

Prepared for:
TOTAL COAL
GROUND WATER CONSULTING SERVICES

**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR
TOTAL COAL SOUTH AFRICA'S (TCSA) PROPOSED NEW
EXPANSION OF THE DORSFONTEIN COAL MINE (DCM) NEAR
KRIEL ON THE EASTERN HIGHVELD IN THE MPUMALANGA
PROVINCE OF SOUTH AFRICA**

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EXECUTIVE SUMMARY

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999) was done for the proposed Dortfontein Coal Mine (DCM) Expansion Project near Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa. (The DCM Expansion Project Area to be affected by the proposed development is hereafter referred to as the Total Coal Project Area).

The aims with the HIA study were to establish if any of the types and ranges of heritage resources (the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Total Coal Project Area (see Box 1) and, if so, to determine the significance of these heritage resources and whether these heritage resources will be affected by the proposed Total Coal Project. If heritage resources of significance may be affected by the proposed new Total Coal Project, mitigation measures for these heritage resources have to be proposed and implemented.

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

- Historical farm homesteads with associated infrastructure, some with historical significance.
- Graveyards.

The Phase I HIA study also revealed the following remains with no historical significance, namely:

- Coal mining remains.
- Remains from the more recent past.

(These remains were not further discussed in this report).

The heritage resources were mapped and geo-referenced (Figure 3).

The significance of the various types of heritage resources was determined whilst mitigation measures are outlined for those significant heritage resources which may be

affected (demolished, altered, relocated and removed) by the Total Coal Project (Tables 1-6).

The significance of the heritage resources has been determined by means of stipulations from the National Heritage Resources Act (No 25 of 1999) and by means of other criteria relating to the particular types and ranges of heritage resources as some may be affected by the proposed new development project (Tables 1-6).

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) by the mining development project.

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

Considering the magnitude of the proposed Total Coal Project it is highly likely that the historical farmstead complexes as well as the graveyards will be affected (destroyed) by the proposed mining activities. Mitigation measures for these heritage resources therefore have been determined, namely:

The historical farmstead complexes on Welstand 55IS may not be affected (demolished, altered, renovated, removed) by the proposed new mining development project before the Mpumalanga Provincial Heritage Resources Authority (Mpumalanga PHRA) has approved such alterations.

An archaeologist or historical architect accredited with the Association for Professional Archaeologists (ASAPA) must apply for a permit from the Mpumalanga PHRA for a permit which would authorise that the farmstead complexes with their associated remains may be destroyed by the mining development project. However, the specialist

has to subject the farmstead complexes to a Phase II investigation *prior* to their destruction. This implies that the historical remains have to be mapped and that test excavations at these sites, if required, have to be undertaken. The results of the Phase II investigation have to be published in a report which must be preserved in the Mpumalanga PHRA's data bank.

None of the graveyards may be affected by the proposed mining development project.

The following mitigation measures may be applied to the graveyards:

- The graveyards can be preserved *in situ*. The graveyards can be demarcated with brick walls or with fences. Conserving graves and graveyards *in situ* creates the risk and responsibility that they may be damaged (accidentally), that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

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1 INTRODUCTION

This document contains the report on the results of a Phase 1 Heritage Impact Assessment (HIA) study which was done for Total Coal South Africa's (TCSA) proposed Dortsfontein Coal Mine's (DCM) expansion activities on various farms near Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa.

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

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

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

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

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

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

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

2 TERMS OF REFERENCE

Total Coal South Africa (TCSA) intends to expand its Dorstfontein Coal Mines' (DCM) operations on various farms near Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa. Activities relating to the expansion of the DCM may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, TCSA and Ground Water Consulting Services (GCS) commissioned the author to undertake a Phase I HIA study for the proposed new Total Coal Project Area with the following aims

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur within the perimeters of the Total Coal Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed new expansion activities.

3 THE TOTAL COAL PROJECT AREA

3.1 Location

The proposed new Total Coal Project Area covers parts of the farms Welstand 55IS and Dorsfontein 71IS where the extended mining operations will be established while the proposed new railway line will also run across the farms Vlaklaagte 45IS, Rietfontein 43IS and Van Dyksdrift 19IS. The project area is located to the north and north-east of Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa. The DCM's operations are located to the east of the R544 running to Bethal and will include amongst others (Figure 3):

- The construction of a pipeline.
- Upgrading of an existing eighteen kilometre railway line.
- Establishing two open cast pits as well as a discard dump.
- Erecting a plant and a conveyor belt.

The Total Coal Project Area is located on a rolling landscape which is largely covered with agricultural fields and grass veld. Few trees occur in the larger Total Coal Project Area. Those that do occur are exotics such as Wattles, Blue Gum lots and poplar-groves on the banks of streams. Oak trees are usually located near historical farm homesteads. Most of these trees have an anthropogenic origin as they have been introduced by early human activities in the area (2629AB Van Dyksdrift; 1: 50 000 and 2628 East Rand; 1:250 000 maps) (Figures 1-3).

3.2 Within a cultural landscape

The proposed new Total Coal Project is located in the midst of a cultural landscape that is marked by heritage remains dating from the pre-historical into the historical (colonial) period. Stone Age and Iron Age sites as well as colonial and mining heritage remains therefore do occur in the Eastern Highveld (see Part 8 'Select Bibliography').

The archaeological and historical significance of this cultural landscape therefore must be described and explained in more detail before the results of the Phase I HIA study is discussed (see below, Part 5).



Figure 1 - The Total Coal Project Area on the Eastern Highveld in the Mpumalanga Province of South Africa. The project area is characterised a rolling landscape marked by outstretched grass veld and agricultural fields (above).

