



COBUS DREYER

Pr. Archaeologist/Heritage Resource Specialist

**P.O. Box 12910
BRANDHOF 9324
Bloemfontein
dreyerj@telkomsa.net**

**Tel: 051-444 1187
Fax: 051-444 4395
Cell: 083 357 7982**

5 FEBRUARY 2007 First EIA Investigation.

10 JUNE 2013 Upgrade of the report.

FIRST PHASE ARCHAEOLOGICAL & HERITAGE ASSESSMENT OF THE PROPOSED GARONA – MERCURY TRANSMISSION 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. Passing through a slightly changing vegetation cover, it will eventually extend over more than 600km through the Northern Cape, North-West Province and the Free State.

The total distance was investigated 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 further along the way. According to the Environmental Consultants, the Ferrum – Garona power line will not affect any of the sites, features or objects of cultural heritage significance identified in the study area. The Kathu Townlands, Kathu pan, Hartnolls 458 and Uitkoms 463 archaeological sites are outside the 4km corridor that is being assessed for this Basic Assessment Report. Mitigation measures and methodology is provided in the EMP if unidentified heritage resources are found during construction phase.

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

No other cultural or historical remains or graves were found in the proposed area of development.

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.

INTRODUCTION & DESCRIPTION

Scope and Limitations

Eskom commissioned the archaeological and heritage assessment for the proposed new 400KV transmission line between Garona Sub-Station near Groblershoop to Ferrum Sub-Station at Kathu and to the Mercury Sub-Station near Orkney (Maps 1-3). The first EIA investigation had been done on behalf of Bohlweki Environmental Consultants, Johannesburg.

The investigation provided the opportunity to examine the two selected corridors 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 always fully accessible, could have limited the investigation and the recording of the finds.

Methodology

1. Standard archaeological survey and recording methods were applied.
2. A survey of the literature was done to obtain information about the archaeology and cultural heritage of the area.
3. The site was inspected on foot and by vehicle at intervals where accessible.
4. The layout of the route as well as objects and features were plotted by GPS.
5. The main characteristics of surroundings and features were recorded on camera.

The criteria used in the specific ranking of the sites, is based on the mere presence or absence of archaeological 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 care.

INVESTIGATION

Two potential corridors were proposed for the installation of the 400KV transmission line from the Garona Sub-Station near Groblershoop to the Ferrum Sub-Station at Kathu (Map 9), from Kathu to Vryburg (Map 10) and to the Mercury Sub-Station near Orkney (Map 11). 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 of the route was examined at regular intervals and investigated for the occurrence of archaeological, historical and other cultural material.

The route visit took place on 18 & 19 January 2007 in the company of Dr. Johan du Preez from MDA Environmental Consultants, Bloemfontein. Specific points were investigated on foot and observations were plotted and recorded on camera. Officials from Bohlweki Environmental Consultants, Johannesburg, provided directions for the proposed power line route.

The route 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).

The study aims to locate and evaluate the significance of cultural heritage sites, archaeological material, manmade structures older than 60 years, and sites associated with oral histories and graves that might be affected by the proposed developments. In many cases, planted and self-sown trees and other types of vegetation determine a major part of the historical landscape of human settlements in villages and towns, on farmyards or even deserted places in the open veld. These features should be recognised and taken into consideration during any cultural investigation.

Anglo-Boer War (1900-1902) camping and skirmish sites in the Free State, the Northern Cape and North West Province, should be recorded. Distinctive food cans and specific types of fired cartridge cases normally identify these sites. Conflict sites between early White farmers and Bushmen in the Northern Cape and North West Province could contain gunflints and fired cartridge cases and should likewise be noted. From a previous archaeological and heritage assessment, it is known that ash heaps with remains of Anglo-Boer War material occur on strategic places (cf. Dreyer 2007c Pampoenpan, Douglas).

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The archaeological environment of the Free State, Northern Cape and North West Province is rich and diverse, representing a long time span of the human occupation. The area is exceptionally rich in terms of Stone Age material and rock art sites. Some areas are richer than others and not all the sites are equally significant (Beaumont et al. 1995, Beaumont & Morris 1990). For various reasons, there is a relative lack in research records. Certain known sites such as the one at Wonderwerk Cave in the Kuruman Hills, several ancient specularite mines near Postmasburg and a number of significant Stone Age sites and the Kathu Archaeological Complex, made substantial contributions to our knowledge (Beaumont 1990, 2007). According to the technology these artefacts fit in with the later part of the Early Stone Age (Acheulean) (2 million to 150 000 years ago). Beaumont declared that these artefacts resemble the material found in controlled excavations at Wonderwerk Cave, which dated to 500 000 years BP.

Khoi stock farmers moved into this area between AD 400 and AD 1100. Black farming communities followed into the Northern Cape. This phase known as the Later Iron Age (AD 1300 to about 1840 AD), brought people who cultivated crops, kept livestock, produced an abundance of pottery in a variety of shapes and sizes and smelted metals. Extensive stone walled enclosures characterised their semi-permanent settlements. These remnants are known from the prominent Sotho/Tswana settlements at Dithakong, a Bathlaping capital near Kuruman. A number of Korana and Griqua groups, remnants of the Later Stone Age peoples, managed to survive the assimilation by Sotho/Tswana tribes in the region.

Dramatic climate changes resulted in a rapid population growth along the east coast. Increased pressure on natural resources and attempts to control trade during the early 19th century brought the emergence of powerful leaders in the area. The subsequent power struggle resulted in a period of instability in the central parts of Southern Africa. This period of strife or wars of devastation, known as the “difaqane” (Sotho/Tswana) or “Mfecane” (Nguni), affected many of the Black tribes in the interior. Attacks from east of the escarpment initiated by the AmaZulu impis of Chaka in about 1822, were carried on by the AmaNdebele of Mzilikazi and the AmaNgwane of Matiwane into the Free State, thus uprooting among others, the Batlokwa of Sekonyela and Mantatise and various smaller Sotho/Tswana tribes. On their turn, the Batlokwa drove off the Bafokeng of Sebetoane from Kurutlele near Senekal, who, in their effort to escape the pursuit by the AmaNdebele forces, eventually landed up in the Caprivi (Dreyer & Kilby 2003).

