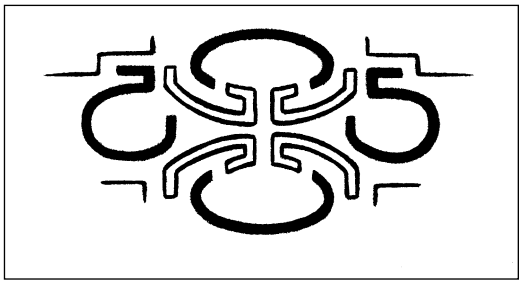
Cultural Heritage Site Sensitivity Verification:
Proposed ABO Nyala Solar Energy Facility 3 and associated infrastructure near Northam in the Thabazimbi Local Municipality, Waterberg District Municipality, Limpopo Province

For

Project Applicant	**Environmental Consultant**
ABO Wind Renewable Energies (Pty) Ltd	Praxos 373 (Pty) Ltd



By
Francois P Coetzee
Heritage Consultant
ASAPA Professional Member No: 028
99 Van Deventer Road, Pierre van Ryneveld,
Centurion, 0157
Tel: (012) 429 6297
Fax: (012) 429 6091
Cell: 0827077338
coetzfp@unisa.ac.za

Date:	**June 2023**
Version:	**1 (Final Report)**

Executive Summary

This site sensitivity verification report was conducted in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act* (Act No. 25 of 1999) (NHRA) and focuses predictive results as requested by Praxos 373 (Pty) Ltd. The project entails the proposed development and establishment of Solar PV Facilities along with associated infrastructure near Northam, situated in the Waterberg District Municipality, Thabazimbi Local Municipality, Limpopo Province.

The Applicant proposes the development of three solar facilities within the larger assessed study area as follows:

- Nyala 1, a photovoltaic (PV) solar energy generation facility, of up to 65 MWac in capacity, and associated infrastructure on Portion 2 of the farm Gouvernements Plaats No. 417, situated 3.8 km north-east of Northam;
- Nyala 2, a photovoltaic (PV) solar energy generation facility, of up to 120MWac in capacity, and associated infrastructure on the Remaining Extent of the farm De Deur No. 419 and Portion 2 of the farm De Deur No. 419, situated 4.2 km north-east of Northam; and
- Nyala 3, a photovoltaic (PV) solar energy generation facility, of up to 55MWac in capacity, and associated infrastructure on the Remaining Extent of the farm Leeuwkopje No. 415, situated 1.5 km north of Northam (which is the focus of this report).

Note: This report reports on the larger assessment area and specifically Nyala 3.

Conclusions of the site verification study

No historical or archaeological (both Stone Age and Iron Age) features, structures, assemblages or sites were recorded within Nyala 3. This finding aligns with the 'Low' sensitivity rating for the heritage and cultural theme prescribed by the National screening tool. However, please note, archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place **(*cf*. NHRA (Act No. 25 of 1999)**, Section 36 (6)).

To comply with Section 38 of the NHRA (Act No. 25 of 1999), it is therefore recommended that a Phase 1 Heritage Assessment be conducted to reflect this result, and that the report be submitted to SAHRA for comment and approval.

Definitions and abbreviations

Midden:	Refuse that accumulates in a concentrated heap.
Stone Age:	An archaeological term used to define a period of stone tool use and manufacture
Iron Age:	An archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture
LIA:	Late Iron Age sites are usually demarcated by stone-walled enclosures
NHRA:	National Heritage Resources Act (Act No. 25 of 1999)
SAHRA:	South African Heritage Resources Agency
SAHRIS:	South African Heritage Resources Information System
PHRA-G:	Provincial Heritage Resources Authority - Gauteng
GDARD:	Gauteng Department of Agriculture and Rural Development
HIA:	Heritage Impact Assessment
DMR:	Department of Mineral Resources
I&APs:	Interested and Affected Parties

I, Francois Coetzee, hereby confirm my independence as a cultural heritage specialist and declare that I do not have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of the listed environmental processes, other than fair remuneration for work performed on this project.