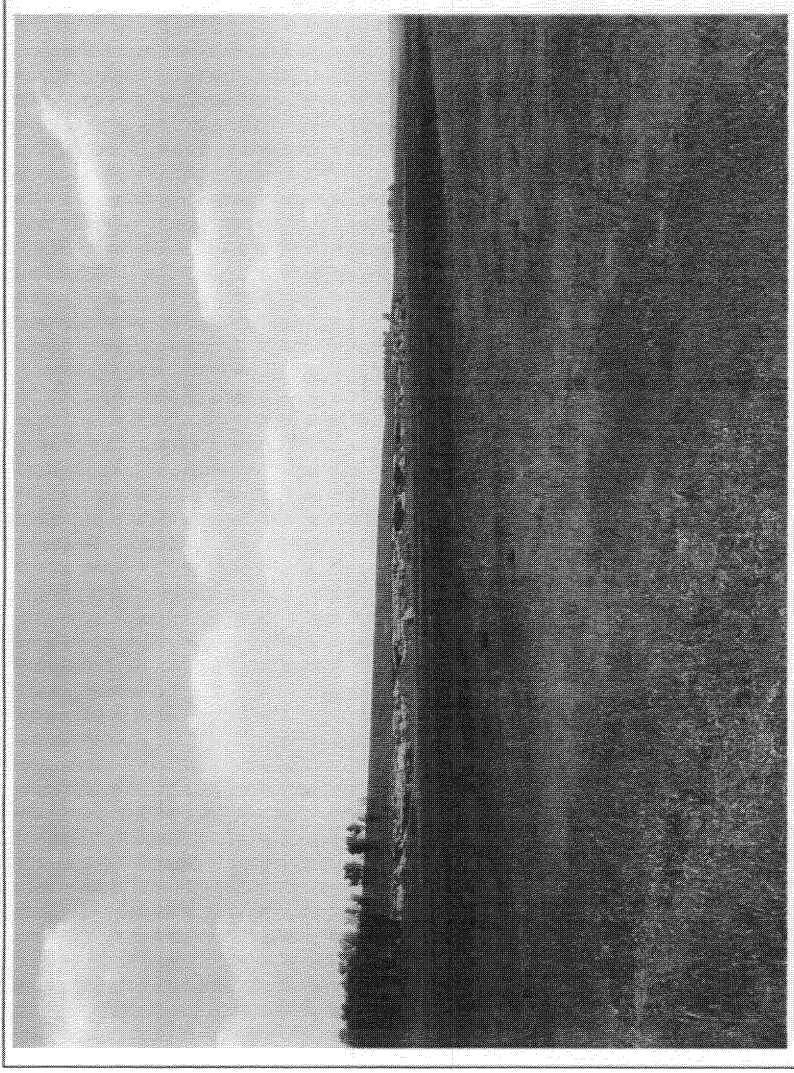


Figure 2- Prominent sandstone ridges along river courses and protrusions of dolerite manifesting as dykes or low kopjes characterise the Total Coal Project Area (above and next page).

Sandstone was quarried from sandstone ridges such as those along the Olifants River and used as building material on the Eastern Highveld during the colonial era (above).

4 METHODOLOGY

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

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

4.1 Fieldwork

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

4.2 Databases, literature survey and maps

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

The author is not unacquainted with the Total Coal Project Area at large as he had done several heritage impact assessment studies near the proposed Total Coal Project Area (see Part 8, 'Select Bibliography').

Literature relating to the pre-historical and the historical unfolding of the Eastern Highveld where the Total Coal Project Area is located was reviewed (see Part 5, 'Contextualising the Total Coal Project Area').

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

In addition, the Total Coal Project Area was studied by means of maps on which it appears (2629AB Van Dyksdrift 1: 50 000; 2628 East Rand 1: 250 000).

4.3 Assumptions and limitations

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

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

4.4 Some remarks on terminology

Terms that may be used in this report are briefly outlined in Box 2.

Box 2. Terminologies that may be used in this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Total Coal Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled in this area during the 1830's.

The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

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

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

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

The term 'Iron Age' refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the historical period.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'study area', or 'Total Coal Project Area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

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

5 CONTEXTUALISING THE TOTAL COAL PROJECT AREA

The following brief overview of pre-historical, historical, cultural and economic evidence will help to contextualise the proposed Total Coal Project Area.

5.1 Stone Age sites

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (the period from 22 000 years ago to 200 years ago).

The Later Stone Age is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Iron Age farmers.

Heritage surveys up to now have recorded few Stone Age sites, rock paintings and engravings in the Eastern Highveld.

5.2 Iron Age remains

The Iron Age is associated with the first agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (covers the 1st millennium AD) and the Later Iron Age (covers the first 880 years of the 2nd millennium AD).

The Eastern Highveld has not been occupied by Early Iron Age communities but was occupied by Late Iron Age communities such as the Sotho, Swazi and

Ndebele who established settlement complexes that are associated with stone walls.

5.3 The historical period

Historical towns closest to the proposed new Dorstfontein Coal Mine next to Kriel include Bethal, Secunda, Leandra and Bethal.

Bethel was founded on 12 October 1880 on the farm Blesbokspruit and named after the two wives of the original owners of the farm, namely Elizabeth and Alida. The village received municipal status in 1921.

Secunda developed around Sasol 2 and 3 in the 1970's as a result of the oil crisis in 1973 when OPEC virtually quadrupled the price of crude oil overnight. Sasol 2 delivered its first oil on 1 March 1980. A second plant was built at Secunda to double output. Sasol 3 delivered its first oil in 1982.

The town of Leandra's name is derived from two townships, Leslie and Eendrag, which are incorporated in this mining village.

Bethal was founded on 12 October 1880 on the farm Blesbokspruit and named after the two wives of the original owners of the farm, namely Elizabeth and Alida. The village received municipal status in 1921.

Several large coal mines which feed the Sasol plants at Secunda and Eskom's giant power stations on the Eastern Highveld are located in the Bethal district. The wider Bethal district is also one of the most productive agricultural areas in the country. Gold and silica mines also occur in the area.

The principal crops which are produced in the region include maize, wheat, sorghum, dairy, potatoes and other vegetables. Cattle and sheep ranching also make a significant contribution to the local economy.

5.5 A coal mining heritage

Coal mining on the Eastern Highveld is now older than one century and has become the most important coal mining region in South Africa. Whilst millions of tons of high-grade coal are annually exported overseas more than 80% of the country's electricity is generated on low-grade coal in Eskom's power stations such as Duvha, Matla and Arnot situated near coalmines on the Eastern Highveld.

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite stone and bone) to smelt iron and copper in clay furnaces.

Colonists are said to have discovered coal in the French Hoek Valley near Stellenbosch in the Cape Province in 1699. The first reported discovery of coal in the interior of South Africa was in the mid-1830 when coal was mined in Kwa Zulu/Natal.