This period of unrest also affected the peoples of the Northern Cape, resulting in the displacement of scores of tribesmen, women and children. The stronger tribal groups, such as the AmaNdebele of Mzilikazi, assimilated many of these refugees.

Early European missionaries and travellers ventured into the inland of the country during the 19th century and reached Dithakong as early as 1801. Several of the marauding hordes affected the lives of the Batswana people living at Dithakong near the mission station of Robert and Mary Moffat near Kuruman.

TABLE WARE

The middens on the different farms in the Karoo and the Northern Cape represent a long time span of European settlement. The surface cover contains fragments of glass, porcelain, stoneware and ash from kitchen fires, bottles, lids and metal from various household objects.

Interesting fragments of Sponge Ware crockery are also found on the ash heaps. Some of these domestic vessels could possibly date back to the 18th century (Trehaven 1996).

This kind of tableware originated from Staffordshire, in the United Kingdom, where separate designs used to be designated to the different British Colonies. A specific line was directed for the Americas, another for shipment to South Africa and yet another line to be forwarded to Australia. The porcelain had been considered as affordable and was very popular amongst the colonists, where it was considered to be for everyday household use. Hence the common name of Voortrekker crockery or “Boerenbont” (bont = multi-coloured). Because of the fact that it was handmade, it could be bought at affordable prizes. The same kind of sponge-decorated tableware is still available from Staffordshire at present, but because of the fact that it is hand-made, it is very expensive to buy (Trehaven 1996).

LOCALITY

The 400KV transmission power line is planned from the Garona Sub-Station near Groblershoop to the Ferrum Sub-Station at Kathu (Map 1), and further on to Vryburg (Map 2) and to the Mercury Sub-Station near Orkney (Map 3). 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 power line route will pass through changing vegetation, mainly represented by Eragrostis grassland, with a Thorn Veld cover consisting of Swarthaak (*Acacia mellifera*), Blinkblaar-wag-‘n-Bietjie (Buffalo-thorn, *Ziziphus mucronata*) and Driedoring (*Rhigozum trichotomum*), with scatters of Witgat (*Boscia albitunca*) trees. Significant stands of Sand Geelhout trees (Vaalbos) (*Terminalia sericia*) are found in association with Kameeldoring trees (*Acacia erioloba*), at Kathu,

Kathu cemetery and the adjacent farm Hartnolls 458 (Map 6). The soil consists of sterile red sand on the surface.

The Eskom Garona Sub-Station is situated on a 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 following GPS coordinates (Cape scale) were taken (Maps 9-11).

1 Garona Substation	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°46'48"S 022°15'15"E Altitude 1054m (Fig.3).
5 Pylon 340	28°28'10"S 022°20'22"E Altitude 1100m.
6 Witsan Rd/Powerline	28°07'20"S 022°40'50"E Altitude 1236m.
7 Pylon 162xR385	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 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 Substation	27°43'35"S 023°03'27"E Altitude 1217m (Fig.7).
2 Kathu Townlands	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 Uikoms 4 ESA site	27°40'18"S 023°04'51"E Altitude 1261m (Fig.11).
6 Hartnolls Res 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.

17 R504 Zitland 27°08'32"S 025°27'53"E Altitude 1353m.

Khanghouding Village

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

Kareepan/Wolmaransstad R504

19 N12 27°11'25"S 025°59'51"E Altitude 1360m (Fig.21).

20 R504 27°10'22"S 026°06'28"E Altitude 1400m.

Witpoort/Rulaqanyang Village/Township

21 Orkney R502/Wildebeeskantoor

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

Harrisburg/Regina/Ysterspruit

R30 Orkney/Bothaville

Viljoenskroon R76

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

RESULTS

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 have convergent flaking, characteristic of the Middle Stone Age industry.

The material used to manufacture the flakes was meta-quartzite and chalcedony from the local lithic sources and a number of lydianite cores occurred (Dreyer 2006, 2012).

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 and at Uitkoms 463 produced stone tools in abundance (cf. Beaumont 1990, 2004).

At the farm Bestwood 459RD, directly opposite the N14 entrance to Kathu, archaeological material in the form of Early Stone Age hand axes of exceptional appearance and flakes occur on a bare and sterile sand layer inside an old sand quarry. The same material occurred at the relatively new sand mine nearby.

Although it was not part of the cultural heritage investigation at the time, the new borrow pit (BP2) had already been in existence during the previous investigation (Dreyer 2008). At the new borrow pit (BP2) stone tools occur on a similar level below the surface (Figs.12&13) as found at BP1 (Dreyer 2006, 2008) and the Kathu Cemetery Site (Beaumont 2007).

The lithic material is made of banded ironstone and the tools and flakes are similar to the hand axes discovered during earlier surveys near the Kathu cemetery adjacent to the farm Hartnolls (Beaumont 2007, Dreyer 2006, 2007).

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).

The town of Kathu and the farm Hartnolls fall within the official *Acacia erioloba* bush where developments are restricted not to disturb the natural distribution of these trees (Map 4). An alarming decline in the normal coverage of the trees was reported during the last number of years.

UITKOMS 4 (KATHU CEMETERY)

Archaeological investigations by Peter 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 typologically uniform. The site at Uitkoms 463 covers less than 1km² and the excavations produced about 8000 artefacts per m². From these finds, 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 Early Stone Age flakes and hand axes of exceptional beauty, made out of Banded Iron Stone, were found scattered on the surface. The artefacts are well preserved and without any patination or erosion (Figs.12&13). More artefacts were collected during a second visit to the site in November 2006 and during a third visit, with Peter Beaumont from Kimberley in December 2006.

The Dreyer site is located east of the cemetery and is designated as Uitkoms 4 by Beaumont (2007) (27°40'18"S. 023°04'51"E Altitude 1261m) (Fig.11). 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. 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. From previous scientific investigations, historians are aware that archaeological material, occur in the red sand deposits near Kathu. Assemblages of hand axes and pointed flakes were collected in the sterile sand deposits where the tendency seems to be that a layer of stones and hand axes lies about two meters below the surface. The distribution of these artefacts seems to be fairly general and widespread and the impact on the cultural heritage of the proposed development site at the industrial area should be approached with caution

Peter Beaumont from the 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 about 12km 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 (Fig.14). 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 likewise be found on the ridge at Hartnolls and should be investigated (Beaumont 2007).

