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FIRST PHASE ARCHAEOLOGICAL AND CULTURAL HERITAGE ASSESSMENT OF THE PROPOSED GARONA – MERCURY TRANSMISSION POWER LINE, NORTHERN CAPE, NORTH-WEST PROVINCE & FREE STATE

EXECUTIVE SUMMARY

Two potential corridors have been proposed for the installation of a 400 kV transmission power line from the Garona Sub-Station near Groblershoop to Ferrum Sub-Station at Kathu and to the Mercury Sub-Station near Orkney. The power line will predominantly follow the route of existing power lines. It will eventually extend over more than 600km running through the Northern Cape, North-West Province and the Free State, passing through a slightly changing vegetation cover.

The total distance was investigated at regular intervals for the occurrence of archaeological, historical and other cultural material.

Major obstacles occur at Kathu in the form of extended Early Stone Age artefact sites, a cemetery, residential developments and several traditional settlements.

I conclude that these obstructions will have to be evaded in the planning of the power line. I am convinced that when considered in this way, the power line developments will have an insignificant effect on the rich archaeological and cultural historical heritage of the area.

It seems that a combination of the two alternative routes would give the most acceptable result. Further planning of the proposed project could continue, but mitigation measures should be included in the final layout of the proposed power transmission line route.

INTRODUCTION AND DESCRIPTION

Scope and Limitations

The investigation provided the opportunity to examine the two selected corridors at intervals and to consider the different routes proposed for the transmission power line. It is possible that the long distances and the fact that the total route was not fully accessible, could have limited the investigation and the recording of the finds.

Methodology

1. Route visited at intervals.
2. Study of topo-cadstral maps.
3. Literature study.

Criteria used to rank Sites

The criteria used in the specific ranking of the sites, is based on the mere presence or absence of archaeological, historical and/or cultural material. In the present case Stone Age material of very high significance were found and will have to be treated with great caution.

INVESTIGATION

Two potential corridors were proposed for the installation of a 400 kV transmission power line from the Garona Sub-Station near Groblershoop to the Ferrum Sub-Station at Kathu (Map 1), from Kathu to Vryburg (Map 2) and to the Mercury Sub-Station near Orkney (Map 3). The power line will follow the route of existing power lines and will eventually extend over more than 600km running through the Northern Cape, North-West Province and the Free State. The route extends over a slightly changing vegetation cover. The total distance had been inspected at regular intervals for the occurrence of archaeological, historical and other cultural material.

The route was examined on 18 and 19 January 2007 in the company of Dr. Johan du Preez from MDA Environmental Consultants, Bloemfontein. The specific points were investigated on foot and observations and finds were plotted by GPS and recorded on camera.

The area was examined for possible archaeological and historical material and to establish the potential impact on any cultural material that might be found. The Heritage Impact Assessment (HIA) is done in terms of the National Heritage Resources Act (NHRA), (25 of 1999) and under the Environmental Conservation Act, (73 of 1989).

LOCALITY

The transmission power line is planned from the Garona Sub-Station near Groblershoop to Ferrum Sub-Station at Kathu and from there to the Mercury Sub-Station near Orkney. The power line will mainly follow the route of existing power lines and will eventually extend over more than 600km running through the Northern Cape, North-West Province and the Free State.

The Garona Eskom Sub-Station is situated on part of the farm Bokpoort 390 in the Groblershoop district. The land is reached from the N10 main road between Groblershoop and Upington and borders on the Sishen-Saldanha railway line.

The soil consists of sterile red sand on the surface.

The Garona-Mercury transmission power line will pass through a slightly changing vegetation cover, mainly limited to *Eragrostis* grassland, Driedoring shrubs (*Rhigozum trichotomum*), Witgat (*Boscia albitunca*) trees and Swarthaak bushes (*Acacia mellifera*). Significant stands of Sand Geelhout trees (Vaalboom) (*Terminalia sericea*) are found in association with Kameeldoring trees (*Acacia erioloba*), near the Kathu cemetery and the adjacent farm Hartnolls 458.

