

PREPARED FOR:
LANDSCAPE DYNAMICS
ESKOM MENLYN

A PHASE I HERITAGE IMPACT ASSESSMENT (HIA)
STUDY FOR ESKOM'S PROPOSED NEW DEVELOPMENT
PROJECT INVOLVING:
EXTENDING THE VAALWATER SUBSTATION,
CONSTRUCTING THE NEW PROPOSED DORSET
SUBSTATION AND BUILDING A NEW PROPOSED 132 KV
POWER LINE BETWEEN THE VAALWATER AND DORSET
SUBSTATIONS IN THE LIMPOPO PROVINCE OF SOUTH
AFRICA

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EXECUTIVE SUMMARY

A Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) was done for the new proposed Eskom development project involving the extension of the Vaalwater Substation, building a new 132kV power line between the Vaalwater Substation and the new proposed Dorset Substation as well as the construction of the new proposed Dorset Substation

The HIA study for Eskom's new development project revealed the following types and ranges of heritage resources in or near the project area, namely:

- A formal graveyard (GY01) along Stretch AB of Route 1
- An informal graveyard (GY02) along Stretch BC of Route 1
- An informal graveyard (GY03) along Stretch AB of Route 2

These graveyards were geo-referenced and mapped. A Stone Age site (SA01), although falling outside the project area, was also geo-referenced and mapped (Table 1; Figure 2).

The graveyards are undoubtedly of high significance. These structures may not be affected by Eskom's proposed new development project. Legislation with regard to graveyards includes the National Heritage Resources Act, 1999 (No 25 of 1999), the Ordinance on Exhumations, 1980 (No 12 of 1980) and the Human Tissues Act, 1983 (No 65 of 1983 as amended). Various categories of graves and burial grounds are acknowledged in Section 2 (g) of the National Heritage Resources Act (No 25 of 1999) and measures for the protection, exhumation and relocation of graves and graveyards are outlined in Section 36 of the National Heritage Resources Act (No 25 of 1999).

The graveyards need not to be affected by the construction of either the two new proposed power line routes (Route 1 and Route 2) as the graveyards can be avoided in the following ways:

- Stretch AB of Route 1 can be constructed across GY01 if the pylons in this stretch are placed on opposite sides (ends) of the graveyard. This

graveyard merely contains eight graves and therefore does not cover a large surface area.

- Stretch BC of Route 1 ought to run along the eastern perimeter or edge of GY02.
- Graveyard 03 only contains five graves and covers a small surface area. Consequently, Stretch AB of Route 2 can be constructed across GY03 if the pylons of Stretch AB are erected on opposite sides (ends) of this graveyard.

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1 INTRODUCTION

This document contains the report on the results of a Heritage Impact Assessment (HIA) study done for Eskom in the Limpopo Province of South Africa. Parts of the Limpopo Province, such as Polokwane (Pietersburg), Mokopane (Potgietersrus), Phalaborwa, the Blouberg Mountains, Makhado (Louis Trichardt), the Steelpoort valley and areas to the north and south of the Soutpansberg have been explored for archaeological remains in the past. These explorations have shown that the Limpopo Province has a rich archaeological heritage, comprised of remains dating from the prehistoric and the historical past.

Prehistoric and historical remains in the Limpopo Province therefore reflect the 'national estate' as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1).

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

The National Heritage Resources Act (No 25 of 1999) 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, Sec 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

Eskom intends to undertake the following development between Vaalwater and Dorset in the Limpopo Province of South Africa, namely:

- The extension of the surface area of the existing Vaalwater Substation located to the south of Vaalwater.
- The construction of a new proposed 132kV power line between the Vaalwater Substation and the new proposed Dorset Substation. This power line will be approximately 39km long and will follow one of two possible routes, namely Route 1 and Route 2.
- The construction of the new proposed Dorset Substation at Dorset.

In order to comply with heritage legislation, Eskom requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in or near Eskom's new proposed development project. Eskom needs this knowledge in order to take pro-active measures with regard to any heritage resources that may be affected, damaged or destroyed by the new development project. Eskom and Landscape Dynamics therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study of the proposed new development project.

The aims with the Phase I HIA are:

- to establish whether any of the types and ranges of heritage resources ('national estate') as outlined in the National Heritage Resources Act (No 25 of 1999) occur in or near the project area and, if so
- to determine the level (or degree) of significance of the heritage resources that may occur in or near the project area, and
- to make recommendations regarding the possible mitigation (or the conservation) of significant heritage resources that may be affected by the development.

Box 2- Terminology relevant to this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey and assessment of heritage resources as outlined in the National Heritage Resources Act, Act 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 project area, to the first appearance or use of 'modern' Western writing brought to Vaalwater in the Limpopo Province by the first Colonists who settled in this area after c. 1840.

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 headstones 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-historic, historical or the relatively recent past.

The term 'study area', or 'project area' refers to the area where the developer wants to focus its development activities.

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.

4 CONTEXTUALISING THE ESKOM PROJECT AREA

The following brief overview of the pre-historic, historical, cultural and economic evidence on the area is essential to contextualise the Eskom project area.

4.1 The project area

The Eskom project area is located in a plateau in the Waterberg Bushveld in the Limpopo Province of South Africa. The Waterberg is a huge mountainous expanse stretching from Thabazimbi in the west to Mokopane in the east. The average elevation of the Waterberg is no more than 600m but many peaks exceed 1 400m above sea level. The Bushveld encompasses most of the Limpopo Province and part of the North-West Province. The elevation varies from 750m to 1400m and the annual rainfall from 350mm in the west to just over 600mm in parts of the north-east.

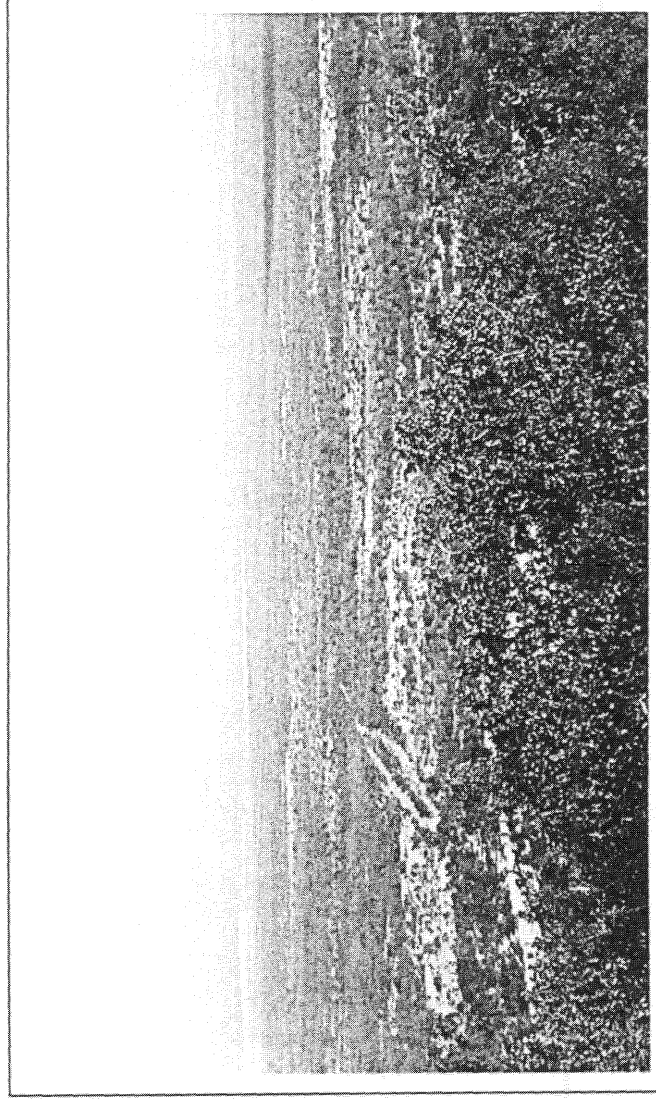


Figure 1- The Eskom project area: a view from Martjie se Nek in the Waterberg down on Vaalwater in the south (above).