TRADITIONAL SETTLEMENTS

During the investigation, 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 1 377m) (Fig.17).

Matlabanelong

Tzaneen Settlement

Lykso

Tierkloof Settlement

Khanghuoding Village

Witpoort/Rulaqanang Village/Township

Harrisburg / Regina Silo

IMPACT ASSESSMENT

Stone tools did not occur as a general distribution and the lithic assemblages seem to be concentrated 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 Kathu Archaeological Complex 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.

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 at Hartnolls 458 in the area to be affected by the power transmission line.

I recommend that any new finds of Stone Age artefacts should be clarified with officials from the McGregor Museum, Kimberley. The South African Heritage Resources Agency (SAHRA) in Cape Town should be informed about any Stone Age finds. Officials from Heritage Northern Cape should also be involved and if needed, be taken out to the site. Shane Christians can be contacted in Kimberley at 053-807 4901 or by email schristians@ncpg.gov.za.

RECOMMENDATIONS

Table 1: Preference Ratings for the proposed power line routes:

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 and viable route should be selected, and that the planning and the development of the installation may proceed.

ACKNOWLEDGEMENTS

I thank Dr Johan du Preez for taking me on the route. I owe gratitude to Dr Johan Loock from the Geology Department, University of the Free State, Bloemfontein, for identifying the stone tool material.

I gained from previous archaeological investigations in the Kathu and Garona regions. I thank Peter Beaumont for his interest and contributions during previous investigations at Kathu.

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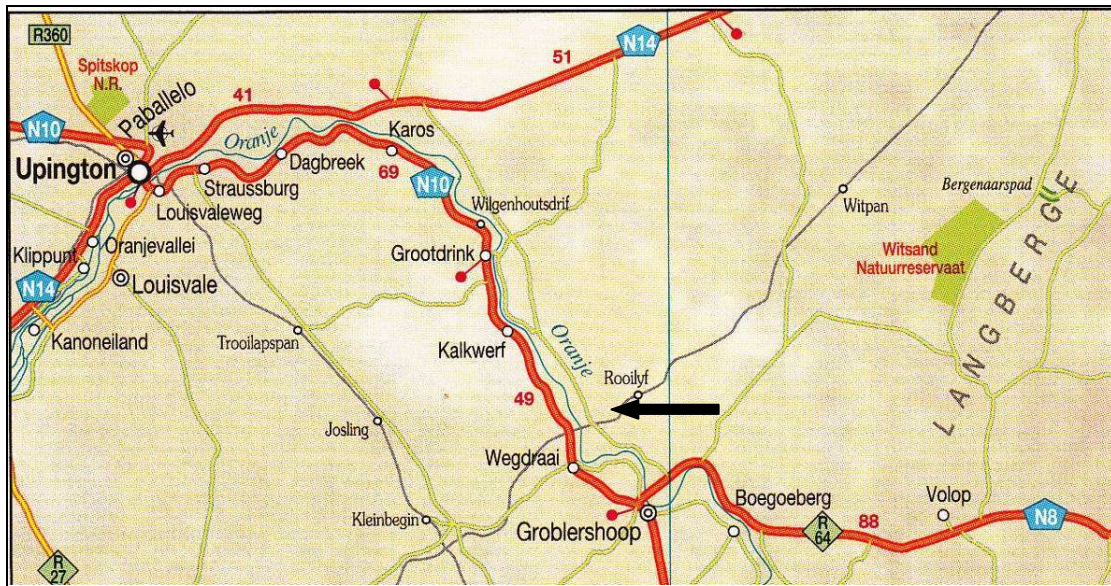
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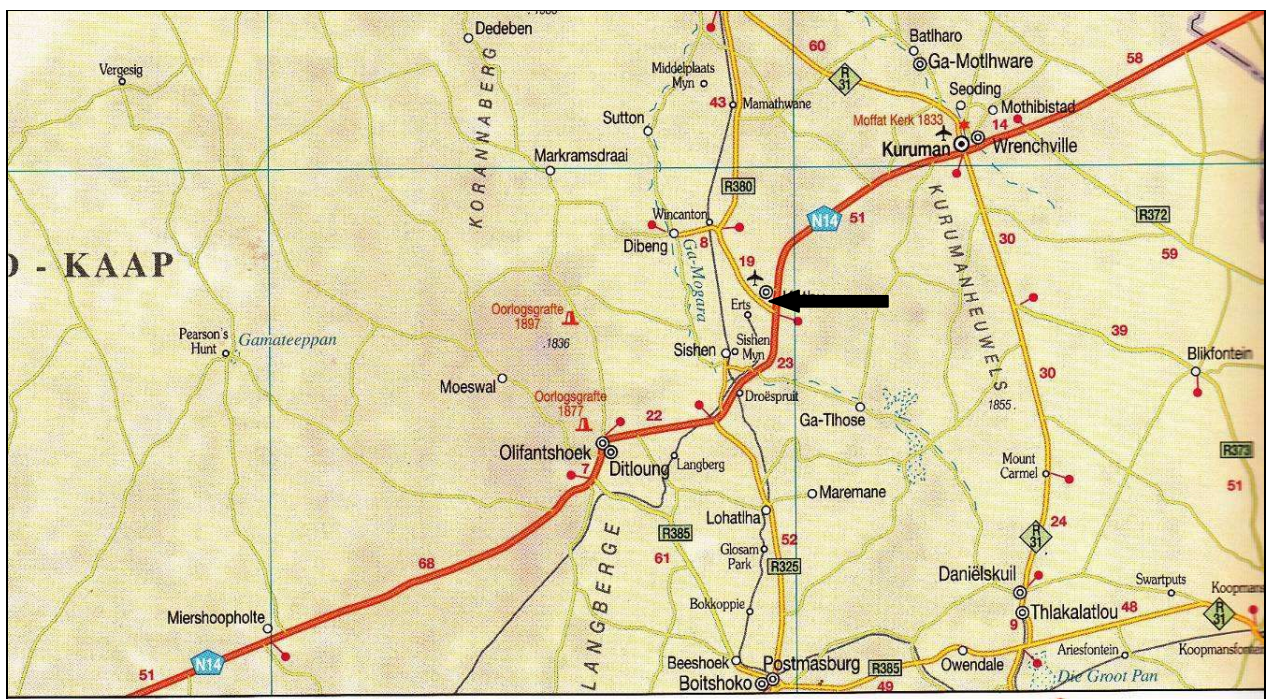
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LIST OF ILLUSTRATIONS