The total distance of the route was examined at regular intervals and investigated for the occurrence of archaeological, historical and other cultural material.

The following GPS (Cape scale) coordinates were taken:

The numerical order of the sites was awarded at random by the archaeologist to indicate fixed points identified along the route.

1 Garona Sub-Station	28°44'22"S 021°59'50"E Altitude 952m (Fig.1).
2 Ridge/Cutting	28°41'35"S 022°04'04"E Altitude 1014m (Fig.2).
4 Pylon 373 (735km)	28°35'44"S 022°15'15"E Altitude 1054m (Fig.3).
5 Pylon 340	28°28'10"S 022°20'22"E Altitude 1100m.
6 Witsand Rd/Power line	28°07'20"S 022°40'50"E Altitude 1236m.
7 Pylon 162 x R385	28°11'17"S 022°45'13"E Altitude 1300m (Fig.4).
8 N14	27°55'09"S 022°48'42"E Altitude 1231m (Fig.5).
9 K1 (Kathu)	27°42'21"S 023°01'27"E Altitude 1203m.
10 K2 (Bend)	27°40'11"S 023°00'07"E Altitude 1180m (Fig.6).
11 K3 (Kathu town)	27°39'57"S 022°58'50"E Altitude 1164m.
12 Ferrum Sub-station	27°43'35"S 023°03'27"E Altitude 1217m (Fig.7).
2 Kathu Town lands	27°41'26"S 023°04'06"E Altitude 1231m (Fig.8).
3 Kathu (Entrance)	27°41'24"S 023°04'25"E Altitude 1232m (Fig.9).
4 Kathu Cemetery	27°40'21"S 023°04'34"E Altitude 1241m (Fig.10).
5 Uitkoms 4 ESA site	27°40'18"S. 023°04'51"E Altitude 1261m (Fig.11).
6 Hartnolls Residential Dev	27°40'15"S. 023°05'06"E Altitude 1234m (Fig.14).
7 N14/Power line	27°32'53"S. 023°12'00"E Altitude 1239m (Fig.15).
8 N14 Red Sands	27°29'14"S. 023°19'27"E Altitude 1444m (Fig.16).

- 9 R31 Danielskuil 27°29'01"S. 023°26'44"E Altitude 1358m.
 9A Kagung 27°25'40"S. 023°34'03"E Altitude 1377m (Fig.17).
 10 Reivilo Rd 27°26'31"S. 023°35'19"E Altitude 1390m.
 11 N14/Camden Rd 27°22'00"S. 023°34'40"E Altitude 1388m.

Matlabanelong/Vryburg 109km.

12 Tzaneen Traditional Settlement.

13 Vryburg 100km Sand Dune.

- 14 N14/Lykso/R371 27°12'48"S. 024°06'22"E Altitude 1434m (Fig.18).
 14A R371 27°16'46"S. 024°09'15"E Altitude 1459m.
 15 N18 Dry Harts 27°08'26"S. 024°44'53"E Altitude 1124m (Fig.19).

Tierkloof Settlement

- 16 R34 Amalia 27°05'04"S. 025°05'07"E Altitude 1322m (Fig.).
 17 R504 Zitland 27°08'32"S. 025°27'53"E Altitude 1353m (Fig.).

Khanghuoding Village

- 18 R504/Welverdiend Rd 27°06'52"S. 025°47'35"E Altitude 1366m (Fig.20).

Kareepan/Wolmaranstad R504

- 19 N12 27°11'25"S. 025°59'51"E Altitude 1360m (Fig.2122).
 20 R504 27°10'22"S. 026°06'28"E Altitude 1400m (Fig.).

Witpoort/Rulaqanyang Village/Township

21 Orkney R502/Wildebeeskantoor

Klipspruit 27°11'18"S. 026°19'35"E Altitude 1303m (Fig.).