The first exploitation for coal was probably in Kwa Zulu/Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four colliers were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also has started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating colliers in South Africa attained an annual figure of 9,5million tonnes. Total in-situ reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. The total in situ reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, Iscor and Eskom.

5.5 A vernacular stone architectural heritage

A unique stone architectural heritage was established in the Eastern Highveld from the second half of the 19th century well into the early 20th century. During this time period stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South Africa a wider variety of stone types were used in the Eastern Highveld. These included sandstone, ferricrete ('ouklip'), dolerite ('blouklip'), granite, shale and slate.

The origins of a vernacular stone architecture in the Eastern Highveld may be ascribed to various reasons of which the ecological characteristics of the region may be the most important. Whilst this region is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures, the scarcity of fire wood also prevented the

manufacture of baked clay bricks. Consequently stone served as the most important building material in the Eastern Highveld.

Late Iron Age communities who contributed to the Eastern Highveld's stone walled architecture were the Sotho, Pedi, Ndebele and Swazi. The tradition set by these indigenous groups may have influenced the first settlers from Natal and the Cape Colony to utilize the same resources that their predecessors did. Many farmers from Scottish, Irish, Dutch, German and Scandinavian descend settled and farmed in the Eastern Highveld. These colonials brought the knowledge of stone masonry from Europe which compensated for the lack of fire wood necessary to manufacture baked clay bricks.

6 THE PHASE I HERITAGE IMPACT ASSESSMENT

6.1 Heritage resources in the Total Coal Project Area

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

- Historical farm homesteads with associated infrastructure, some with historical significance.
- Graveyards.

The Phase I HIA study also revealed the following remains with no historical significance, namely:

- Coal mining remains.
- Remains from the more recent past.

These heritage resources were mapped and geo-referenced (Figure 3).

The significance of the various types of heritage resources was determined whilst mitigation measures are outlined for those significant heritage resources which may be affected (demolished, altered, relocated and removed) by the DCM expansion project (Tables 1-6).

The types and ranges of heritage resources that were discovered in the Total Coal Project Area are now briefly discussed and illustrated with photographs

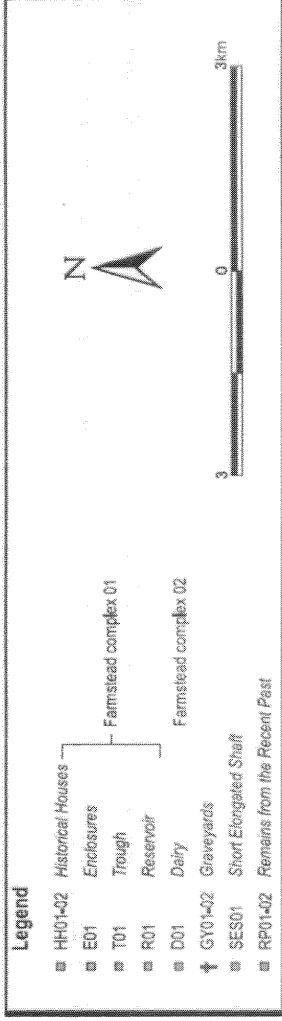
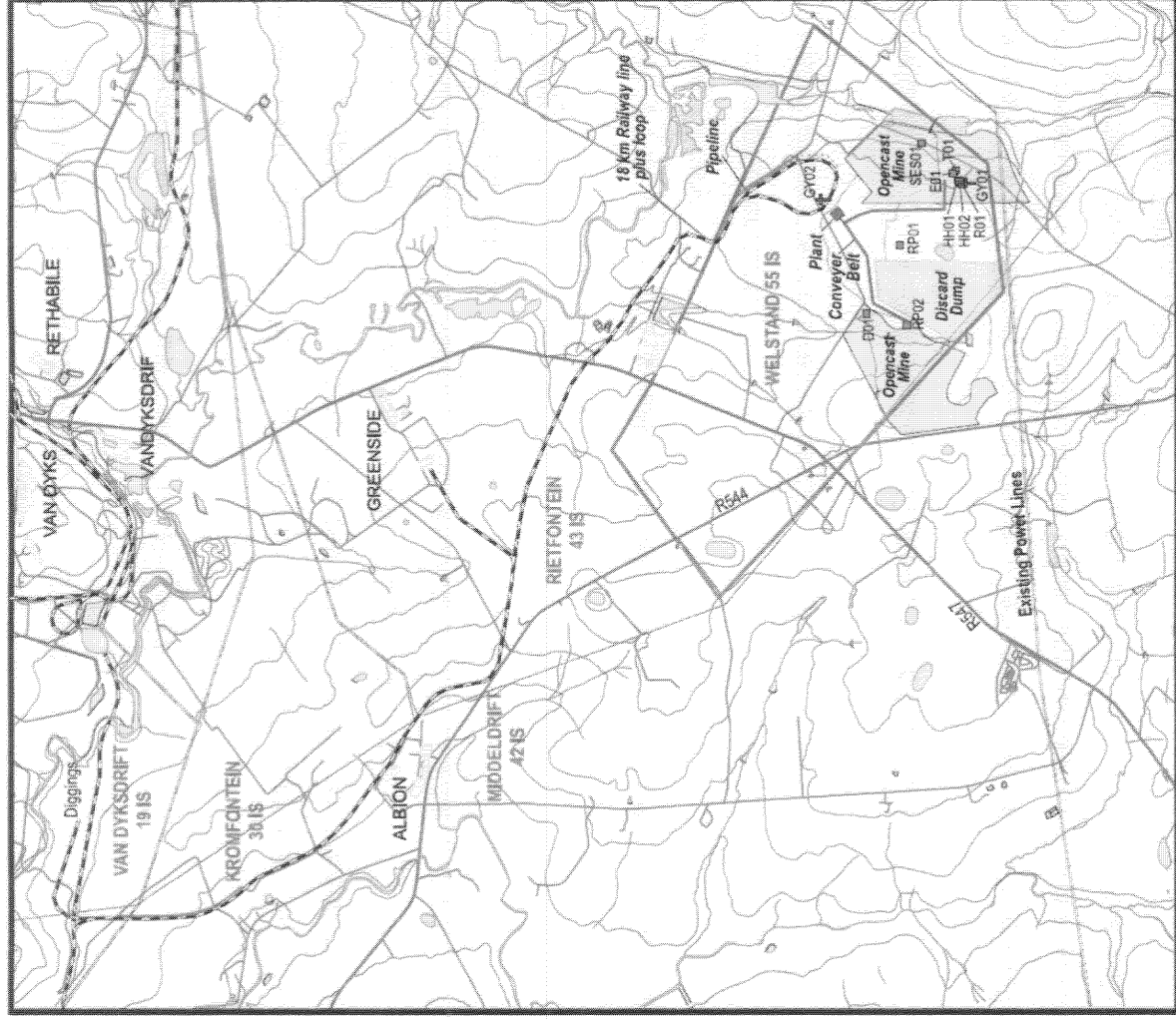


Figure 3- The Total Coal Project Area on parts of farms to the north and north-east of Kriel on the Eastern Highveld in the Mpumalanga Province of South Africa includes mine surface infrastructure and a new railway line. Note the presence of historical farmstead complexes and graveyards in the project area.