The project area stretches from Dorset in the north across Martjie Se Nek in the Waterberg further to the south across a level sandy plain with silver cluster leave trees (*Terminalia Sericia*) to the town of Vaalwater and the Vaalwater Substation. The project area crosses several streams and rivers such as Poerse Loop, Brakspruit, Sondagsloop, Dwarsrivier, Mokololo, Dopperspruit and the Groot and Klein Wolvfontein (Figures 1 & 2).

4.2 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 (this covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (this 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 300 years ago).

These Stone Ages can be divided into different 'cultural' periods, each of which is characterised by specific hominids, artefact types and lifestyles. These cultural periods existed under different climatic conditions and did not necessarily occur in each of the different regions of South Africa at the same time.

The Late Stone Age is associated, amongst other things, with rock paintings and engravings done by the San, the Khoi Khoi and, in more recent times, by Negroid (Iron Age) farmers.

Rock paintings and engravings have been recorded by researchers in the Waterberg. Stone tools dating from the Middle Stone Age have been discovered during this survey in the Eskom project area whilst an earlier survey done near Beauty revealed limited Late Stone Age artefacts near the Tambotie River (See Part 7, Select Bibliography).

4.3 Iron Age remains

The Iron Age is associated with the first Bantu-Negroid 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 (this covers the 1st millennium AD) and the Later Iron Age (this covers the first 880 years of the 2nd millennium AD).

The Lephalale area have been occupied by Early Iron Age communities like those who also lived elsewhere in the Mpumalanga, Limpopo, KwaZulu-Natal and the North-West Province regions of South Africa during the 6th to the 9th centuries AD. Early Iron Age sites have been recorded on the farm Diamand, located to the west of Lephalale. It is not yet certain whether Early Iron Age communities occupied the Vaalwater area.

The Vaalwater area was not occupied on a large scale by Late Iron Age communities. However, stone walled sites do occur in the Melkrivier area where these communities, most probably Northern Ndebele clans, established their presence from as early as the 17th century.

4.4 The historical period

The Eskom project area is located approximately sixty kilometres into the Waterberg plateau in the upper reaches of the Makololo River and on the edge of the 'real' Bushveld. The branch railway line from Modimolle (Nylstroom) to Vaalwater was opened in 1925.

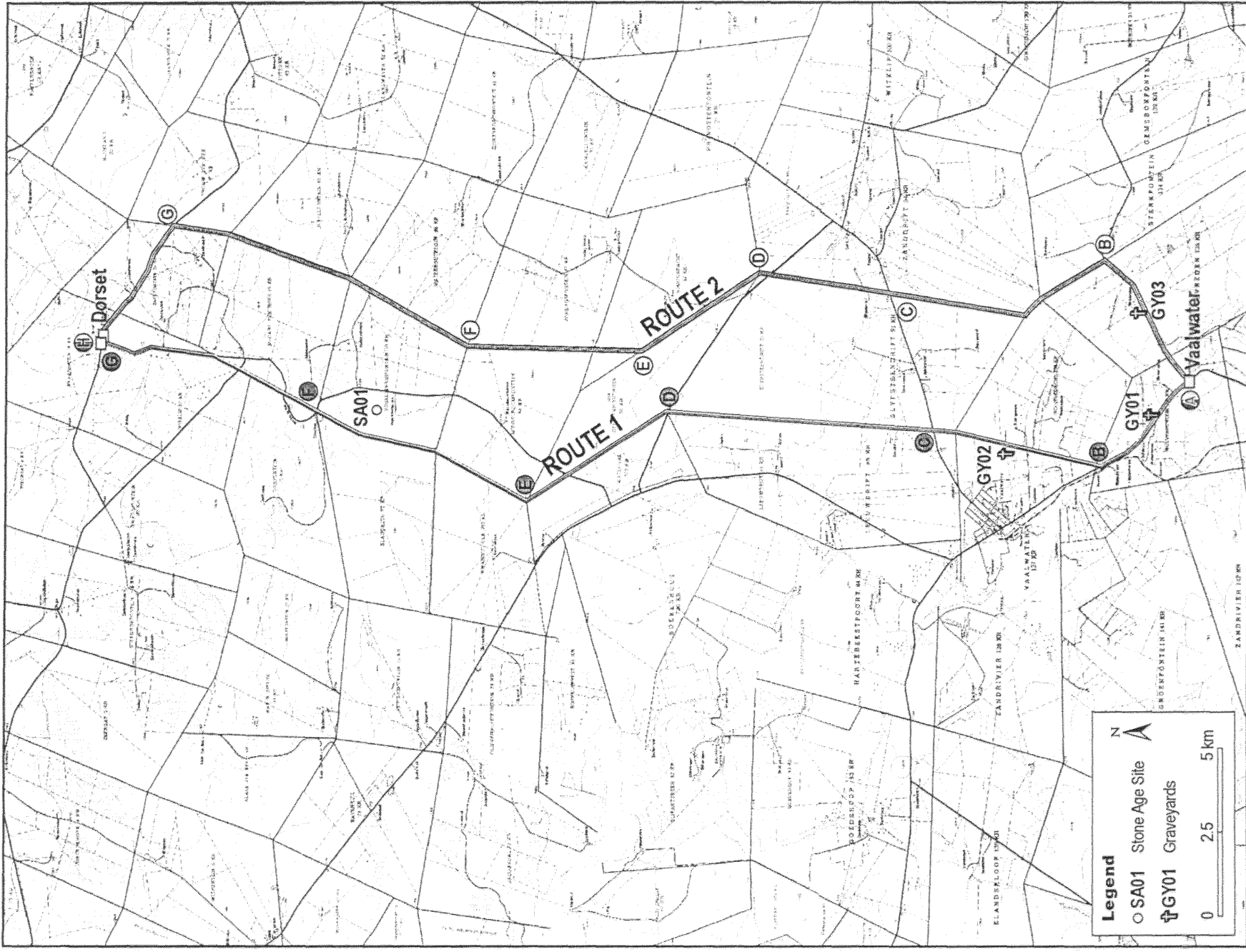


Figure 2- Eskom's three new proposed 132kV power line routes between the existing Vaalwater Substation in the south and the new proposed Dorset Substation in the north.

Note the presence of two graveyards (GY01 and GY02) in or near Route 1 and the presence of a third graveyard (GY03) in or near Route 2

5 THE HERITAGE IMPACT ASSESSMENT STUDY (HIA)

Eskom intends to undertake the following development project between the Vaalwater Substation (near Vaalwater) and the new proposed Dorset Substation (at Dorset) in the Limpopo Province of South Africa:

- The extension of the surface area of the existing Vaalwater Substation located to the south of Vaalwater.
- The construction of a new proposed 132kV power line between the Vaalwater Substation and the new proposed Dorset Substation near Dorset in the north. The new power line will follow one of two possible routes, namely Route 1 or Route 2.
- The construction of the new proposed Dorset Substation at Dorset on one of two possible stands, namely on a stand to the west or on a stand to the east of the intersection between the Dorset and Visgat/Sukses roads (Figure 2).