Harrisburg/Regina Silo/Ysterspruit

R30 Orkney/Bothaville

Viljoenskroon R76

- 22 Mercury Sub-Station 27°03'01"S. 026°44'44"E Altitude 1327m (Fig.22).

FINDS

EARLY STONE AGE ARTEFACTS

GARONA SUB-STATION / BOKPOORT 390

The investigation at Garona Sub-Station produced a small collection of stone flakes (Fig.23). The artefacts, which were collected on the farm Bokpoort 390 and were scattered towards the railway line (28°44'22"S 021°59'50"E Altitude 952m) (Fig.1).

Some of the flakes showed convergent flaking, characteristic of the Middle Stone Age industry.

The material used was also meta-quartzite and chalcedony from the local lithic sources and a number of lydianite cores occurred (Dreyer 2006).

KATHU TOWN LANDS

The area around Kathu is very rich in archaeological material in the form of Early Stone Age or Acheulian artefacts. Excavations at Kathu Pan, the Kathu Town lands site (Fig.8).and at Uitkoms 463 produced stone tools in abundance. (cf. Beaumont 1990, 2004).

The Kathu Town lands site (Fig.8) lies opposite the equestrian centre east of the main entrance road to Kathu from the N14 between Upington and Vryburg (27°41'26"S 023°04'06"E Altitude 1231m).

UITKOMS 4 (KATHU CEMETERY)

Archaeological investigations by Beaumont between 1982 and 1992 produced an abundance of early Stone Age or Acheulian hand axes, cores and crude blades in and around Kathu. These artefacts were topologically uniform. The site at Uitkoms 463 covers less than 1km² and the excavations produced about 8000 artefacts per m². From these finds, Peter Beaumont estimates that the area could contain the astronomic number of about 10 billion flaked tools (Beaumont 2004:52).

The site containing Early Stone Age (ESA) or Acheulian hand axes was discovered during the first visit by the author (1 June 2006) to the farm Hartnolls 458 outside Kathu. An elaborate number of artefacts were found scattered on the surface. The artefacts were well preserved and without any patination or erosion (Fig.13). More artefacts were collected during a second visit to the site in November 2006 (Figs.24,26,27) and during a third visit, accompanied by Beaumont in December 2006 (Fig.12).

The Dreyer site is located east of the cemetery and is designated as Uitkoms 4 by Beaumont (27°40'18"S. 023°04'51"E Altitude 1261m) (Fig.11) (Beaumont 2007). The soil surface slopes up the hill towards the east. Certain areas along the incline contain material and flakes indicating stone tool manufacturing activities in the region (Fig.25). The artefacts are located at the foot of the slope where it had been covered by red sterile sand. Some municipal authority was removing sand during our second visit, and it is possible that the stone artefacts are exposed by the removal of the sand (Fig.28).

Peter Beaumont from McGregor Museum, Kimberley, was invited to visit the site and had subsequently been taken out on 15 December 2006. His comments are given in an official report dated 17 January 2007 (Beaumont 2007). Although he was not aware of the specific site, Beaumont is familiar with the sites in the area near the Kathu cemetery, as he had done certain limited excavations nearby in the past (Beaumont 1990).

KATHU CEMETERY

The Kathu Cemetery is situated a few kilometres north of the town and lies east of the N14 main road from Upington to Vryburg (27°40'21"S 023°04'34"E Altitude 1241m) (Fig.10). The cemetery will fall directly in the way of the proposed power transmission line.

ERIOLOBA ESTATE (HARTNOLLS 458)

A specific area on the farm is planned as a game reserve. It is anticipated that a deviation in the present power transmission line to avoid the Kathu cemetery, will bring the new line very close to the existing power line at Hartnolls.

It is also possible that some of the stone tools discovered at Uitkoms 4, near the cemetery, could also be found on the ridge at Hartnolls and should be investigated (Beaumont 2007).

