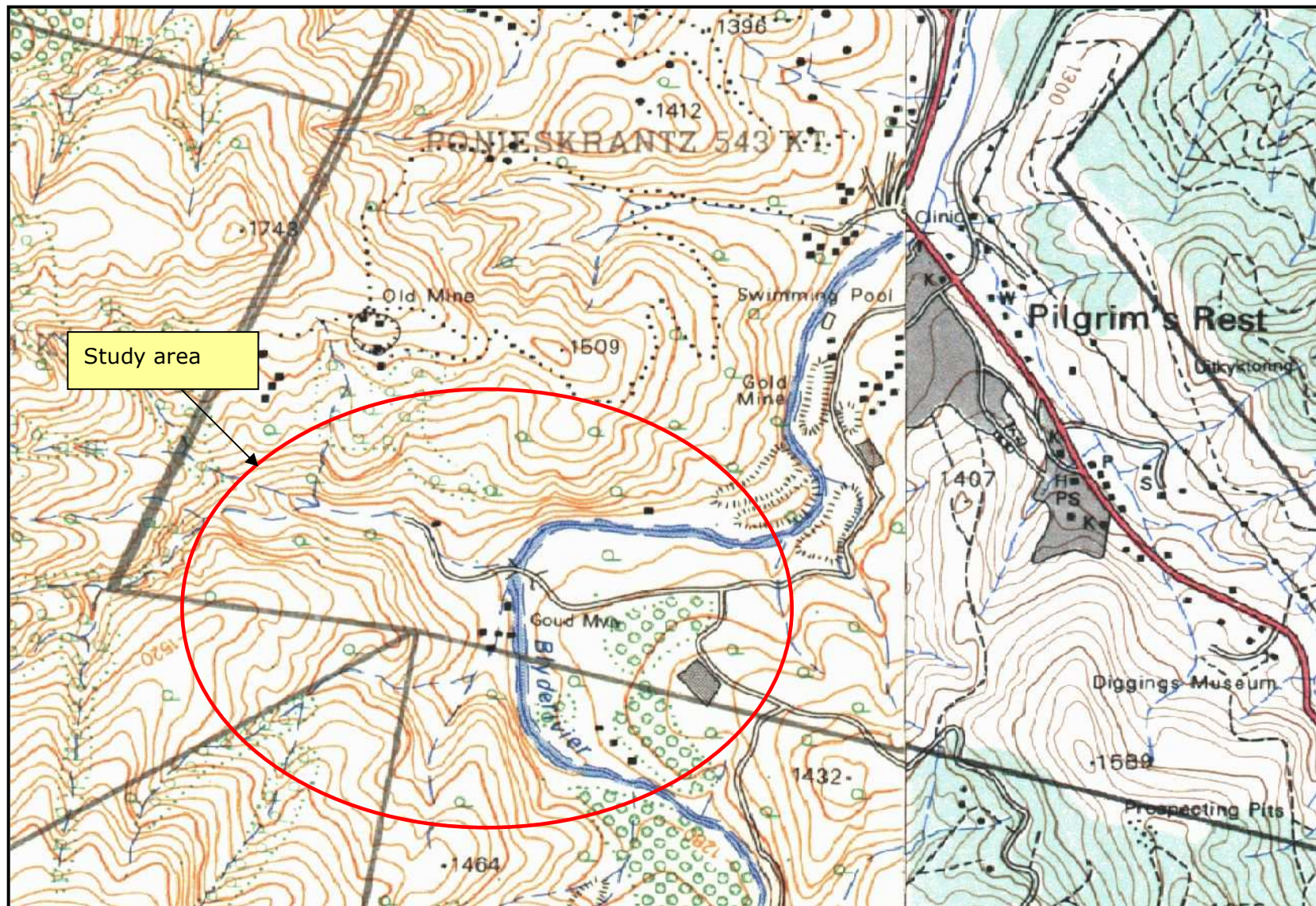
- PRMA: Inligtingsleë 4/7/5 Vol 1. Belverdere Kragssentrale.
- PRMA: Inligtingsleë 6/4/4 Vol 1. Beta Myn.
- PRMA: File no 6/4/15 Vol. 1. Brown's Hill.
- PRMA: File no 6/4/15 Vol. 1 no 2. Brown's Hill.
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11.5 PERSONAL COMMUNICATION

- Personal information: J. Hattingh, Pilgrim's Rest resident, 3/4//07.
- Personal information: S. Mthuke, Pilgrim's Rest Museum, 30/3/07.
- Personal information: S. Mthuke, Pilgrim's Rest Museum, 31/3/07.
- Personal information: S. Mthuke, Pilgrim's Rest Museum, 5/4/07.
- Personal information: I. Reinders, Pilgrim's Rest Museum, 4/4/07.
- Personal information: C. Rowe, Pilgrim's Rest Museum, 4/4//07.