The extended surface area of the Vaalwater Substation, the two new proposed power line routes and the two stands for the new proposed Dorset Substation were subjected to a Phase I HIA study. The nature of these project areas and the types and ranges of heritage resources discovered in or near these project areas are now discussed in more detail.

5.1 The Heritage Impact Assessment (HIA) for the Vaalwater Substation

The Vaalwater Substation's current surface area is to be extended in order to accommodate more infrastructures within the present restricted premises of the substation.

The area to the east and to the west of the substation has been disturbed by various activities in the past. These include the presence of agricultural fields to the east of the substation and eroded and scarred spots to the south of the substation. The latter disturbances were caused when the substation was built.

Pristine indigenous vegetation occurs to the west of the Vaalwater Substation.

No heritage resources of significance were observed where the extension of the Vaalwater Substation is planned.

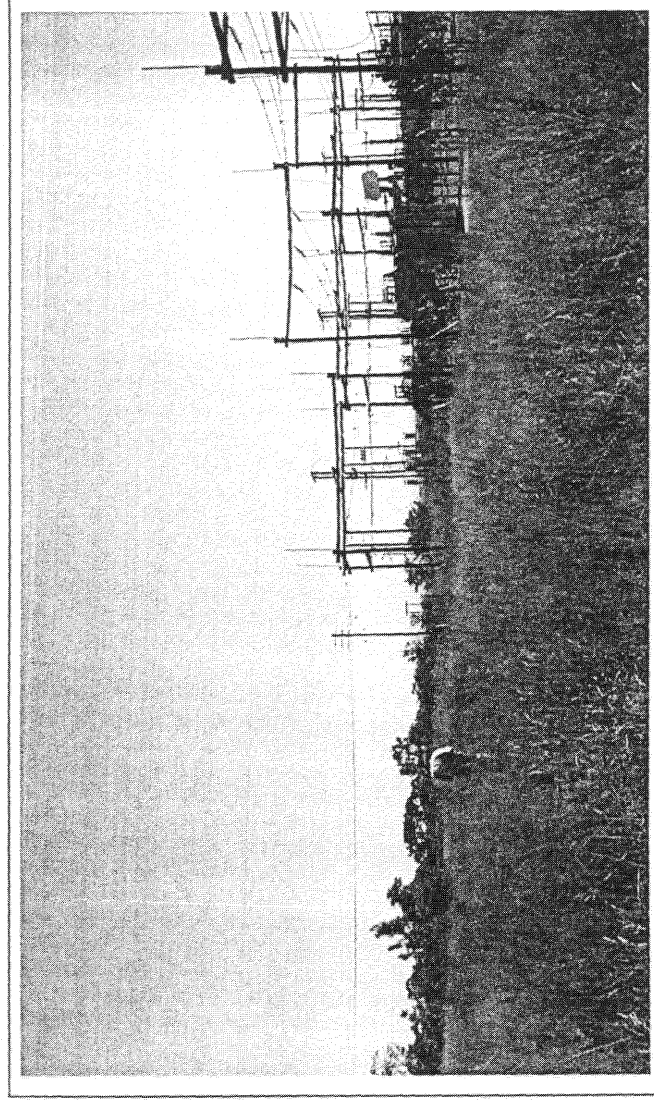


Figure 3- The area surrounding the Vaalwater Substation has been disturbed by construction activities and has been invaded by anthropogenic grass as a result of human interference in the past (above).

5.2 The Heritage Impact Assessment (HIA) for the two proposed routes

The two new proposed power line routes for the 132kV power line to be established between the Vaalwater Substation and the new proposed Dorset Substation are the following (Figure 2):

- Route 1 runs from the existing Vaalwater Substation to the new proposed Dorset Substation along a westerly proposed corridor.
- Route 2 runs from the existing Vaalwater Substation to the new proposed Dorset Substation along an easterly proposed corridor for this power line.

5.2.1 The Heritage Impact Assessment (HIA) for Route 1

The Route 1 power line corridor runs from the Vaalwater Substation to the Dorset Substation across and between the following farms, roads, infrastructure and natural features: between Wolvenfontein 149KR and Nooitgedacht 136KR; between Vaalwater 137KR (Township) and Nooitgedacht 136KR; across the road between Vaalwater and Melkrivier; between Leeuwdrift 89KR and Slypsteendrift 91KR; across the Waterval/Zanddrift dirt road; between Olievenhouthoek 90KR and Waterval 88KR; across the Dorset road; between Kwarriehoek 710KR and Middelboomfontein 68KR; between Slangkuil 72KR and Vogelstruisfontein 69KR; across the Dorset road; between Gunfontein 71KR and Mc Cabe Zyn Hoek 19KR; across the Dorset road; across the Visgat road and between Witklip 17KR and Zandfontein 20KR (Figure 2).

Route 1 was divided into the following stretches that were subjected to the HIA (Figure 2):

- Stretch AB runs from the Vaalwater Substation between Wolvenfontein 149KR and Nooitgedacht 136KR north-westwards along the Vaalwater/Lephalale national road for approximately 3,5km. Stretch AB runs through two jinks before entering a sharp bend turning the power line towards the north.
- Stretch BC runs from the sharp bend along a straight corridor between Vaalwater Townlands and Nooitgedacht 136KR and then through one jink to the national road running between Vaalwater and Melkrivier. Stretch BC is approximately 4,2km long.
- Stretch CD runs from the Melkrivier road northwards in a straight corridor between Leeuwdrift 89KR and Slypsteendrift 91KR to the Waterval/Zanddrift dirt road and is approximately 7,5km long.
- Stretch DE bends north-westwards and runs along a straight corridor from the Waterval/Zanddrift dirt road for approximately 4,5km between the farms Olievenhouthoek 90KR and Waterval 88KR and also crosses the Dorset road.

- Stretch EF runs between Kwarriehoek 73KR and Middelboomfontein 68KR and then jinks to the north before running between Slangkuil 72KR and Vogelstruisfontein 69KR before jinking, again, but to the north-east before reaching the border between Gunfontein 71KR and Slangkuil 72KR. Stretch EF is approximately 6,5km long.
- Stretch FG runs between Gunfontein 71KR and Wtklip to the left (west) of the Dorset road and the farms McCabe Zyn Hoek 19KR and Zandfontein 20KR to the right (east) of the Dorset road. Stretch FG is approximately 6,5km long.

5.2.1.1 Stretch AB: from Vaalwater Substation along the Vaalwater/Lephalale road

Stretch AB runs for approximately 3,5km along the eastern shoulder of the Vaalwater/Lephalale road after leaving the Vaalwater Substation. This stretch runs across a narrow strip of indigenous bush next to the national road and crosses a graveyard and the Groot Wolwefontein stream. Several farmsteads occur in close proximity of the national road. However, none of these buildings seems to have any historical significance.

The following heritage resources were observed along Stretch AB, namely:

5.2.1.1.1 Graveyard 01 (GY01)

GY01 is a formal graveyard containing the graves of the Bekker (4), Van Heerden (2), Breytenbach and Brits (1) families. An eighth unmarked grave also occurs in the graveyard.

The graveyard is demarcated by a low brick wall and is divided into two sections (Figure 3).