6.2 Historical farmstead complexes

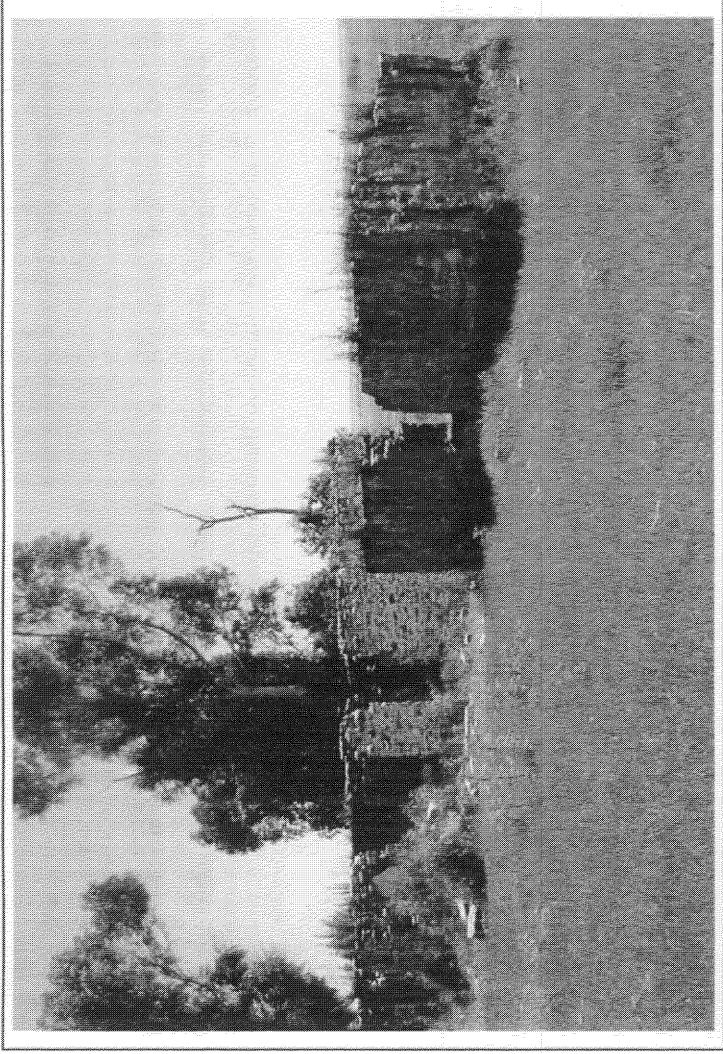
At least two historical farmstead complexes occur on Welstand 551S in the project area. Both complexes are associated with infrastructure some with historical significance. The two farmstead complexes are the following:

6.2.1 Farmstead Complex 01

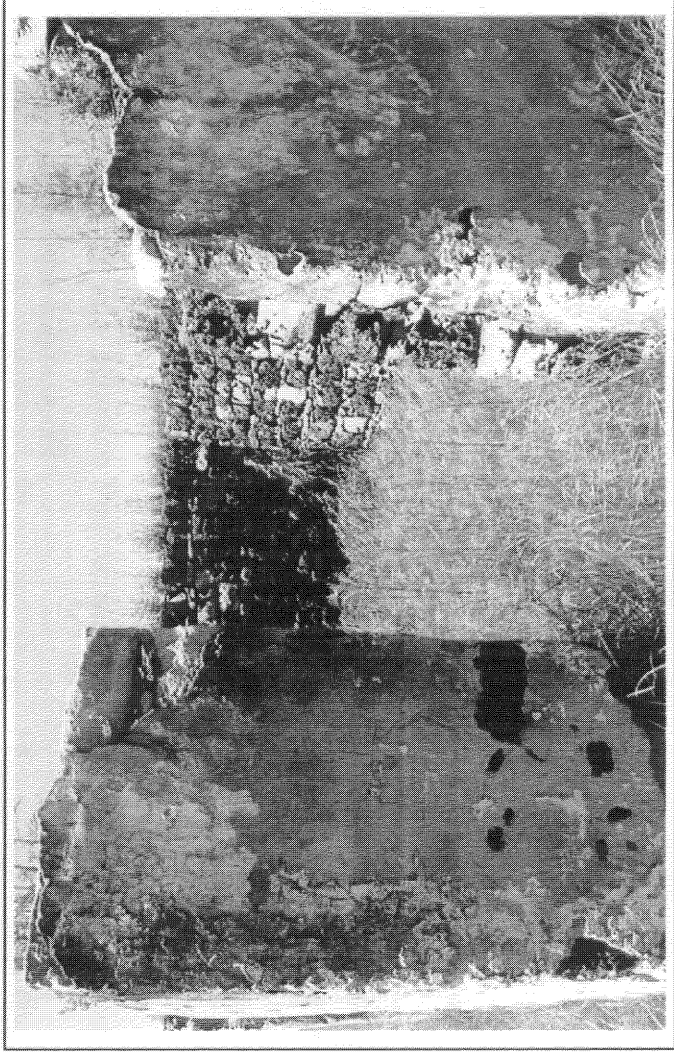
This farmstead complex is associated with the following infrastructure:

- Two residences, both constructed with sandstone (HH01, HH02). The smaller structure is composed of at least two rooms while the larger residence contains at least five rooms. Both structures were constructed with sandstone although ferricrete was also used. Both structures were readapted, probably several times in the past and do not exhibit their original architectural appearance any longer. Both structures are severely dilapidated.
- Several square and elongated enclosures (kraals) which were constructed with ferricrete and which are linked together (E). These structures were used to pen cattle and/or sheep.
- A through which was plastered with cement and probably constructed with clay bricks.
- A reservoir which probably dates from the more recent past.