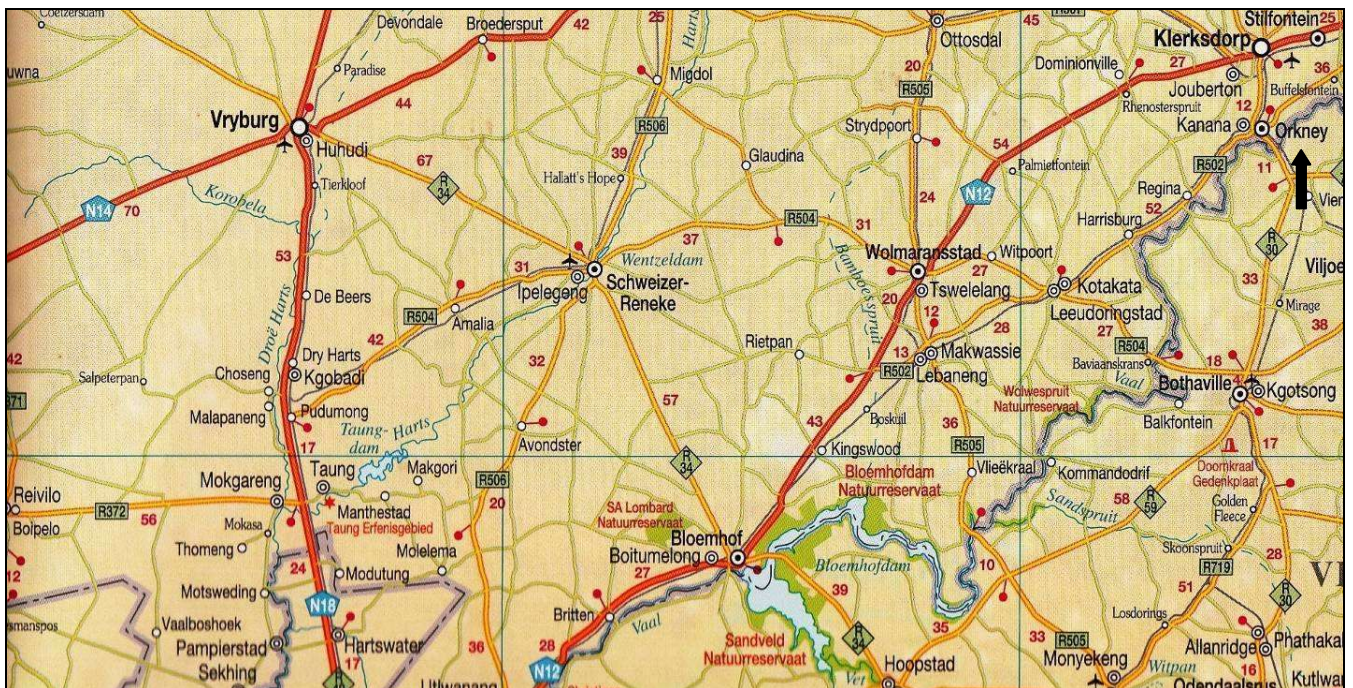
Map 1 Garona Sub-Station near Groblershoop along the Sishen-Saldanha railway line.



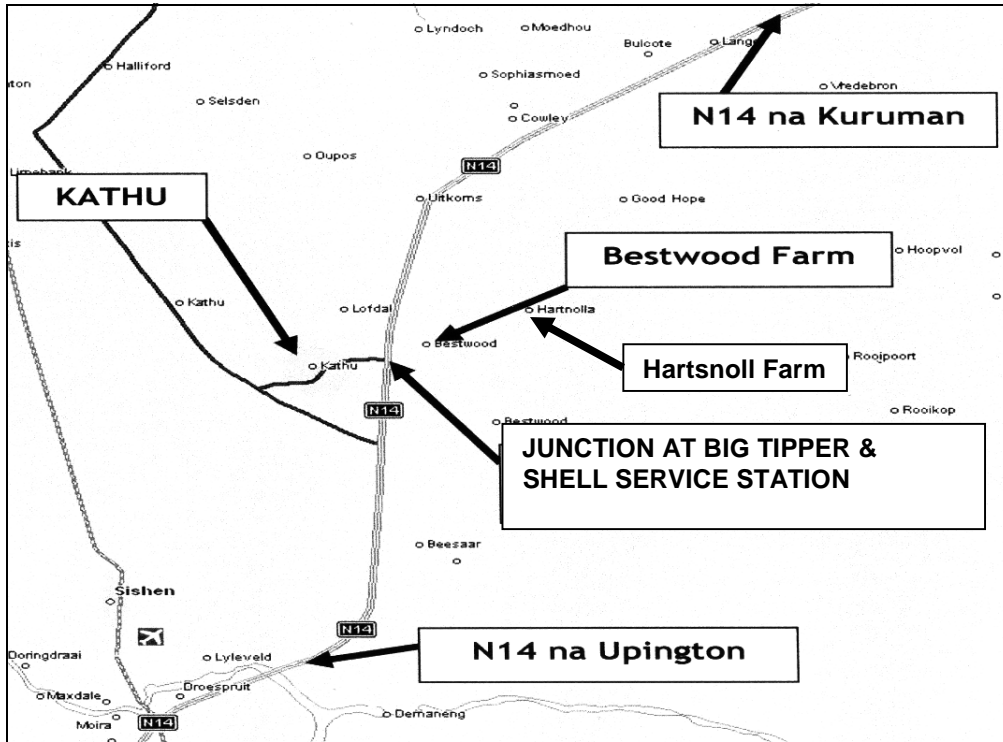
Map 2 N14 main road from Upington to Kathu. Ferrum Sub-station indicated outside Kathu.