_____

Francois P Coetzee
Cultural Heritage Consultant
Accredited Archaeologist for the SADC Region
Professional Member of ASAPA (CRM Section) Reg no: 28

Contents

Figures

Tables

1. Introduction and Terms of Reference

Praxos 373 (Pty) Ltd an independent environmental consultant was appointed to undertake a Environmental Impact Assessment according to the National Environmental Management (Act No. 107 of 1998) for the proposed construction of three Photo Voltaic (PV) Farms and associated infrastructure. A desktop Cultural Heritage Assessment with a Site Sensitivity Verification was requested by Praxos 373 (Pty) Ltd to predict the potential impact of the proposed development activities on cultural heritage remains.

The Study/Survey Area is situated just north of the town of Northam in the Thabazimbi Local Municipality, Waterberg District Municipality, Limpopo Province. Two potential areas (Leeukopje and De Deur or Nyala West and Nyala East, respectively) were assessed for PV development along with two potential power line corridors between the solar PV facilities and existing substations. The Nyala Project cluster comprises of three proposed solar facilities, namely ABO Nyala Solar Energy Facility 1, 2 and 3, and associated infrastructure, including access roads.

Note: This report reports on the larger study/ survey area and specifically Nyala 3.

The Nyala 3 Solar Energy Facility would be up to 55 MWac in capacity and is located on the Remaining Extent of the Farm Leeuwkopje No. 415 and Portion 5 (Bralbin) of the Farm Leeuwkopje No. 415

2. Objectives

The cultural heritage sensitivity verification is to confirm the actual location and existence of sites on the ground versus that which has been identified by the National DFFE Screening Tool. The site sensitivity verification will confirm or refute the need to employ the various specialists as identified in the screening report. The screening tool report does not form part of the specialist report.
The site sensitivity verification must be undertaken through the use of:

- A desktop analysis, using satellite imagery;
- A preliminary site inspection; and
- Any other available and relevant information.

As such, the verification survey is to confirm any cultural heritage remains consisting of both tangible and intangible archaeological and historical artefacts, structures (including graves), settlements and oral traditions of cultural significance, occurring in the area of the proposed development.

3. Description of Physical Environment of Study Area

The report focussed on an area situated in and around the town of Northam which is situated south of Thabazimbi. The region has been extensively mined for iron ore during the last few decades.

Farm Name(s) and Portions	• De Deur 419 KQ • De Put 412 KQ • Elandsfontein 386 KQ • Goevernements Plaats 417 KQ

	• Kaalvlakte 416 KQ • Koedoesdoorns 414 KQ • Leeukoppie 415 KQ (the Nyala 3 site is located on this property) • Wildebeeslaagte 411 KQ
Size of Survey Area	Approximately 2200 ha
Magisterial District	Waterberg District Municipality Thabazimbi Local Municipality
1:50 000 Map Sheet	2427CC 2427CD
1:250 0000 Map Sheet	2426
Central Coordinates of the Development	24°55'49.22"S, 27°16'19.53"E

Table 1: Physical Environment

The central parts of the survey area falls within the Savanna Biome, particularly the Central Bushveld Bioregion and more specifically the Dwaalboom Thornveld (SVcb1). This veld type extends to the Limpopo and North West Provinces as well as the flats north of the Dwarsberge and associated ridges mainly west of the Crocodile River in the Dwaalboom area but including a patch around Sentrum. South of the ridges it extends eastwards from the Nietverdiend area, north of the Pilanesberg to the Northam area (Mucina & Rutherford 2006).

The survey footprint is characterised as a large open region with undulating hills. The region has mostly been used for agricultural farming with the town of Northam in the centre. Infrastructure consists of access roads, fences, residential areas and farming activities. Also note that iron ore and platinum mining is also taking place in the larger region.