It is highly likely that the residences associated with Farmstead Complex 01 date from the late nineteenth century but definitely from the first decades of the 20th century.



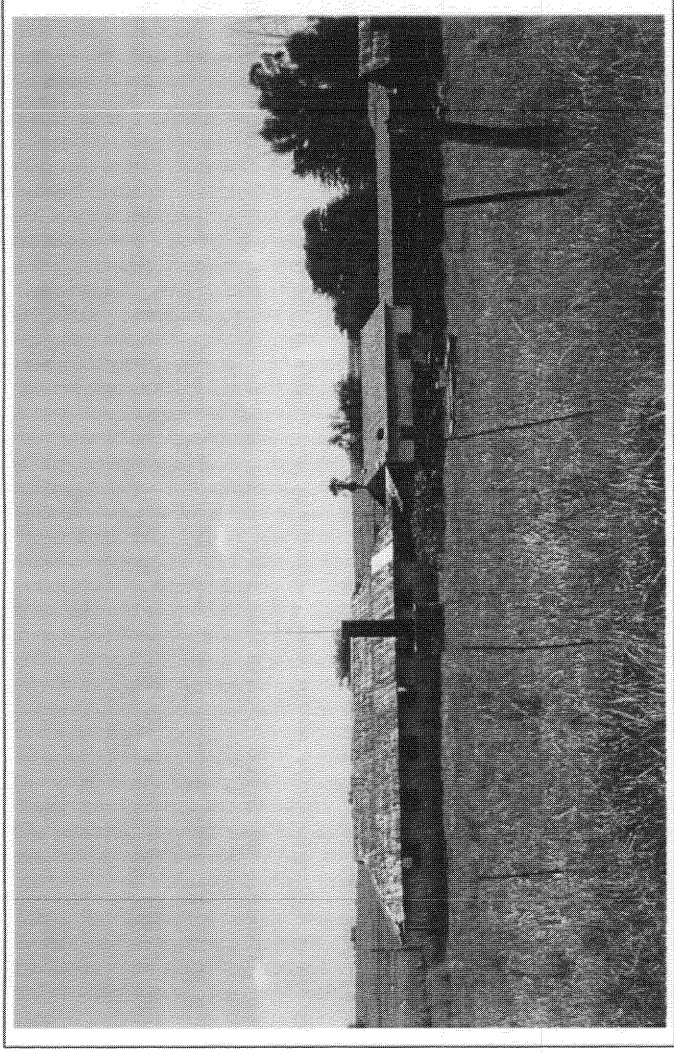
Figures 4 & 5- Farmstead Complex 01 is associated with infrastructure with historical significance such as two dilapidated residences (HH01, HH02) which were constructed with sandstone and ferricrete (above and below).



6.2.2 Farmstead Complex 02

Farmstead Complex 02 is associated with a number of structures some with historical significance while others date from the more recent past. Most of the structures have been altered in the past. Consequently, parts of some of the structures still contain original historical features while other components, such as walls, may date from the more recent past. The following structures represent the bulk of FC02, namely:

- A dairy which was constructed with what seems to be cement brick walls (which have been painted). It is fitted with a pitched corrugated iron roof and is still in a relative good condition.
- A shed which was readapted in the past. Its building material includes clay bricks as well as sandstone walls.
- Several cylindrical kuilvoere which was constructed with face bricks and which date from the more recent past.
- A wagon shed with several extension including a lean-to. This structure still contains historical elements such as ferricrete walls. It is fitted with a pitched corrugated iron roof.
- A modern shed constructed with clay bricks and fitted with a iron corrugated roof.



Figures 6 & 7 - Farmstead complex 02 incorporates historical structures such as a dairy (above) and a shed constructed with sandstone walls and a high pitched corrugated iron roof (above and below).