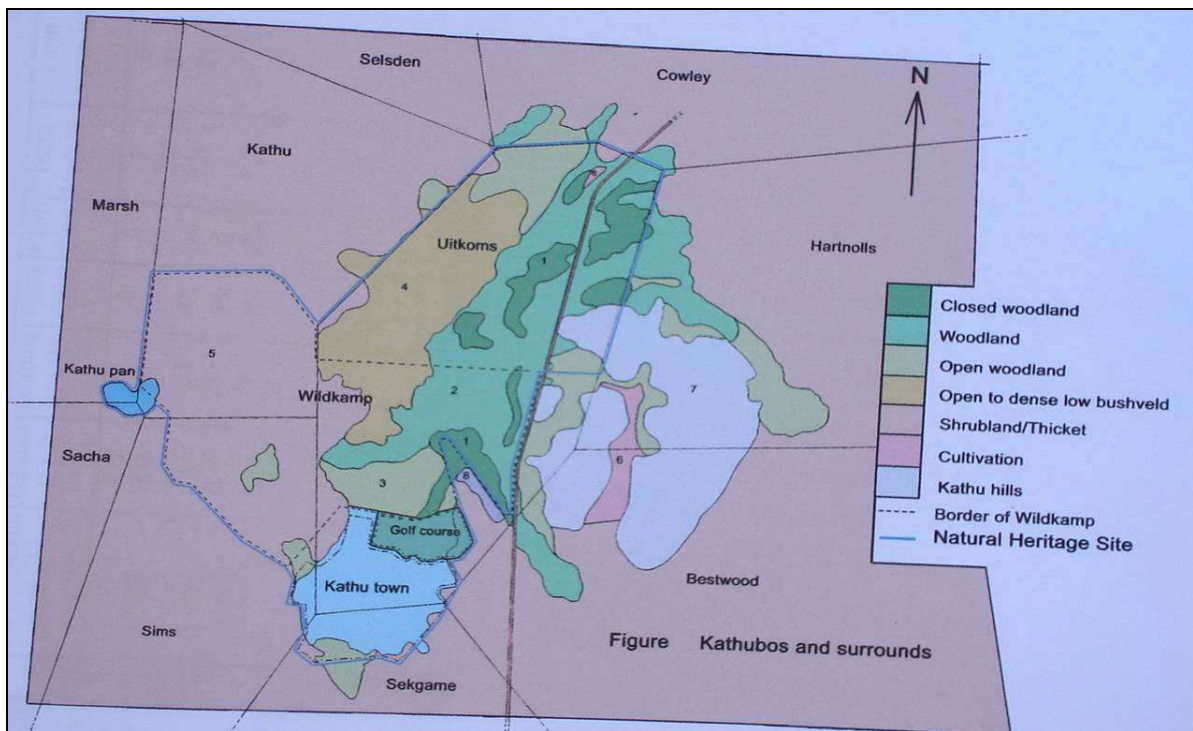
Map 3 N14 from Kuruman to Vryburg past Lykso.



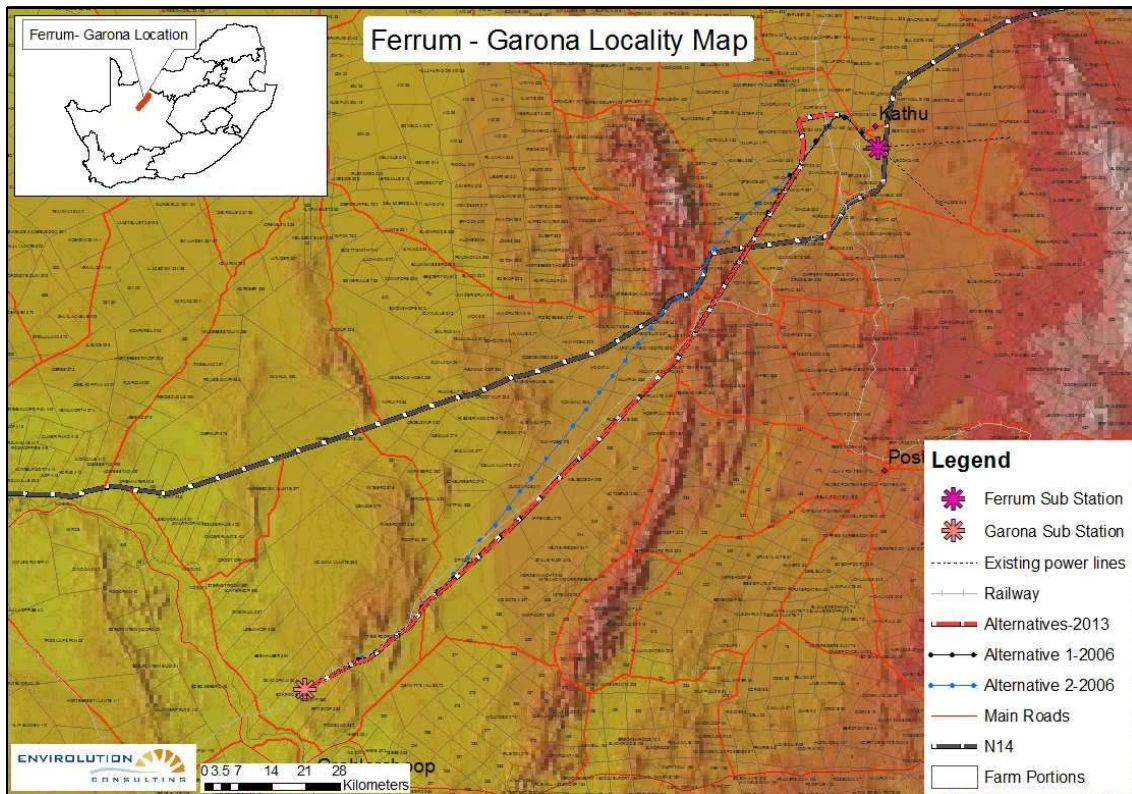
Map 4 Power line route from the N14 crossing the N12 below Wolmaransstad to Harrisburg, Regina to the Mercury Sub-station near Orkney.