TRADITIONAL SETTLEMENTS

During the examination, it was found that several traditional settlements along the N14 and other main roads would have to be considered in the final planning of the power transmission line. These settlements are not indicated on the maps and could include the following localities:

Kagung Village (27°25'40"S. 023°34'03"E Altitude 1377m) (Fig.17)

Matlabanelong

Tzaneen Settlement

Lykso

Tierkloof Settlement

Khanghuoding Village

Witpoort/Rulaqanyang Village/Township

Harrisburg / Regina Silo

ASSESSMENT OF IMPACT

Stone tools did not occur in the form of a general distribution. The lithic assemblages seem to concentrate around Garona Sub-Station and near the town of Kathu.

At Garona the stone flakes are sparsely distributed on the surface and it is expected that the impact on the cultural heritage remains of the proposed developments at Garona will be of minor significance.

The archaeological finds at Kathu Town lands and Uitkoms 4 at Kathu Cemetery are of very high significance.

Kathu Cemetery and the proposed residential developments at Hartnolls 458, could also present a major obstruction for the power transmission line.

Traditional Settlements along the N14, R34, R504 and R502 main roads could likewise become obstacles in the way of the power transmission line, which will have to be avoided during the final planning. Except for the cemetery at Kathu, no other graves or burial grounds were found along the route.

No palaeontological components were found during the investigation.

MITIGATION

Mitigation measures will be required in the case of the Early Stone Age (Acheulian) archaeological sites at Kathu and Hartnolls.

As recommended by Beaumont (2007), it is essential that a thorough survey should be done in the area to be affected by the power transmission line at Hartnolls 458.

RECOMMENDATIONS

Table 1: Site Preference Ratings for the proposed Sites

Route	Score	Site Preference rating
Alternative 1	5	1
Alternative 2	3	2

The differences in the archaeological and cultural heritage of the two alternative routes are insignificant and there is no clear preference or disqualification of any of the two possibilities. It seems from a practical point of view that Alternative 1 could be the best accessible option to pursue. However, it could also be possible that Alternative 2 could be the route to follow in the cases where Alternative 1 is producing obstructions.

I recommend that, depending on the finds of the other specialists, the most practical route should be selected and that the planning and the development of the installation may proceed.