The UNESCO Waterberg Biosphere Reserve region situated further to the north constitutes a core area (devoted to long term protection, according to the conservation objectives of the biosphere reserves), a buffer zone surrounding or contiguous to the core area (where only activities compatible with the conservation objectives can take place), and an outer transition area where sustainable resource management practices are promoted and developed. There are currently five core areas in the Waterberg Biosphere Reserve, of which only one, Marakele, is proclaimed a National Park. Apart from tourism and hunting, mixed farming practices such as cattle and game farming, are found on some of the buffer zone farms. Other activities within the buffer zone include a number of extensive environmental educational programmes currently conducted by the Wilderness Trust of Southern Africa. The Madelein Robinson Nature Reserve is also situated on the northern periphery of the survey footprint.

Northam has a short winter season that lasts from about May to July. The summer season lasts from August to April. Northam has a maximum temperature of 29.3°C with a minimum of 18°C. Throughout the year, in Northam, there are 118.3 rainfall days, during which 411 mm of precipitation is accumulated (SAExplorer 2022).

Current Zoning	Agricultural
Economic activities	Farming
Soil and basic geology	The Thabazimbi area is generally under lain by the sedimentary and chemical sedimentary rocks of the Transvaal Supergroup. Diabase dykes and sills locally intruded the sediments of the Transvaal Supergroup. The area was structurally deformed and this deformation is manifested by the presence of folding and gentle cross folding that led to the

	syntaxes of the ridges near Thabazimbi, major east-west oriented thrust faults, smaller scale reverse faults, northwest oriented shear faults and smaller folding. The Transvaal Supergroup in the area is sub-divided in the chemical sediments of the Chuniespoort Group and the sedimentary and volcanic rocks of the Pretoria Group. The Pretoria Group in the area is comprised of formations which consist of quartzite and/or shale with the exception of the volcanic Hekpoort Formation. The Rooihoogte Formation is normally found at the base, followed upwards by the Timeball Hill, Boshoek, Hekpoort, Dwaalheuwel, Strubenkop, Daspoort, Silverton, Magaliesberg and Rayton Formations. The geology in the municipality has some of the richest mineral deposits in the world. North of the Magaliesberg the geology is largely dominated by the Bushveld Igneous Complex. Formations in this complex are extremely rich in minerals and a number of mines have been developed in the area as a result. Platinum, chrome and vanadium mining in particular, are taking place at a large scale. The area mainly consists of sedimentary rock. Extensive mining activities occur mainly in a circular belt around the perimeter of the Bushveld Igneous Complex. These mines are mainly focused on the platina group of metals which are in great demand on the world market at the moment, as well as granite mining. Soil types of the Crocodile (West) Marico WMA are broadly classified as Moderate to deep sandy loam. Most of the clayey loam soils in particular are highly suitable for commercial agriculture.
Prior activities	Farming
Socio Economic Environment	The National Development Plan focus on infrastructure by providing basic services and transport. Improving quality of public services and reliability, ensuring that the poor and unemployed are located on well situated land. It is in that context whereby as Thabazimbi Local Municipality we come on board with our 96 232 people/population who are mostly poor and underprivileged whose lives are mostly vulnerable.
Evaluation of Impact	An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits NHRA (Act No. 25 of 1999, Section 38(3d)): **Positive**