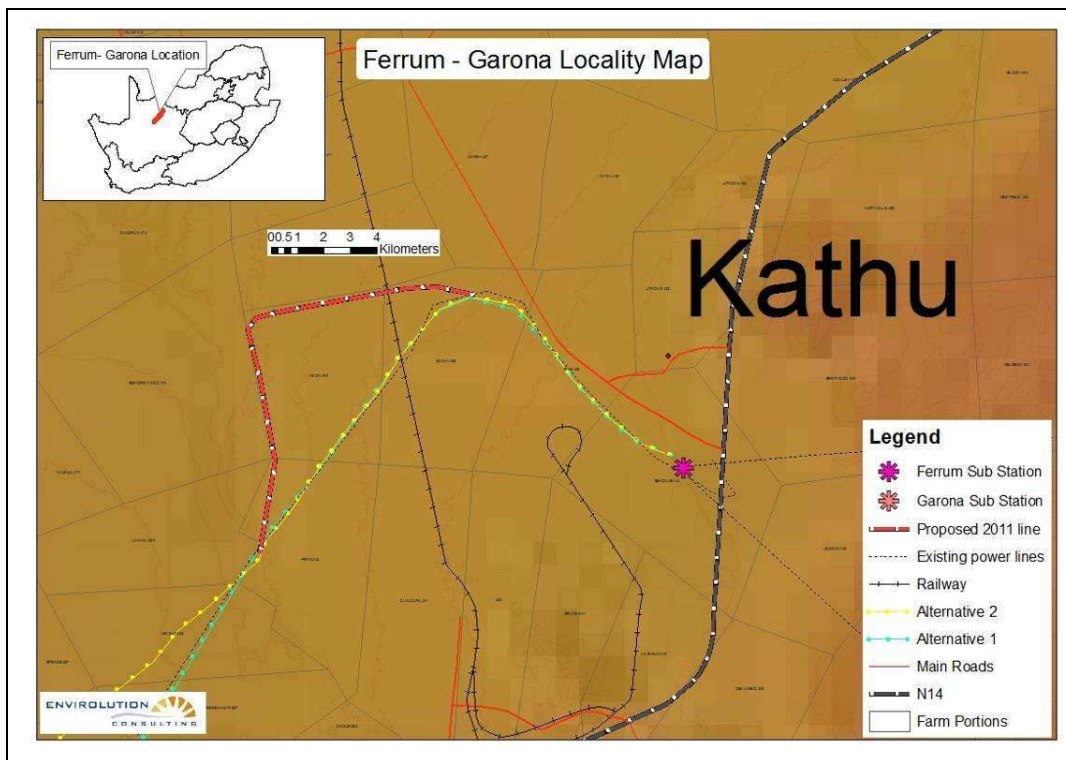
Map 5 Locality of Later Stone Age sites near Kathu in relation to the N14.



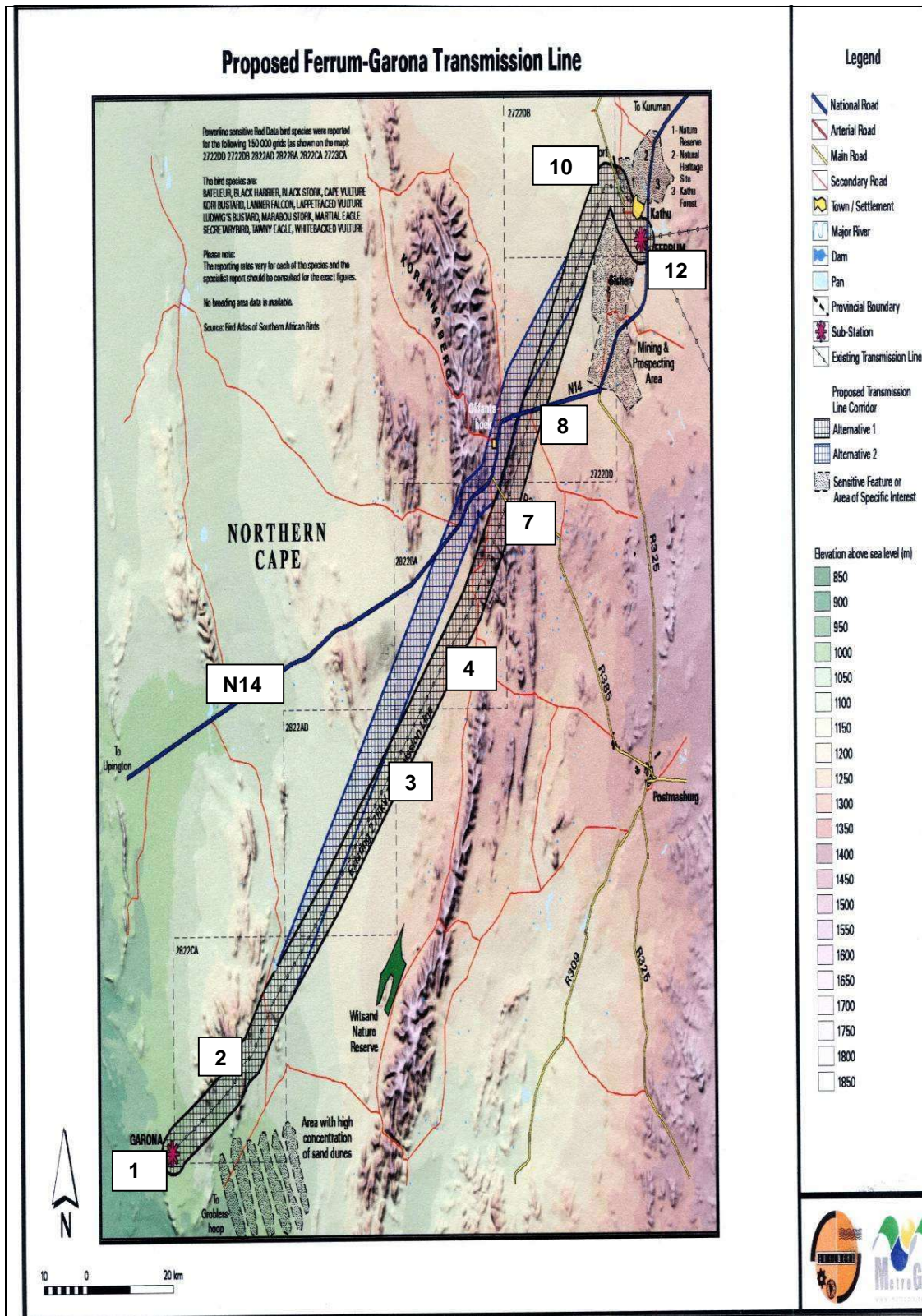
Map 6 Official map showing locality of Erioloba Forrest around Kathu.