ACKNOWLEDGEMENTS

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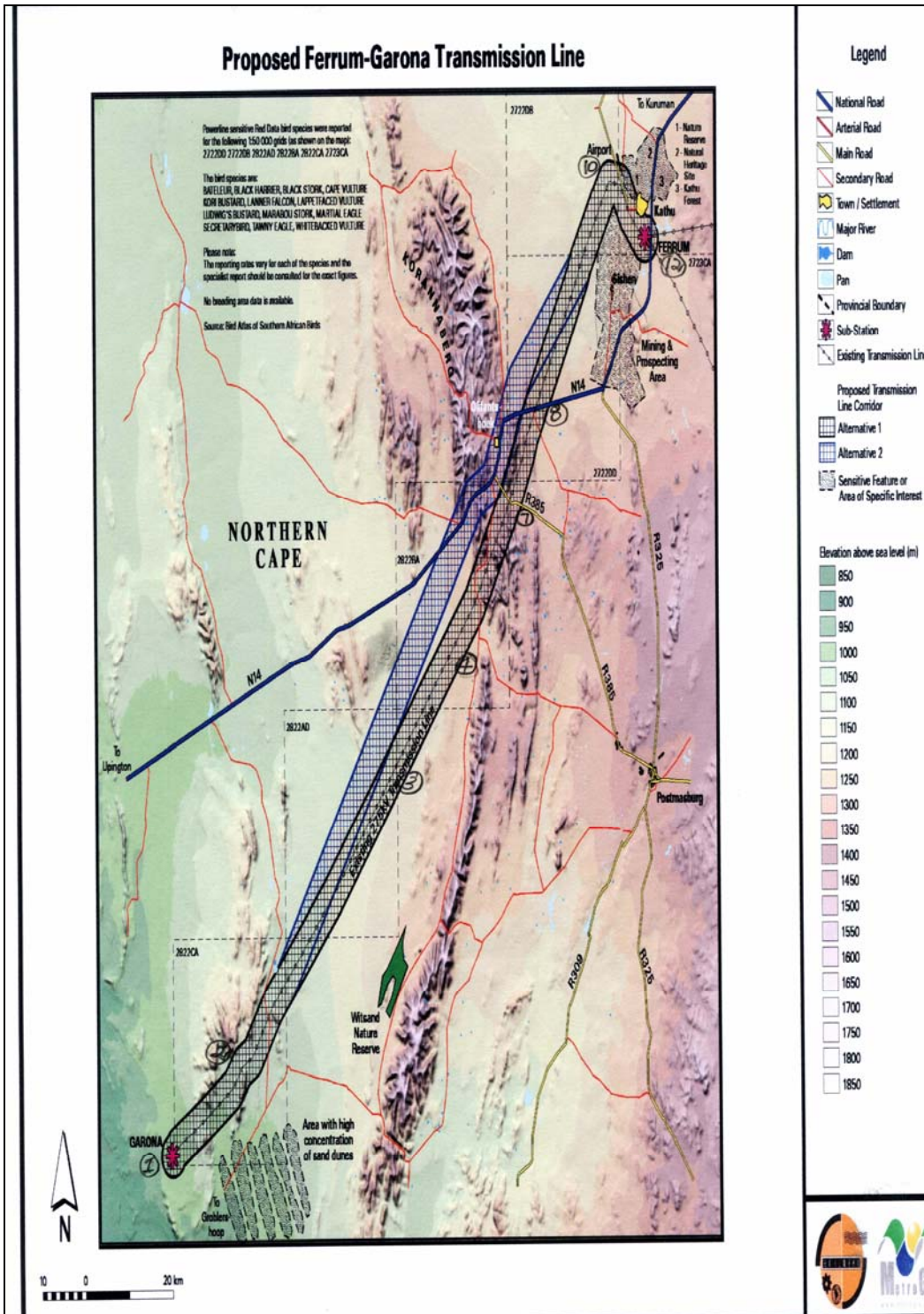
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