Table 2: Socio-economic environment for the larger area

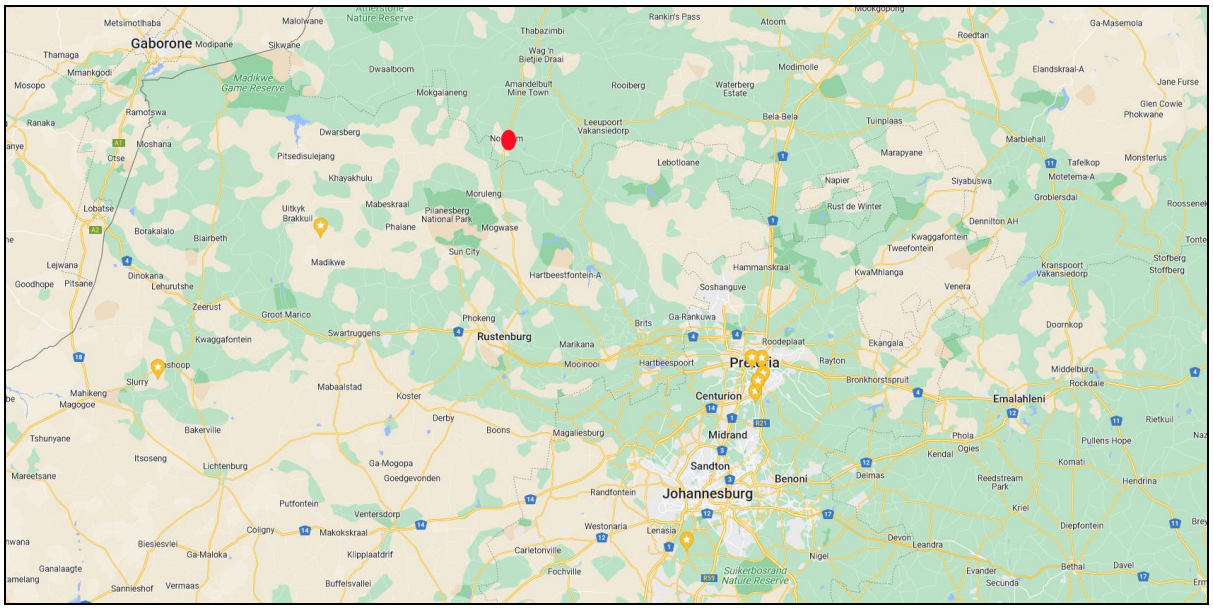


Figure 1: Regional map of the survey area (situated north of Rustenburg) (indicated by the red area)

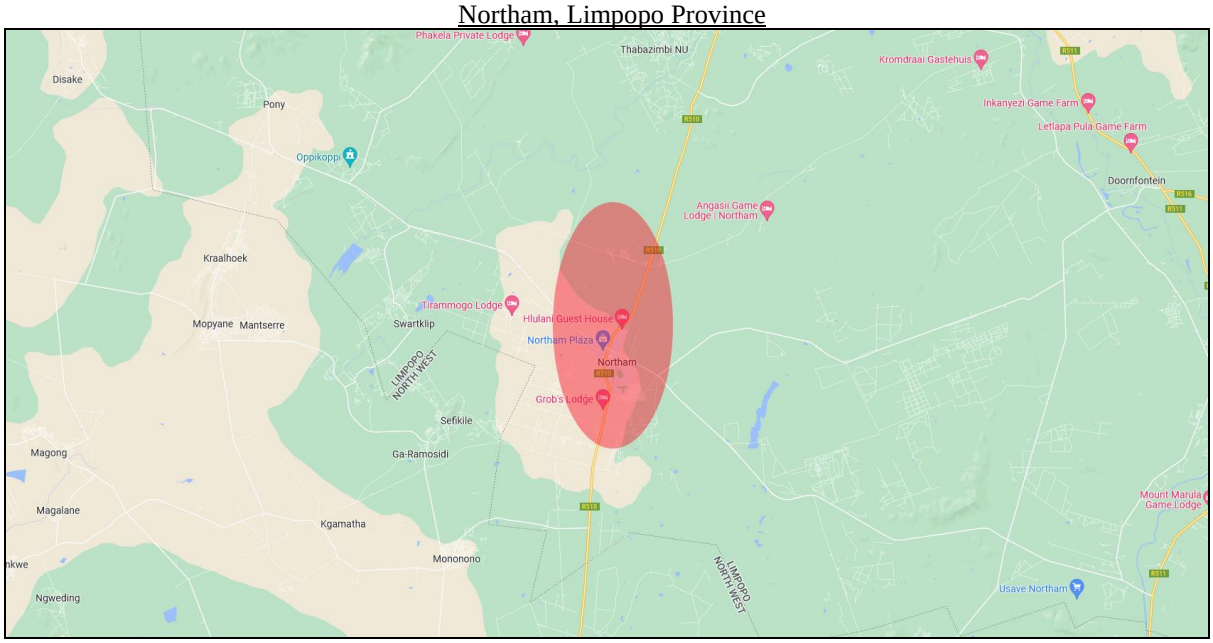


Figure 2: Regional context of the survey footprint situated in and around Northam