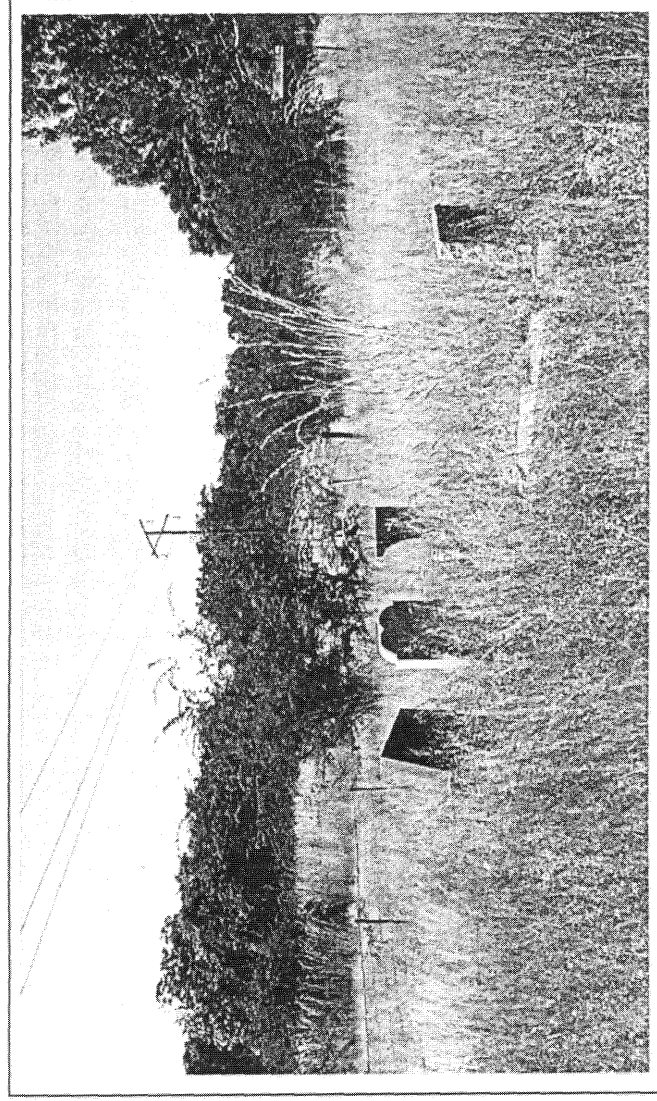


Figure 3- The formal graveyard (GY01) next to the Vaalwater/Lephalale road (above).

5.2.1.2 Stretch BC: from the Vaalwater/Lephalale road to the Melkrivier road

Stretch BC runs from the Vaalwater/Lephalale road northwards for approximately 4,2km through one jink before crossing the Melkrivier road.

Stretch BC runs between the Vaalwater Townlands to the west and part of the farm Nooitgedacht 136KR to the east. This stretch crosses small agricultural fields, indigenous bush and several dirt roads. It also passes a large informal graveyard (GY02) and an informal settlement.

The following heritage resources were observed along Stretch BC, namely:

5.2.1.2.1 Graveyard 02 (GY02)

GY02 is a large informal graveyard that is used by the occupants of the informal settlement. According to a signpost burials are not allowed in this graveyard any

longer. However, new graves in the graveyard indicate that this practice is still being continued.

GY02 contains a large number of old as well as new graves (Figure 4).

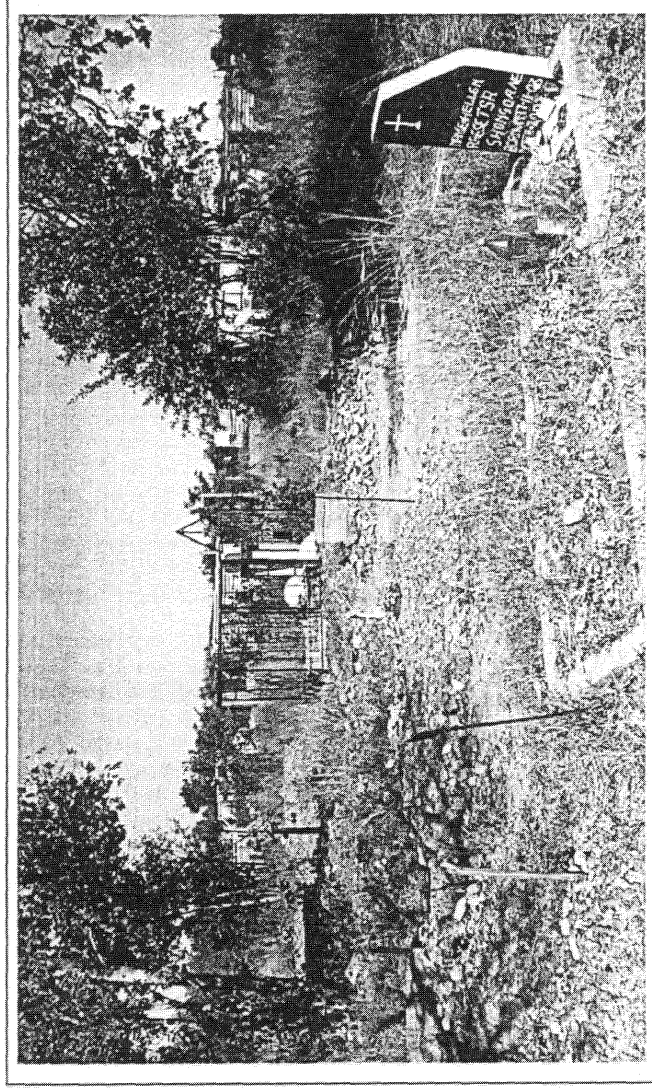


Figure 4- Graveyard 02 (GY02) is located next (west) of the new proposed Route 1 power line corridor that runs between the Vaalwater Townlands and Nooitgedacht 136KR (above).

5.2.1.3 Stretch CD: from the Melkrivier road to the Waterval/Zandrivier dirt road

Stretch CD runs from the Melkrivier road in a straight corridor for approximately 7,5km to the Waterval/Zandrivier dirt road. This stretch follows a two track dirt road running between Slypsteendrift 91KR and Leeuwdrift 89KR and stretches across sand veldt with silver cluster leave trees ('Vaalbos').

No heritage resources of significance were observed along Stretch CD.

5.2.1.4 Stretch DE: from the Waterval/Zanddrift road to north-west of the Dorset road

Stretch DE runs north-westwards for approximately 4,5km along the border of the farms Olievenhouthoek 90KR and Waterval 709KR and crosses the Dorset road.

Stretch DE runs across pristine veldt followed by old abandoned agricultural fields and a low inconspicuous protrusion before crossing the Dorset road. Hereafter it again crosses pristine bush.

No heritage resources of significance were observed along Stretch DE.

5.2.1.5 Stretch EF: from the Waterval/Zanddrift road to north-west of the Dorset road

Stretch EF runs for 6,5km between Kwarriehoek 73KR and Middelboomfontein 68KR and then jinks to the north-west before running between Slangkuil 72KR and Vogelstruisfontein 69KR before jinking to the north-east and reaching the border between Gunfontein 71KR and Slangkuil 72KR.

Stretch EF runs across sandveldt with silver cluster leave trees ('Vaalbos'). Sandstone dykes with ferricrete gravels and hornfels occur as bare eroded spots in the veldt. Some of these geological phenomena are associated with stone tools manufactured from hornfels.

The following heritage resources were observed at a 'safe distance' from Stretch EF:

- a Middle Stone Age site (250 000 to 22 000 years ago) occurs on one of the sandstone and ferricrete dykes. Site MSA01 was associated with cores, points and blades that were manufactured from hornfels (Figure 5).