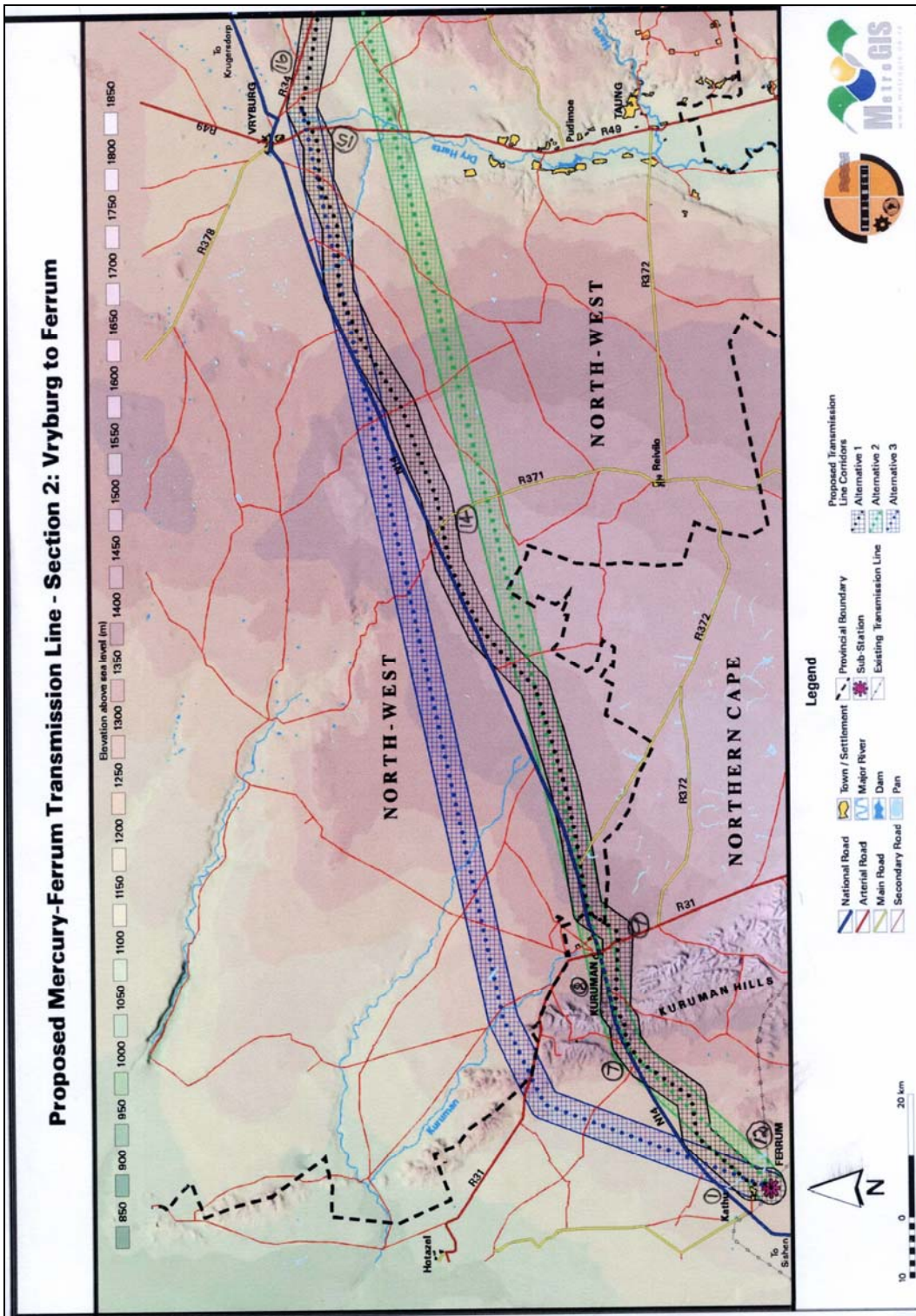
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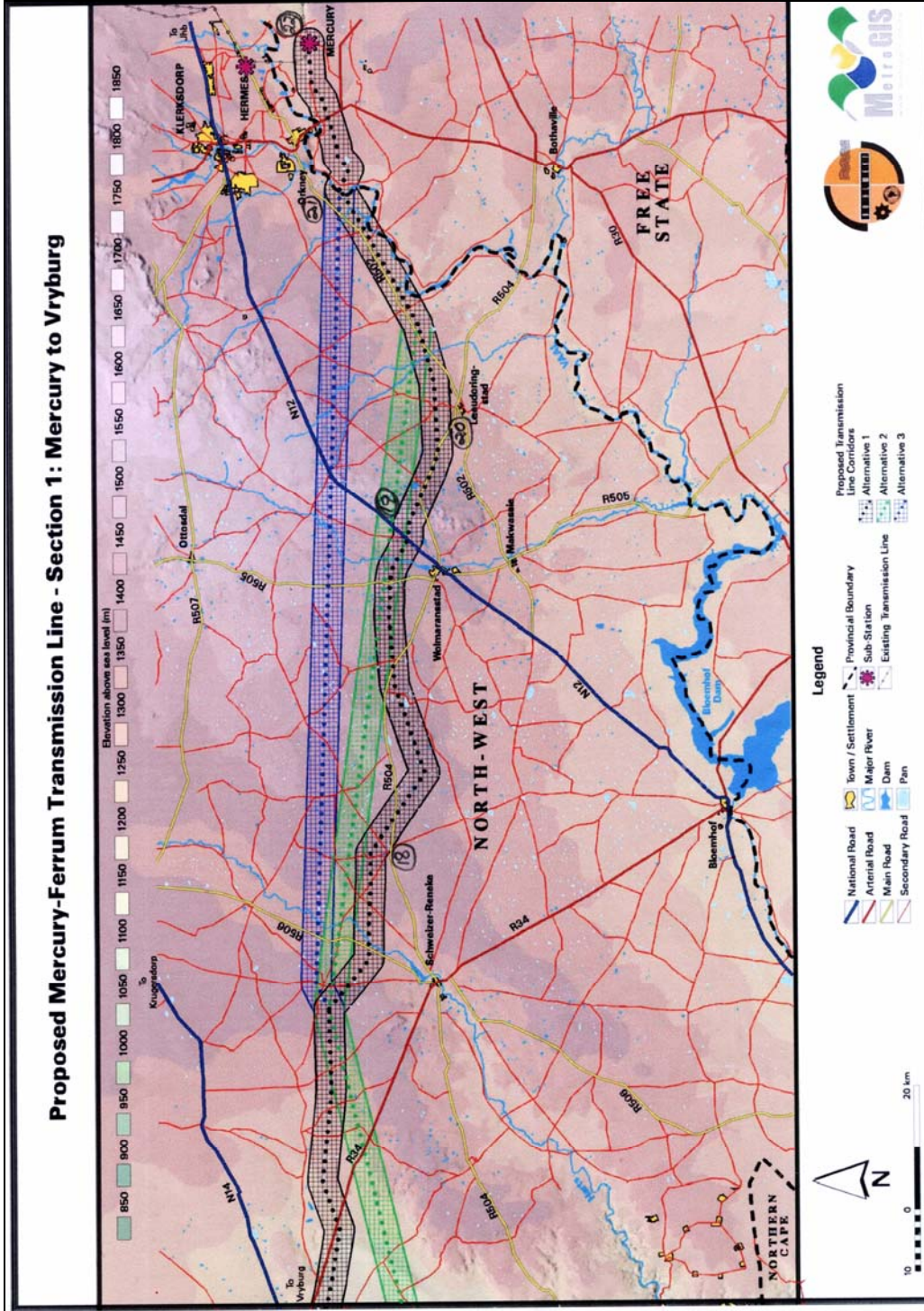
LIST OF ILLUSTRATIONS