ANNEXURE A:

Locality Map



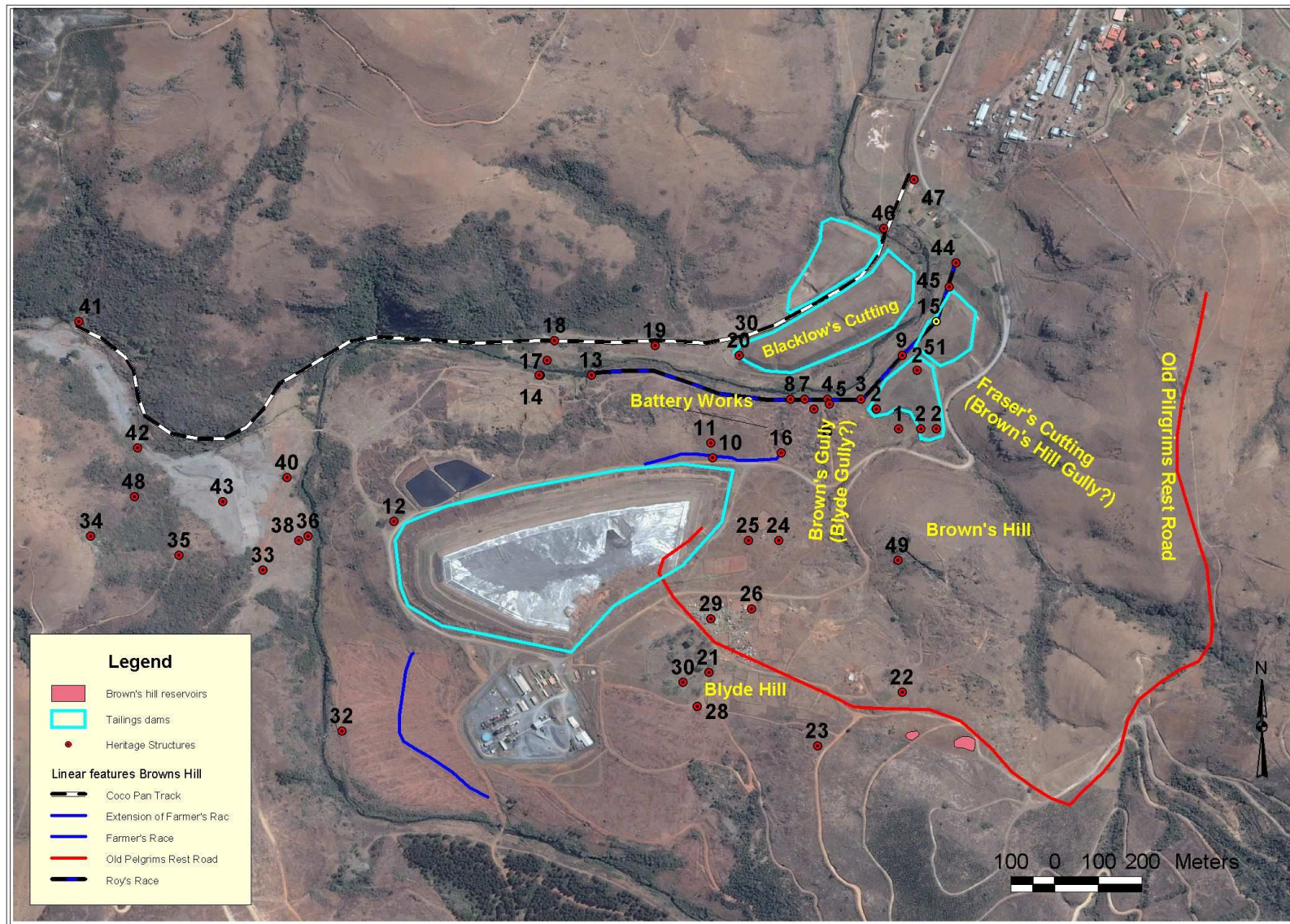
ANNEXURE B:

Heritage Sites

ID	LATITUDE	LONGITUDE
1	-24.9119	30.74648
3	-24.9113	30.74571
4	-24.9113	30.74503
5	-24.9114	30.74506
6	-24.9115	30.74474
7	-24.9113	30.74456
8	-24.9113	30.74426
9	-24.9104	30.74655
10	-24.9125	30.74267
11	-24.9122	30.74263
12	-24.9138	30.73615
13	-24.9108	30.74019
14	-24.9108	30.73914
15	-24.9097	30.74725
16	-24.9124	30.74408
17	-24.9105	30.73928
18	-24.9101	30.73944
19	-24.9102	30.74149
20	-24.9104	30.74321
21	-24.9169	30.74259
22	-24.9173	30.74655
23	-24.9184	30.74482
24	-24.9142	30.74402
25	-24.9142	30.74340
26	-24.9156	30.74347
28	-24.9176	30.74235
29	-24.9158	30.74264
30	-24.9171	30.74207
32	-24.9181	30.73508
33	-24.9148	30.73347
34	-24.9141	30.72993
35	-24.9145	30.73175
36	-24.9141	30.73439
38	-24.9142	30.73420
40	-24.9129	30.73396
41	-24.9097	30.72970
42	-24.9123	30.73090
43	-24.9134	30.73264
44	-24.9085	30.74765
45	-24.9090	30.74752
46	-24.9078	30.74618
47	-24.9068	30.74679
48	-24.9133	30.73083
49	-24.9146	30.74646

51	-24.9097	30.74725
14	-24.9108	30.73912
2	-24.9119	30.74693
2	-24.9119	30.74725
2	-24.9107	30.74686
2	-24.9115	30.74602

BROWN'S HILL PONIESKRANZ 534 KT - HERITAGE IMPACT ASSESSMENT



ANNEXURE C:

Rock Mechanics Study

ANNEXURE D: Project Extension Map