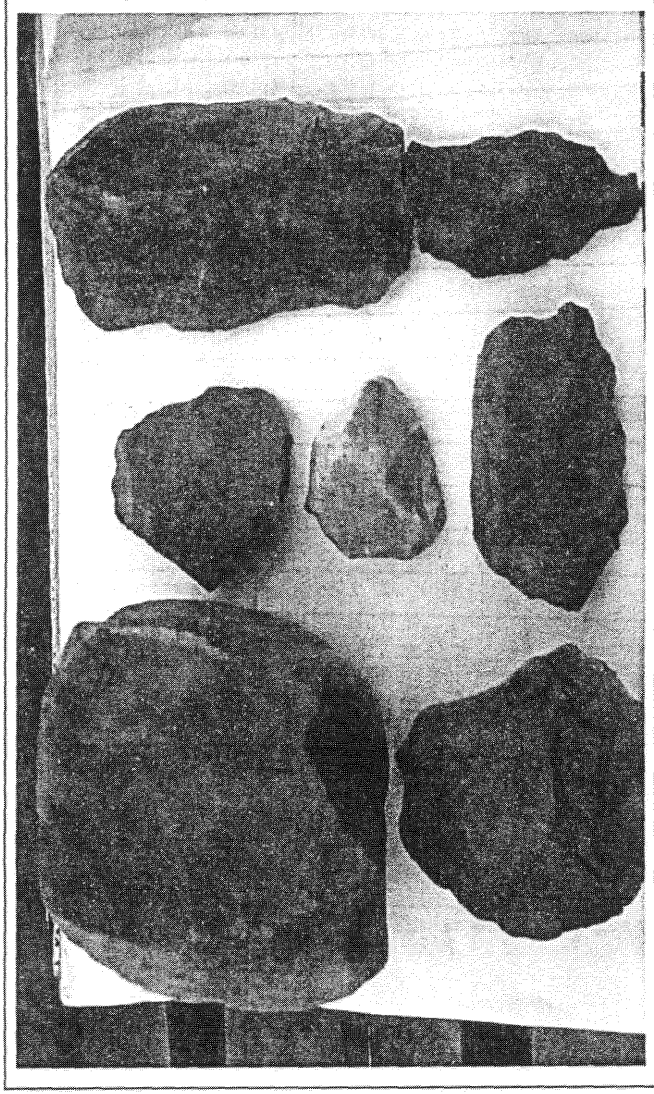


Figure 4- Middle Stone Age tools dating from 250 000 to 22 000 years ago. These tools were manufactured from hornfels and include cores (left row), scrapers (middle row) and points and blades (right row) (above).

5.2.1.6 Stretch FG: from the loop in the Dorset road to the Dorset Substation

Stretch FG runs for 6,5km from the bottom in the loop in the Dorset road to the Dorset Substation in the north. Stretch FG follows the border between the farms Gunfontein 71KR and Witklip 17KR to the west of the Dorset road and the farms McCabe Zyn Hoek 19KR and Zandfontein 20KR to the east of the Dorset road.

Stretch FG crosses the loop in the Dorset road twice. The part of the proposed new power line that runs across the loop also crosses what seem to be old quarries were gravel was excavated when the Dorset road was built. The second part crosses pristine bush with several large Euphorbia trees on both sides of the road running to Visgat (in the north-west). The last part of Stretch FG runs along the western shoulder of the road running to Dorset. It crosses a small river as well as ruins dating from the recent past and then runs through indigenous bush with open patches to the proposed new Dorset Substation.

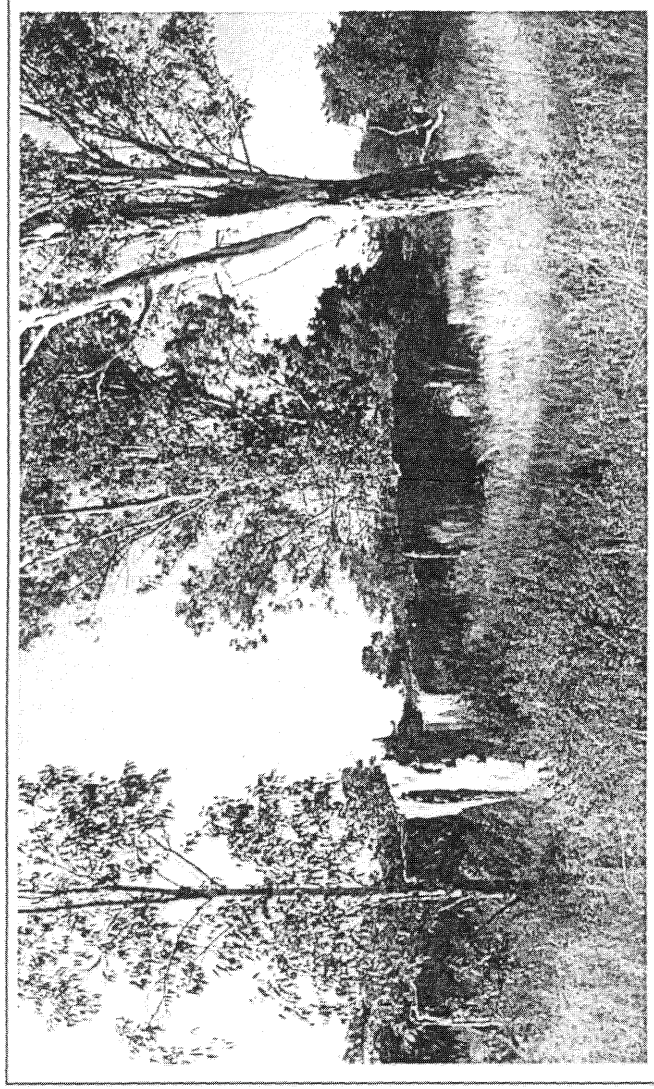


Figure 5- Ruins of mud houses occupied by labourers living close to the Dorset road (above). These ruins date from the recent past and are located close to the proposed new Route 1. They have no historical significance.

5.2.2 The Heritage Impact Assessment for Route 2

The Route 2 power line corridor runs from the Vaalwater Substation to the Dorset Substation across and between the following farms, roads, infrastructure and natural features: between Nooitgedacht 13KR and Weltevreden 135KR; between Nooitgedacht 136KR and Sterkfontein 134KR; between Nooitgedacht 136KR and Zandriff 94KR; across the Melkrivier road; across the eastern part of Sloopsteendrift 91KR; across the Waterval/Zandriff road; between Olievenhouthoek 90KR and Nooitgedacht 92KR; between Middelboomfontein 68KR and Zondagsfontein 67KR; between Vogelstruisfontein 69KR and Waterhoutsloof 66KR; between McCabe Zijn Hoek 19KR and Buffelfontein 69KR; between Zandfontein 20KR and Trouw Zyn Nek 21KR and along the southern shoulder of the dirt road running to the proposed new Dorset Substation in the west (Figure 2).

Route 2 was divided into the following stretches (Figure 2):

- Stretch AB runs from the Vaalwater Substation eastwards along the northern shoulder of the dirt road running to Vryemanspos to the first sharp bend in Route 2. Stretch AB is approximately 4km long.
- Stretch BC runs from the first sharp bend in Route 2 north-westwards through one jink and a sharp bend towards the road running between Vaalwater and Melkrivier. Stretch BC is approximately 6,8km long.
- Stretch CD runs from the Melkrivier road northwards and crosses the Waterval/Zanddrift dirt road and is approximately 3,5km long.
- Stretch DE runs north-westwards in a straight corridor for approximately 2,5km.
- Stretch EF runs north-westwards in a straight corridor for approximately 3km.
- Stretch FG runs north-eastwards through two jinks before reaching the road running to the new proposed Dorset Substation and is approximately 4,5km long.
- Stretch GH runs along the southern shoulder of the Dorset road to the Dorset Substation and is approximately 1,5km long.