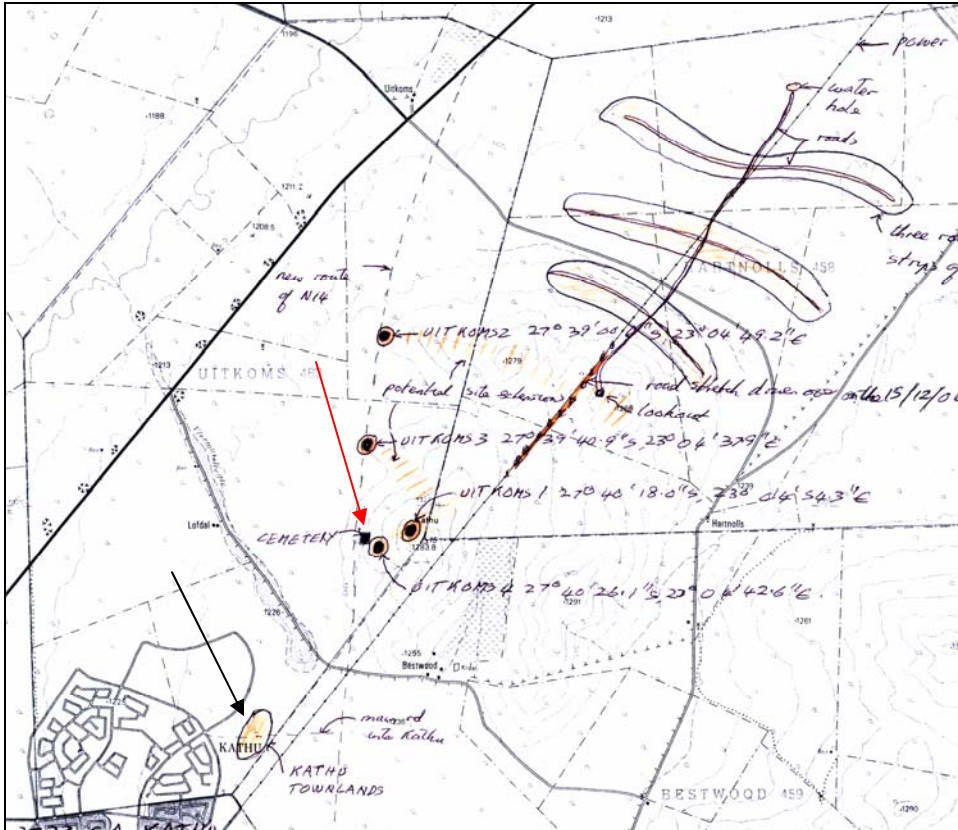
Map 1 Proposed route for the 400 kV transmission power line from the Garona Sub-Station near Groblershoop to Ferrum Sub-Station at Kathu.