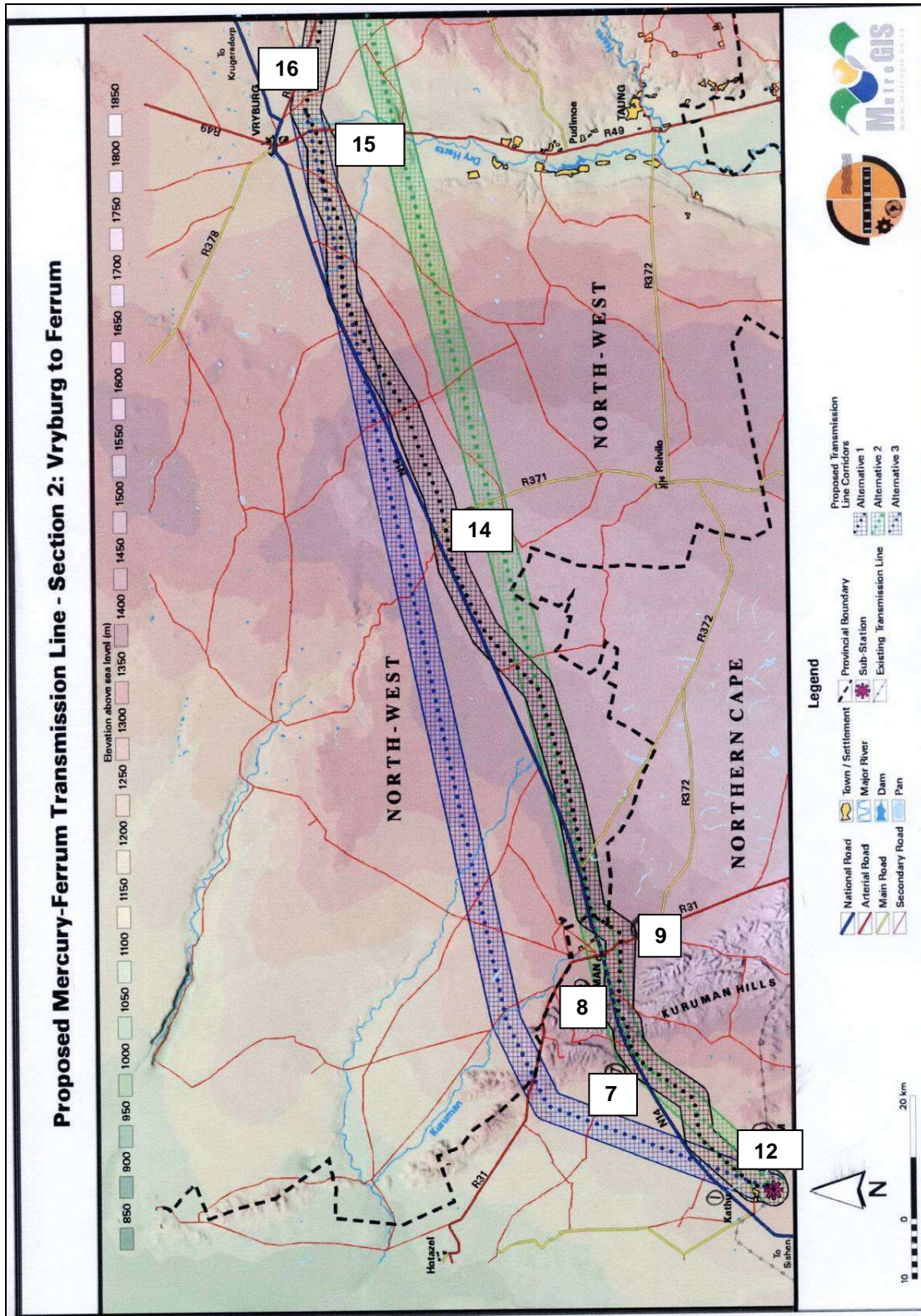
Map 7 Proposed power line routes between Garona and Ferrum Sub-Stations.



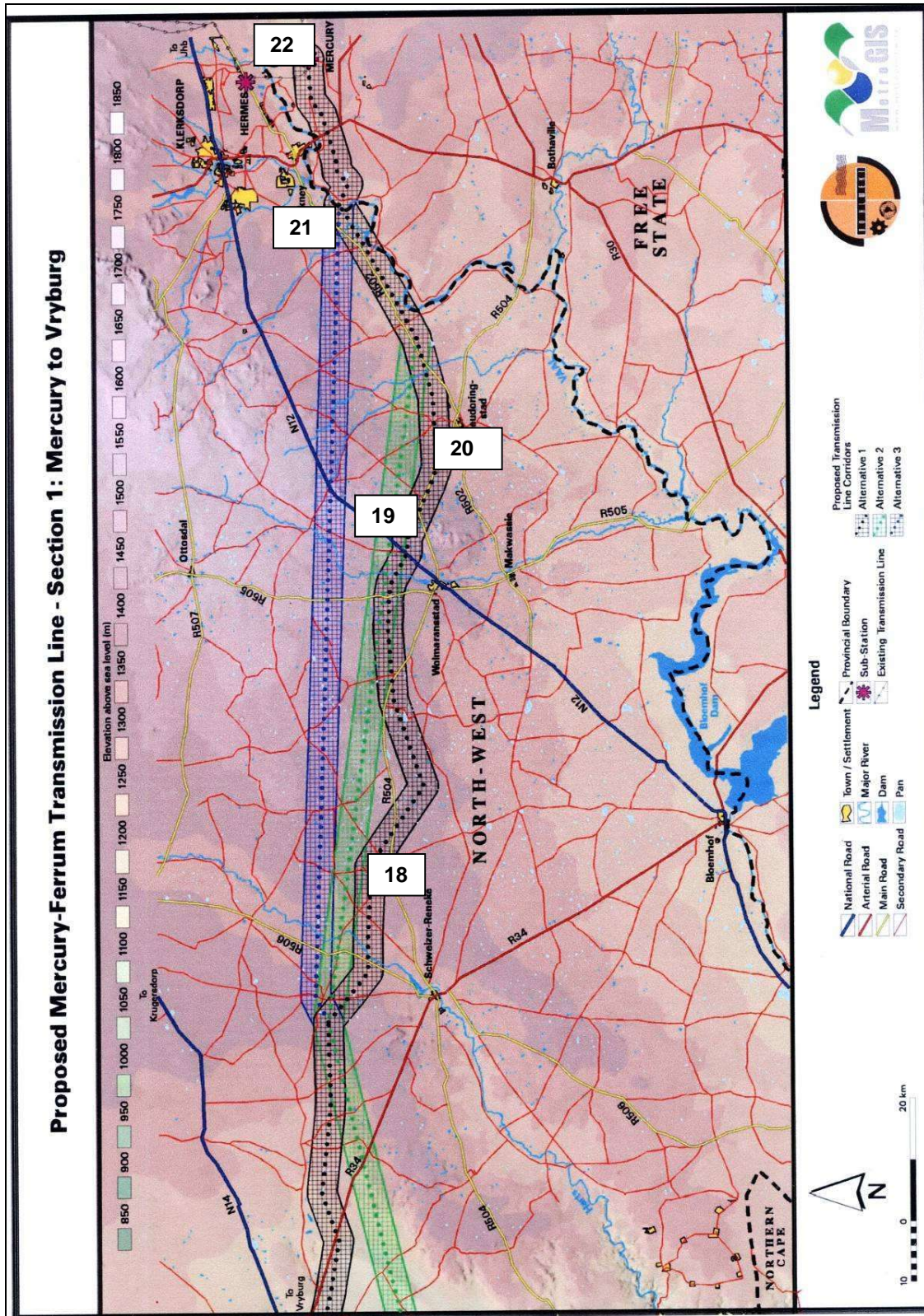
Map 8 Alternative power line routes approaching the Ferrum Sub-Station at Kathu.