5.2.2.1 Stretch AB: from Vaalwater Substation along the northern shoulder of the road running to Vryemanspos

Stretch AB runs from the Vaalwater Substation eastwards for approximately 4km along the northern shoulder of the dirt road running to Vryemanspos. Stretch AB crosses two streams, old agricultural fields, a large Ficus tree, stretches with indigenous bush and an informal graveyard before approaching the first sharp bend in Route 2.

The following heritage resources were observed along Stretch AB, namely:

5.2.2.1.1 Graveyard 03 (GY03)

An informal graveyard (GY03) with five graves occurs in close proximity of the northern shoulder of the dirt road running to Vryemanspos.

The five graves are new and are covered and edged with stones but are without any headstones (Figure 6).

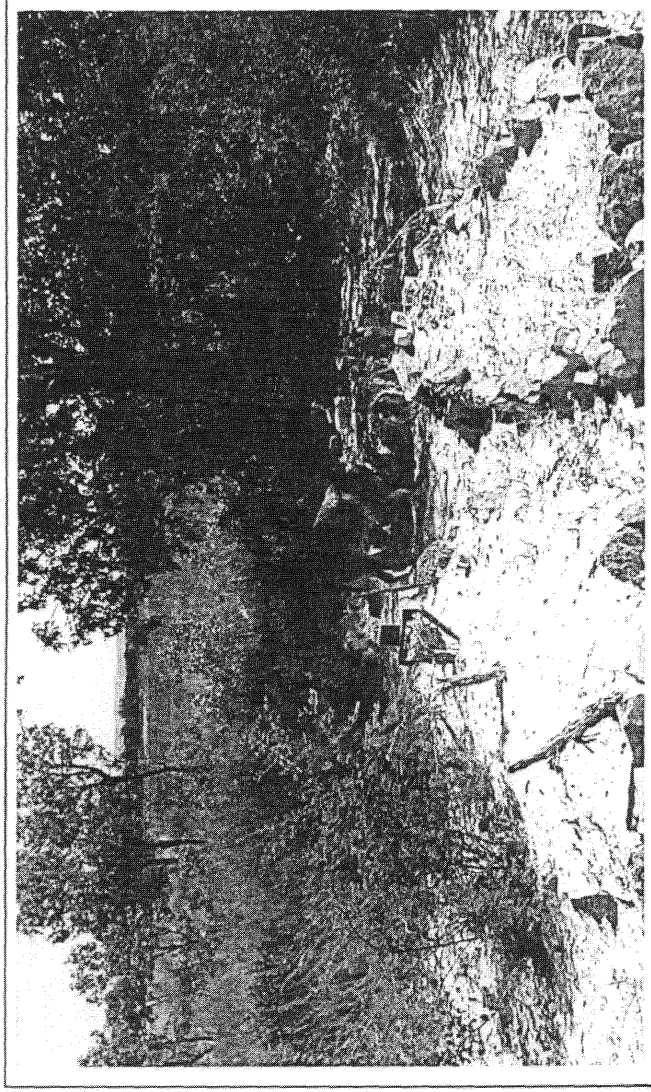


Figure 6- Informal graveyard (GY03) with five graves covered with stones. GY03 is located close to the northern shoulder of the Vryemanspos dirt road (above).

5.2.2.2 Stretch BC: from the first sharp bend to the Melkriver road

Stretch BC runs from the first sharp bend in Route 2 through a jink and a second sharp bend for approximately 6,8km before reaching the Vaalwater/Melkriver road. This stretch runs from a steel gate, passes a quarry, crosses indigenous bush and passes labourers dwellings and indigenous bush.

No heritage resources of significance were observed along Stretch BC.

5.2.2.3 Stretch CD: from the Melkriver road northwards across the Waterval/Zanddrift dirt road

Stretch CD runs from the Vaalwater/Melkriver road northwards along a two track road that crosses a bridge, a spruit and then runs along the border fence between Slypseendrift 91KR and Zanddrift 94KR for approximately 3,5km long.

Stretch CD crosses sand veldt with pieces of undisturbed veldt as well as large tracks of land that were used as agricultural fields in the past (Figure 7).

No heritage resources of significance were observed along Stretch BC.

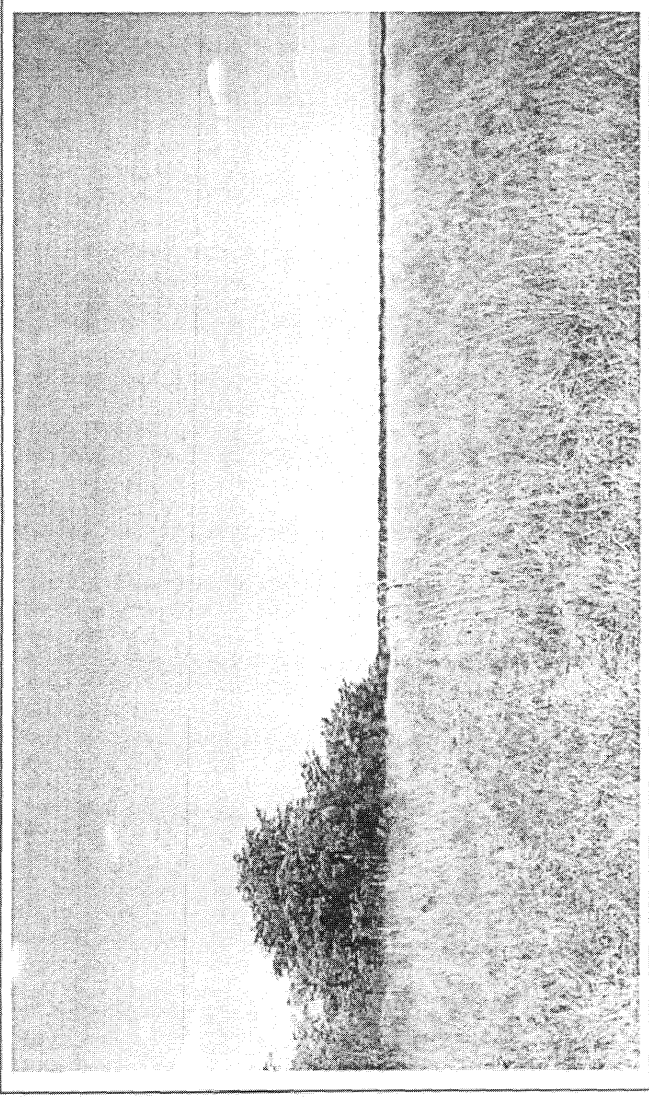


Figure 7- Large tracks of land that were used for agricultural fields along Stretch CD of the new proposed Route 2 (above).

5.2.2.4 Stretch DE: north of the Waterval/Zanddrift road

Stretch DE runs north-westwards across indigenous bush for approximately 2,5km along the border of Olievenhouthoek 90KB and Nooitgedacht 92KB.

No heritage resources of significance were observed along Stretch BC.

5.2.2.5 Stretch EF: north along the border

Stretch EF runs north-westwards along the border between Middelboomfontein 68KR and Zondagsfontein 67KR for approximately 3km. An old (possible

historical) mine is located on Middelboomfontein 68KR but is located in the peripheral area, i.e. not near the new proposed power line corridor.

No heritage resources of significance were observed along Stretch EF.

5.2.2.6 Stretch FG: northwards to the Dorset road

Stretch FG runs across indigenous bush and then gradually ascends the rocky foot slopes of the Waterberg after which the latter part of Stretch FG crosses sand veldt before joining the road running to Dorset.