Map 2 Proposed route for the 400 kV transmission power line from the Ferrum Sub-Station at Kathu to Vryburg.



Map 3 Proposed route for the 400 kV transmission power line from Vryburg to the Mercury Sub-Station between Orkney and Viljoenskroon.



Map 4 Locality of Kathu Town lands site (black arrow), the cemetery and Uitkoms 4 site (red arrow).



Fig.1 The environment at Garona Sub-Station near Groblershoop (Point 1, Map 1).



Fig.2 Point 2. The cutting for the railway line.



Fig.3 Point 4. General view at Pylon 373 (735km).



Fig.4 Point 7. Crossing the R385 road.



Fig.5 Point 8. Crossing the N14.



Fig.6 Point 10. The elbow in the power line



Fig.7 Point 12. Ferrum Sub-Station at Kathu (Map 1).



Fig.8 Point 2 (Map 2). Entrance to the Kathu Town lands archaeological site.



Fig.9 Point 3. Area opposite the entrance to the town of Kathu.



Fig.10 Point 4. Kathu cemetery.



Fig.11 Point 5. Early Stone Age (Late Acheulian) site known as Uitkoms 4 at Kathu cemetery.



Fig.12 Late Acheulian hand axes found at the Uitkoms 4 site near the Kathu cemetery. December 2006. Match box=5cm long.



Fig.13 Late Acheulian hand axes from the site near Kathu cemetery. Pocket knife = 10cm.



Fig.14 Existing power line at Hartnolls 458, Kgalagadi District.



Fig.15 Point 7. Power line crossing the N14.



Fig.16 Point 8. The cutting at Red Sands on the N14.



Fig.17 Point 9A. Kagung on the N14 between Kuruman and Vryburg.



Fig.18 Point 14. Power line to cross the R371 road to Lykso.



Fig.19 Point 15. Dry Harts River on the N18 (R49).



Fig.20 Point 18. R504/Welverdiend.



Fig.21 Point 19. Power line crossing N12.



Fig.22 Point 22. Mercury Sub-Station between Orkney and Viljoenskroon.



Fig.23 Stone flakes from Garona (Bokpoort) made out of chalcedony, banded ironstone and meta-quartzite. Pocket knife = 85mm.



Fig.24 Some of the ESA tools discovered at Uitkoms during the initial inspection in June 2006. Pocket knife=10cm.



Fig.25 Lithic material and flakes on the slope above the hand axe site (Uitkoms 4).



Fig.26 Hand axes found during the second site visit on 2 November 2006. Pocket knife=10cm.



Fig.27 More stone artefacts found during November 2006. Pocket knife=10cm.



Fig.28 It is anticipated that the extensive removal of the sand at the foot of the slope is exposing the stone tools.