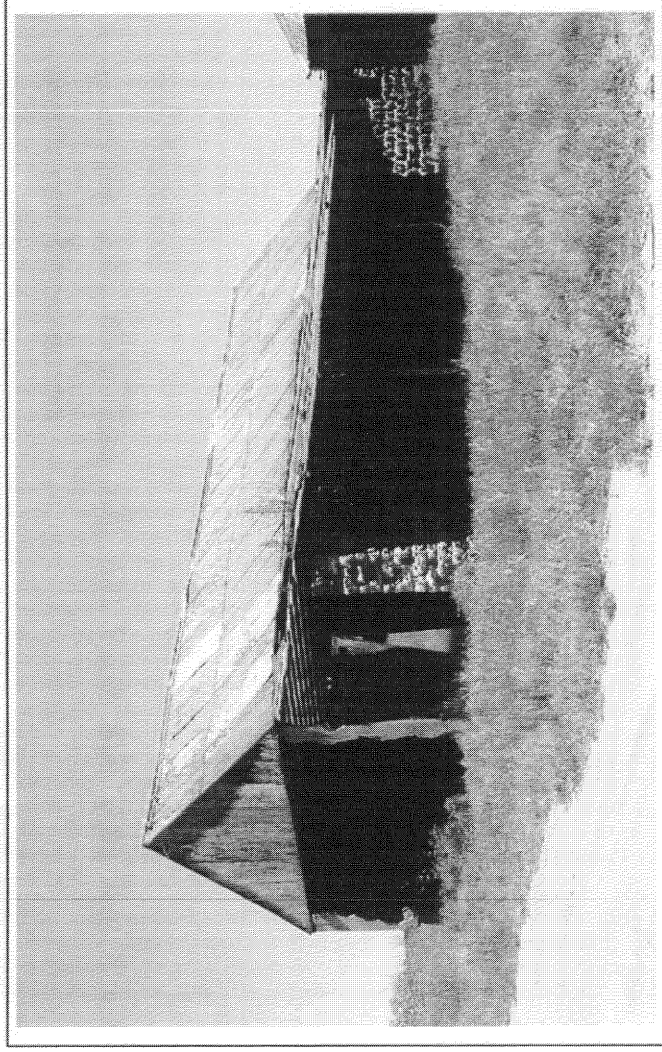
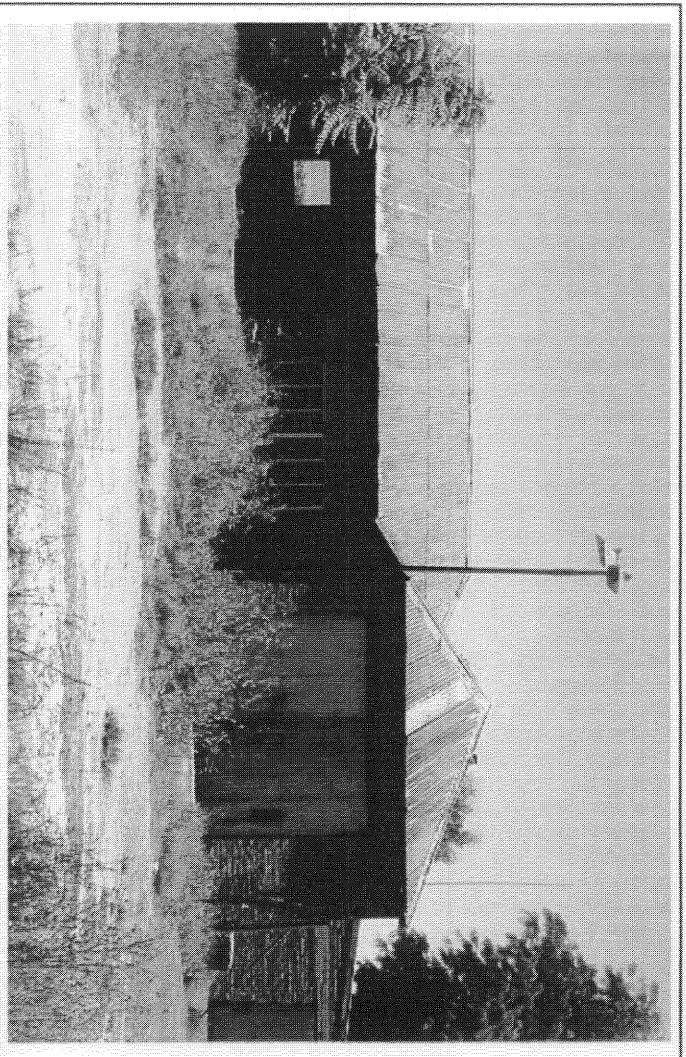


Figure 8- A second historical shed in FC02 is constructed with ferricrete and clay bricks (below).



6.3 Graveyards

Two informal graveyards occur in the project area. They are the following:

6.3.1 Graveyard 01

GY01 is associated with Farmstead Complex 01. It holds the remains of the Smit family who lived on Welstand 551S during the 1930's and 1940's. At least five graves can be distinguished. A double grave as well as three single graves occur. All the graves are fitted with granite headstones and edged with granite strips. However, all the graves have been vandalised. The only inscription that can be read is the following:

- 'Hier rus my geliefde eggenote en ons moeder Maria Catharina Smit'

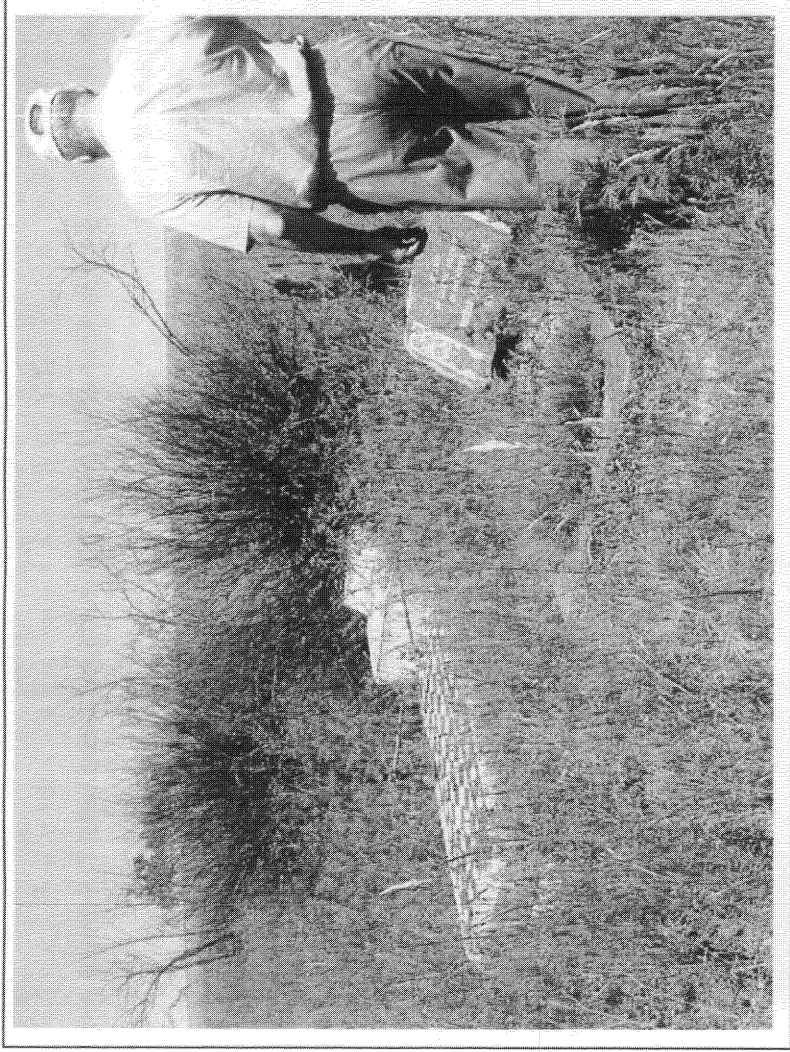


Figure 9- GY01 on Welstand 55IS in the project area holds the remains of the Smit family (above).