A historical farmstead and graveyard is located in the peripheral area, i.e. not close to Stretch FG of the proposed new Route 2 power line (Figure 8).

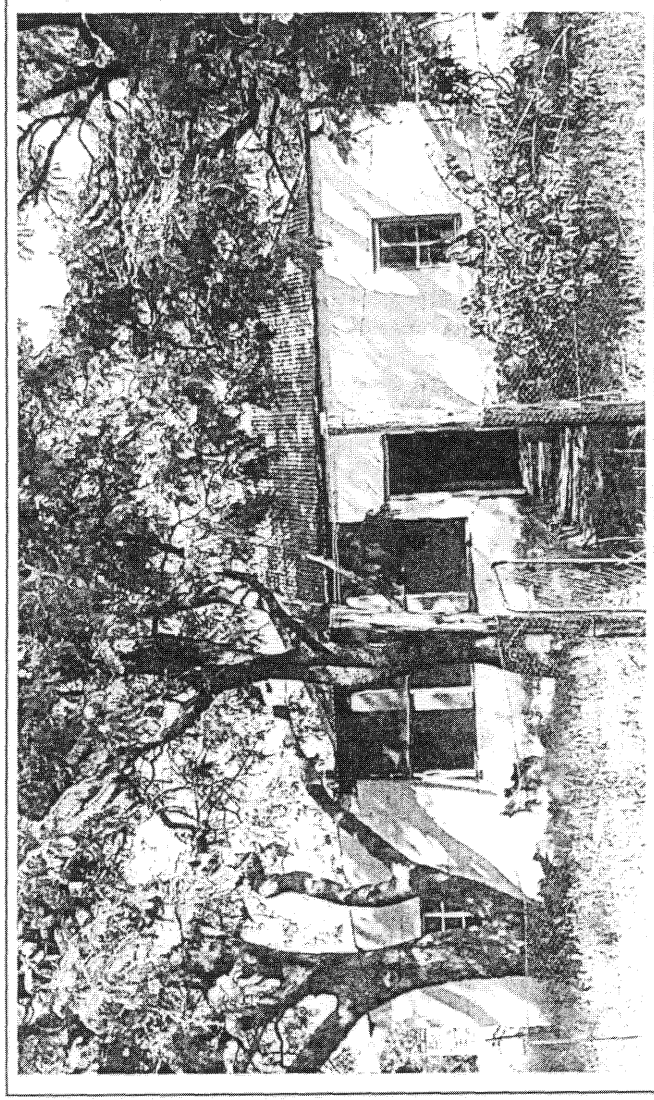


Figure 8- A typical Waterberg farmstead with a lean-to. This house has lost some of its historical significance as it had been altered (above). It will not be affected by the new proposed Route 2 power line.

5.2.2.7 Stretch GH: along the southern shoulder of the Dorset road

Stretch GH runs along the southern shoulder of the Dorset road to the new proposed Dorset Substation and is approximately 1,5km long. This stretch runs partly along service roads, indigenous bush and open patches of bush along the northern border of the farm Zandfontein 20KB

No heritage resources of significance were observed along Stretch BC.

5.3 The Heritage Impact Assessment for the new proposed Dorset Substation

The proposed new Dorset Substation will be established on a stand located to the west or on a stand located to the east of the intersection between the Dorset and the Visgat/Sukses roads. The stand for the new proposed Dorset Substation to the left (west) of the substation is a disturbed piece of land. This stand is largely covered with a massive quarry where gravel was removed for the construction of roads (Figure 9).

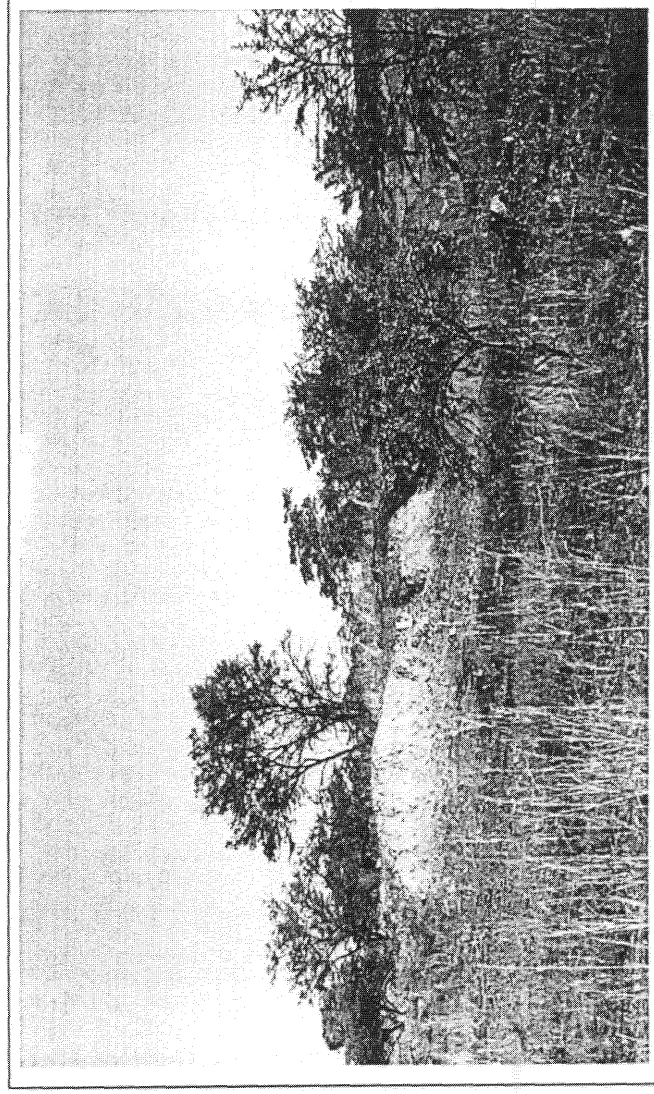


Figure 9- A quarry where the new proposed Dorset Substation may be established to the west of the T-junction between the Dorset and Visgat/Sukses roads (above).

The proposed stand for the Dorset substation to the right (east) of the T-junction is covered with pristine bush. However, no heritage resources of significance were observed on this piece of land. Neither were any heritage resources of significance observed on this piece of land.

6 POSSIBLE IMPACT OF ESKOM'S NEW PROPOSED DEVELOPMENT ON THE HERITAGE RESOURCES

6.1 Heritage resources in the project area

The Phase I HIA study for Eskom's proposed new development project entailing the extension of the Vaalwater Substation, constructing a new proposed 132kV power line between the Vaalwater and Dorset Substations and building the new proposed Dorset Substation 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 or near the project area, namely:

- A formal graveyard (GY01) along Stretch AB of Route 1
- An informal graveyard (GY02) along Stretch BC of Route 1
- An informal graveyard (GY03) along Stretch AB of Route 2

These graveyards were geo-referenced and mapped. The Stone Age site (SA01), although falling outside the project area, was also geo-referenced and mapped (Table 1; Figure 2).

HERITAGE RESOURCES	COORDINATES	LEVEL OF SIGNIFICANCE
Formal Graveyard 01 (GY01)	24° 20.321' (S) 28°.08.027' (E)	HIGH
Informal Graveyard 02 (GY02)	24° 18' (S) 28°.08' (E)	HIGH
Informal Graveyard 03 (GY03)	24° 19.831' (S) 28°.10.610' (E)	HIGH
Stone Age site (SA01)	24° 08.042' (S) 28°.08.487'(E)	HIGH, BUT OUTSIDE PROJECT AREA

Table 1- Formal and informal graveyards discovered along the two new proposed power line routes between the Vaalwater Substation and the Dorset Substation. Note the graveyards' coordinates and their level of significance.