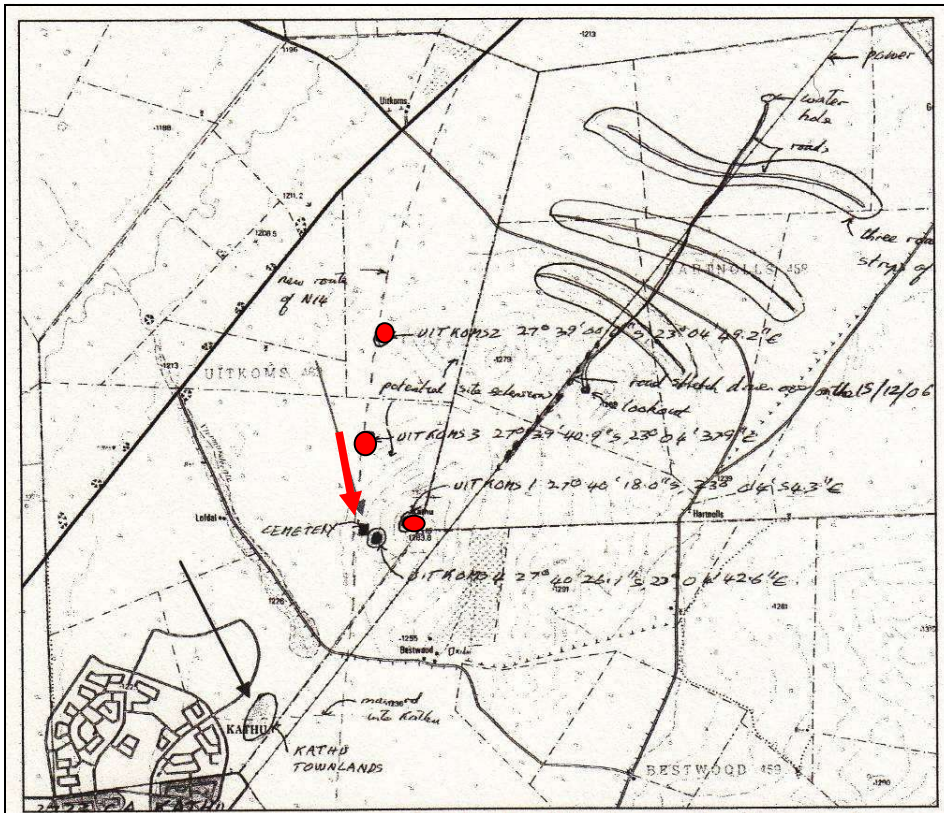
Map 9 Route corridor between Garona Sub-Station and Ferrum near Kathu. Coordinate points indicated.



Map 10 Route corridor between Ferrum Sub-Station near Kathu to Vryburg. Coordinate points indicated.



Map 11 Route corridor from Vryburg to Mercury Sub-Station near Orkney. Coordinate points indicated.



Map 12 Locality of Later Stone Age sites near Kathu. Kathu Town lands (black arrow), Kathu cemetery (red arrow) & Uitkoms sites (red dots) (Courtesy Peter Beaumont).



Fig.1 Garona Sub-Station near Groblershoop (Point 1 Map 9).



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



Fig.3 Point 4. Pylon 373 (735km).



Fig.4 Point 7. Crossing the R385 road.



Fig.5 Point 8. Crossing the N14.



Fig.6 Point 10. K3 at Kathu.



Fig.7 Point 12. Ferrum Sub-Station at Kathu.



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



Fig.9 Point 3. Bestwood opposite the entrance to Kathu.



Fig.10 Point 4. Kathu cemetery.



Fig.11 Point 5. Early Stone Age (Late Acheulian) site Uitkoms 4 near Kathu.



Fig.12 Late Acheulian hand axes from Uikoms 4 near Kathu cemetery (Pocket knife = 84cm).



Fig.13 ESA flakes & tools from BP1 at Bestwood (Pocket knife = 84mm) (2008).



Fig.14 Point 6: Existing power line at Hartnolls 458, Kgalagadi district (2006).



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



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



Fig.17 Point 9A. Kagung on the N14 between Karuman 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.17 Stone flakes from Bokpoort made out of chalcedony, banded ironstone and meta-quartzite. (Pocketknife = 84mm).