6.3.2 Graveyard 02

GY02 is located in the midst of a maize field on Welstand 55IS. It holds the remains of at least six farm labourers although more graves are expected to occur in this graveyard. The six graves which are visible are fitted with white painted cement headstones. An inscription on one of these head stones reads as follows:

- 'Maria Ndlala 1946'

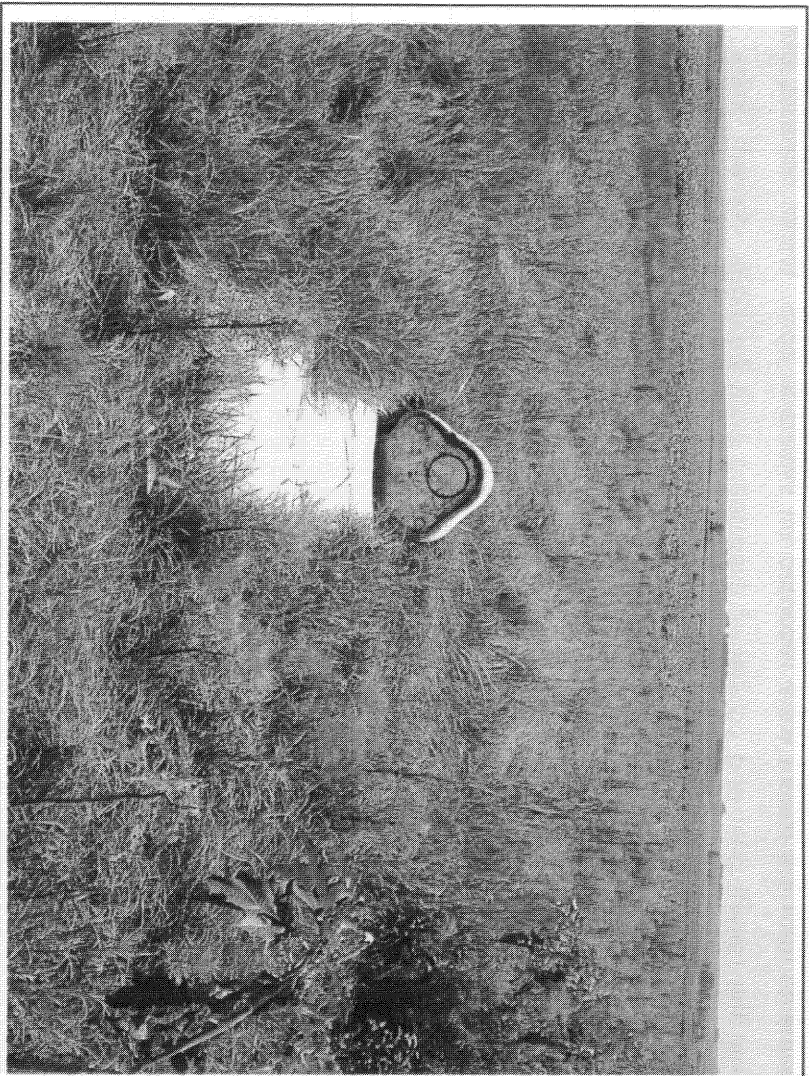


Figure 10- GY02 on Welstand 551S was used by farm labourers and is located in the midst of a maize field (above).

6.4 Coal mining remains

Extensive remains of earlier coal mining activities occur on the Eastern Highveld. Only a single occurrence where coal was mined from a shaft (trench) was observed in the project area.

However, this shaft has been back-filled. Consequently, little has remained of these historical remains which therefore can be rated as insignificant.

These remains are not further discussed in this report.

6.5 Remains from the recent past

Remains from the recent were recorded on Welstand 55IS. These remains date from the recent past and consist of dilapidated brick buildings, cement dams, a cement silo, pit toilets, troughs and other associated remains as well as rubbish. Remains from the recent past occurs in-between or near some of the historical sandstone structures and may be confused with these historical remains.

These remains have no significance and are not further discussed in this report

Historical farmstead complexes	Coordinates	Significance
<u>Historical farmstead complex 01</u>		
Historical House 01 (HH01)	26° 12.554' 29° 21 562'	HIGH
Historical House 02 (HH02)	26° 12.540' 29° 21 570'	HIGH
Enclosures (ferricrete) (E)	26° 12.506' 29° 21 638'	HIGH
Trough (cement) (T)	26° 12.507' 29° 21 639'	HIGH
Reservoir (cement) (R)	26° 12.560' 30° 21 548'	HIGH
<u>Historical farmstead complex 02</u>		
Dairy (cement bricks?)	26° 11.801' 29° 20 522'	HIGH
Shed (clay bricks and sandstone)		HIGH
Kuilvoertorings (clay bricks)		MEDIUM
Wagon shed (ferricrete and clay bricks)		HIGH
Large modern shed (clay bricks)		LOW
Miscellaneous objects, e.g. fuel pumps		

Table 1- Coordinates for historical farmstead complexes associated with various kinds of infrastructure in the Total Coal Project Area. Note significance rating allocated to these remains (above).

Graveyards and graves	Coordinates	Significance
GY01 with 5 graves	26 12.603' 29° 21.549'	HIGH
GY02 with at least 6 graves	26 11.470' 29° 21.420'	HIGH

Table 2- Coordinates and significance rating for graveyards and possible graves in the Total Coal Project Area (above).

Mining heritage remains	Coordinates	Significance
Short elongated shaft (trench). Currently covered with soil	26° 12.245' 29° 21.869'	LOW

Table 3- Coordinates and significance rating for mining heritage remains in the Total Coal Project Area (above).

Remains from the recent past	Coordinates	Significance
RP01 heaps of soil, pieces of cement, modern rubbish	26 12.067' 29° 21.057'	LOW
RP02 heaps of soil, exotic trees	26 12.126' 29° 20.427'	LOW

Table 4- Coordinates for remains from the recent past in the Total Coal Project Area (above).

7 THE SIGNIFICANCE AND MITIGATION OF THE HERITAGE RESOURCES IN THE PROJECT AREA

The Phase I HIA study for the proposed Total Coal Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the project area (Figure 3, Tables 1-4):

- Historical farm homesteads with associated infrastructure, some with historical significance.
- Graveyards.

The significance, possible impact and mitigation of these heritage resources must be discussed as they may be affected by the expansion of mining activities.

7.1 The significance of the heritage resources

The significance of these heritage resources has been determined by means of stipulations from the National Heritage Resources Act (No 25 of 1999) and by means of other criteria relating to the particular types and ranges of heritage resources as some may be affected by the proposed new development project (Tables 1-4).

7.1.1 The historical farmstead complexes

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) by the mining development project.