6.2 The significance of the graveyards

The graveyards are undoubtedly of high significance. These structures may not be affected by Eskom's proposed new development project. Legislation with regard to graveyards includes the National Heritage Resources Act, 1999 (No 25 of 1999), the Ordinance on Exhumations, 1980 (Ordinance No 12 of 1980) and the Human Tissues Act, 1983 (No 65 of 1983 as amended). Various categories of graves and burial grounds are acknowledged in Section 2 (g) of the National Heritage Resources Act (No 25 of 1999) and measures for the protection, exhumation and relocation of graves and graveyards are outlined in Section 36 of the National Heritage Resources Act (No 25 of 1999).

6.3 Possible impact on the graveyards

The graveyards need not to be affected by the construction of either of the two new proposed power lines as the graveyards can be avoided in the following ways:

- Stretch AB of Route 1 can be constructed across GY01 if the pylons in this stretch are placed on opposite sides (ends) of the graveyard. This graveyard merely contains eight graves and therefore does not cover a large surface area.
- Stretch BC of Route 1 ought to run along the eastern perimeter (edge) of GY02.
- Graveyard 03 only contains five graves and covers a small surface area. Consequently, Stretch AB of Route 2 can be constructed across GY03 if the pylons of Stretch AB are erected on opposite sides (ends) of this graveyard.

7 CONCLUSION AND RECOMMENDATIONS

The HIA study for Eskom's new development project involving the extension of the Vaalwater Substation, building a new 132kV power line between the Vaalwater Substation and the newly proposed Dorset Substation as well as the construction of the new proposed Dorset Substation revealed the following types and ranges of heritage resources in or near the project area, namely:

- A formal graveyard (GY01) along Stretch AB of Route 1
- An informal graveyard (GY02) along Stretch BC of Route 1
- An informal graveyard (GY03) along Stretch AB of Route 2

These graveyards were geo-referenced and mapped. A Stone Age site (SA01), although falling outside the project area, was also geo-referenced and mapped (Table 1; Figure 2).

The graveyards are undoubtedly of high significance. These structures may not be affected by Eskom's proposed new development project. Legislation with regard to graveyards includes the National Heritage Resources Act, 1999 (No 25 of 1999), the Ordinance on Exhumations, 1980 (Ordinance No 12 of 1980) and the Human Tissues Act, 1983 (No 65 of 1983 as amended). Various categories of graves and burial grounds are acknowledged in Section 2 (g) of the National Heritage Resources Act (Act 25 of 1999) and measures for the protection, exhumation and relocation of graves and graveyards are outlined in Section 36 of the National Heritage Resources Act (No 25 of 1999).

The graveyards need not to be affected by the construction of either of the two new proposed power lines. The graveyards can be avoided in the following ways:

- Stretch AB of Route 1 can be constructed across GY01 if the pylons in this stretch are placed on opposite sides (ends) of the graveyard. This graveyard merely contains eight graves and therefore does not cover a large surface area.

- Stretch BC of Route 1 ought to run along the eastern perimeter (edge) of GY02.
- Graveyard 03 only contains five graves and covers a small surface area. Consequently, Stretch AB of Route 2 can be constructed across GY03 if the pylons of Stretch AB are erected on opposite sides (ends) of this graveyard.

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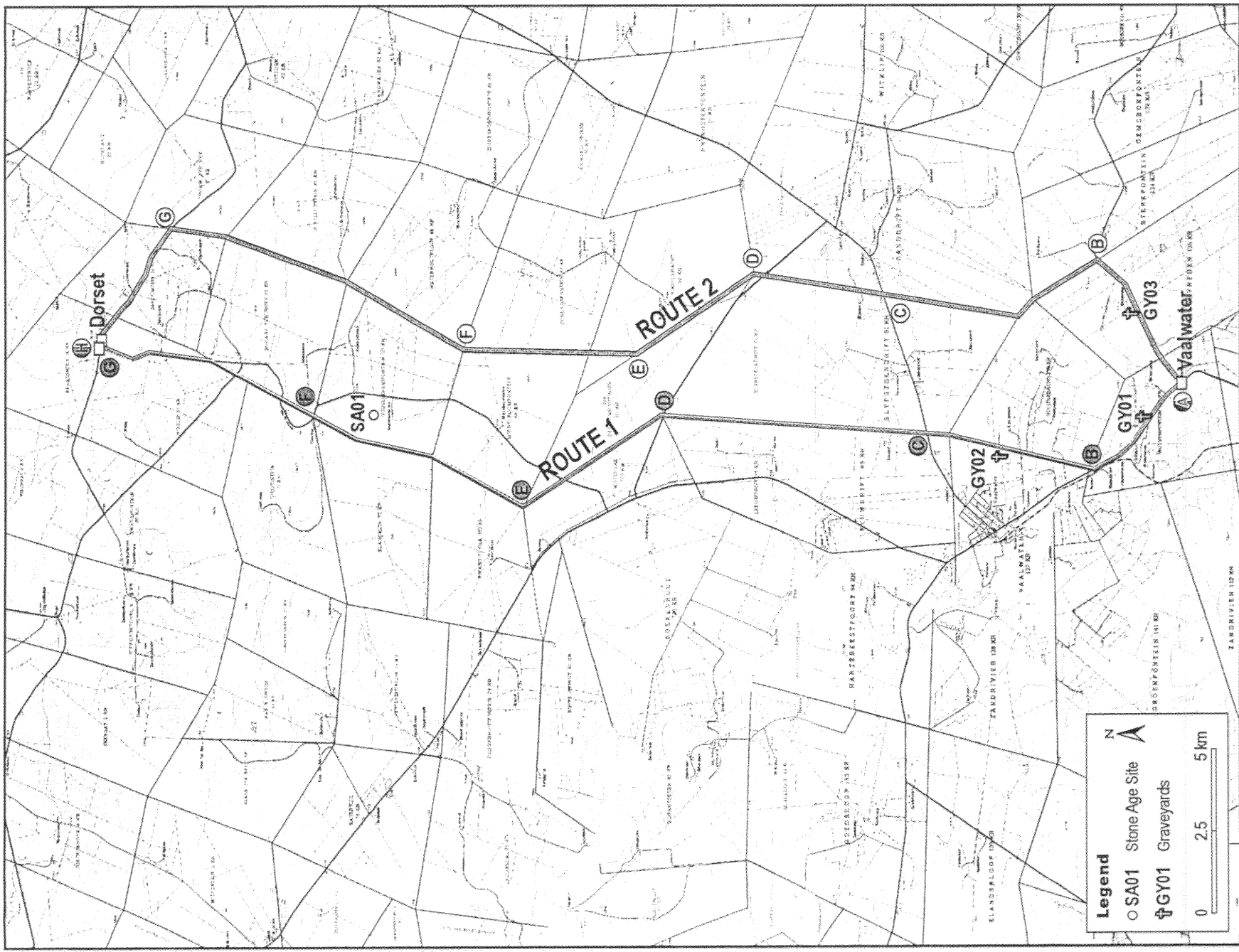


Figure 2- Eskom's three new proposed 132kV power line routes between the existing Vaalwater Substation in the south and the new proposed Dorset Substation in the north.

Note the presence of two graveyards (GY01 and GY02) in or near Route 1 and the presence of a third graveyard (GY03) in or near Route 2