7.1.2 The graveyards

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

7.1.3 Possible impact on the heritage resources

Considering the magnitude of the proposed Total Coal Project it is highly likely that the historical farmstead complexes as well as the graveyards will be affected (destroyed) by the proposed mining activities. Mitigation measures for these heritage resources therefore have to be determined.

7.2 Mitigating the heritage resources

Mitigation measures for the historical farmstead complexes and graveyards are the following:

7.2.1 The historical houses and associated remains

The historical farmstead complexes on Welstand 551S may not be affected (demolished, altered, renovated, removed) by the proposed new mining development project before the Mpumalanga Provincial Heritage Resources Authority (Mpumalanga PHRA) has approved such alterations.

An archaeologist or historical architect accredited with the Association for Professional Archaeologists (ASAPA) must apply for a permit from the

Mpumalanga PHRA for a permit which would authorise that the farmstead complexes with their associated remains may be destroyed by the mining development project. However, the specialist has to subject the farmstead complexes to a Phase II investigation *prior* to their destruction. This implies that the historical remains have to be mapped and that test excavations at these sites, if required, have to be undertaken. The results of the Phase II investigation have to be published in a report which must be preserved in the Mpumalanga PHRA's data bank.

7.2.2 The graveyards

None of the graveyards may be affected by the proposed mining development project. The following mitigation measures may be applied to the graveyards:

- The graveyards can be preserved *in situ*. The graveyards can be demarcated with brick walls or with fences. Conserving graves and graveyards *in situ* creates the risk and responsibility that they may be damaged (accidentally), that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

8 CONCLUSION AND RECOMMENDATIONS

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

- Historical farm homesteads with associated infrastructure, some with historical significance.
- Graveyards.

The Phase I HIA study also revealed the following remains with no historical significance, namely:

- Coal mining remains.
- Remains from the more recent past.

(These remains are not further discussed in this report).

These heritage resources were mapped and geo-referenced (Figure 3).

The significance of the various types of heritage resources was determined whilst mitigation measures are outlined for those significant heritage resources which may be affected (demolished, altered, relocated and removed) by the DCM expansion project (Tables 1 -6).

The significance of the heritage resources has been determined by means of stipulations from the National Heritage Resources Act (No 25 of 1999) and by means of other criteria relating to the particular types and ranges of heritage resources as some may be affected by the proposed new development project (Tables 1-6).

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) by the mining development project.

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

Considering the magnitude of the proposed Total Coal Project it is highly likely that the historical farmstead complexes as well as the graveyards will be affected (destroyed) by the proposed mining activities. Mitigation measures for these heritage resources therefore have been determined, namely:

The historical farmstead complexes on Welstand 55IS may not be affected (demolished, altered, renovated, removed) by the proposed new mining development project before the Mpumalanga Provincial Heritage Resources Authority (Mpumalanga PHRA) has approved such alterations.

An archaeologist or historical architect accredited with the Association for Professional Archaeologists (ASAPA) must apply for a permit from the Mpumalanga PHRA for a permit which would authorise that the farmstead complexes with their associated remains may be destroyed by the mining development project. However, the specialist has to subject the farmstead complexes to a Phase II investigation *prior* to their destruction. This implies that the historical remains have to be mapped and that test excavations at these sites, if required, have to be undertaken. The results of the Phase II investigation

have to be published in a report which must be preserved in the Mpumalanga PHRA's data bank.

None of the graveyards may be affected by the proposed mining development project. The following mitigation measures may be applied to the graveyards:

- The graveyards can be preserved *in situ*. The graveyards can be demarcated with brick walls or with fences. Conserving graves and graveyards *in situ* creates the risk and responsibility that they may be damaged (accidentally), that the mine remains responsible for their future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

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8 SELECT BIBLIOGRAPHY

- Bergh, J.S. (red.) 1998. *Geskiedenisatlas van Suid Afrika. Die vier noordelike provinsies*. J.L. van Schaik: Pretoria.
- Erasmus, B.P.J. 1995. *Oppad in Suid Afrika. 'n Gids tot Suid Afrika*, Streek vir Streek. Jonathan Ball Uitgewers Bpk.
- Evers, T.M. 1981. The Iron Age in the Eastern Transvaal, South Africa. In Voight, E.A. (ed). *Guide to archaeological sites in Northern and Eastern Transvaal*. Pretoria: South African Association of Archaeologists, 64-109.
- Mason, R.J. 1968. Transvaal and Natal Iron Age settlement revealed by aerial photography and excavation. *African Studies*. 27:167-180.
- Naude, M. 1993. The use of stone on farmsteads on the eastern Transvaal. *Africana Society of Pretoria* (11): 49-55.
- Naude, M. 2000. Vernacular stone buildings and structures on farmsteads in the southern districts of the Mpumalanga Province. *South African Journal of Cultural History*. 14(2): 31-64
- Pistorius, J.C.C. 2002. *A Heritage Impact Assessment (HIA) study for a new power line on the farm Rietvallei 397JS between Middelburg and Arnot in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.
- Pistorius, J.C.C. 2003. *A Heritage Impact Assessment study for the proposed 22kV Duvha Colliery power line deviation near Middelburg in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.

Pistorius, J.C.C. 2004. *A Heritage Impact Assessment (HIA) study for the EMP Amendment for Douglas Colliery in the Mpumalanga Province of South Africa.* Unpublished report for Pulles, Howard and De Lange.

Pistorius, J.C.C. 2004. *A Heritage Impact Assessment (HIA) study for the proposed new Optimum Colliery on the farm Schoonoord 164IS in the Mpumalanga Province of South Africa.* Unpublished report done for African EPA.

Pistorius, J.C.C. 2005. *Results of a Phase II Heritage Impact Assessment Study: An investigation of a historical sandstone farmstead and outbuildings on the banks of the Olifants River on the farm Kleynkopje 15IS within the boundaries of Douglas Colliery in the Mpumalanga Province of South Africa.* Unpublished report for the South African Heritage Resources Authority (SAHRA), Pulles Howard and De Lange (PHD) and Douglas Colliery.

Pistorius, J.C.C. 2007. *A Phase I Heritage Impact Assessment (HIA) study for the proposed deviation of a tributary of the Riet River in the Matla Colliery mining area on the Eastern Highveld in the Mpumalanga Province of South Africa.* Unpublished report for Golder Associates.

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