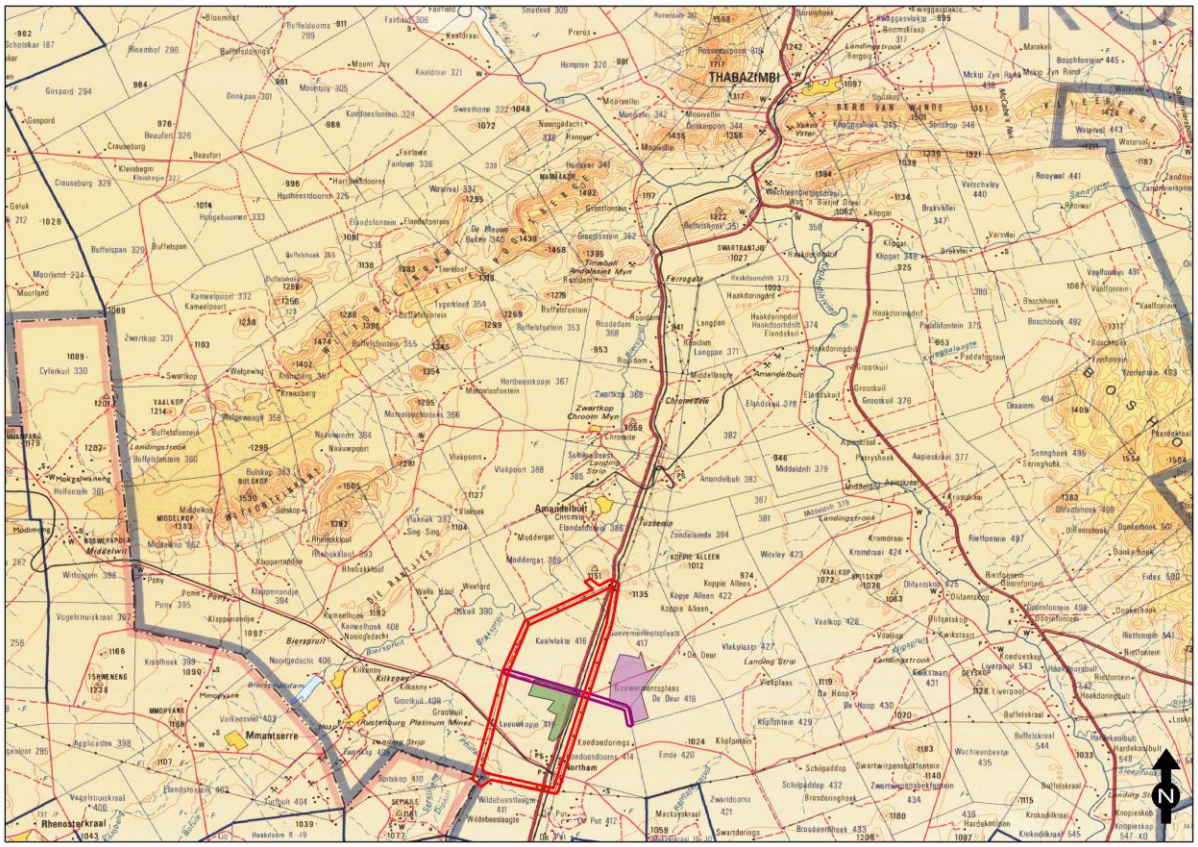


Figure 3: Local context of the survey footprint (1:250 000 Topographical Map 2426)

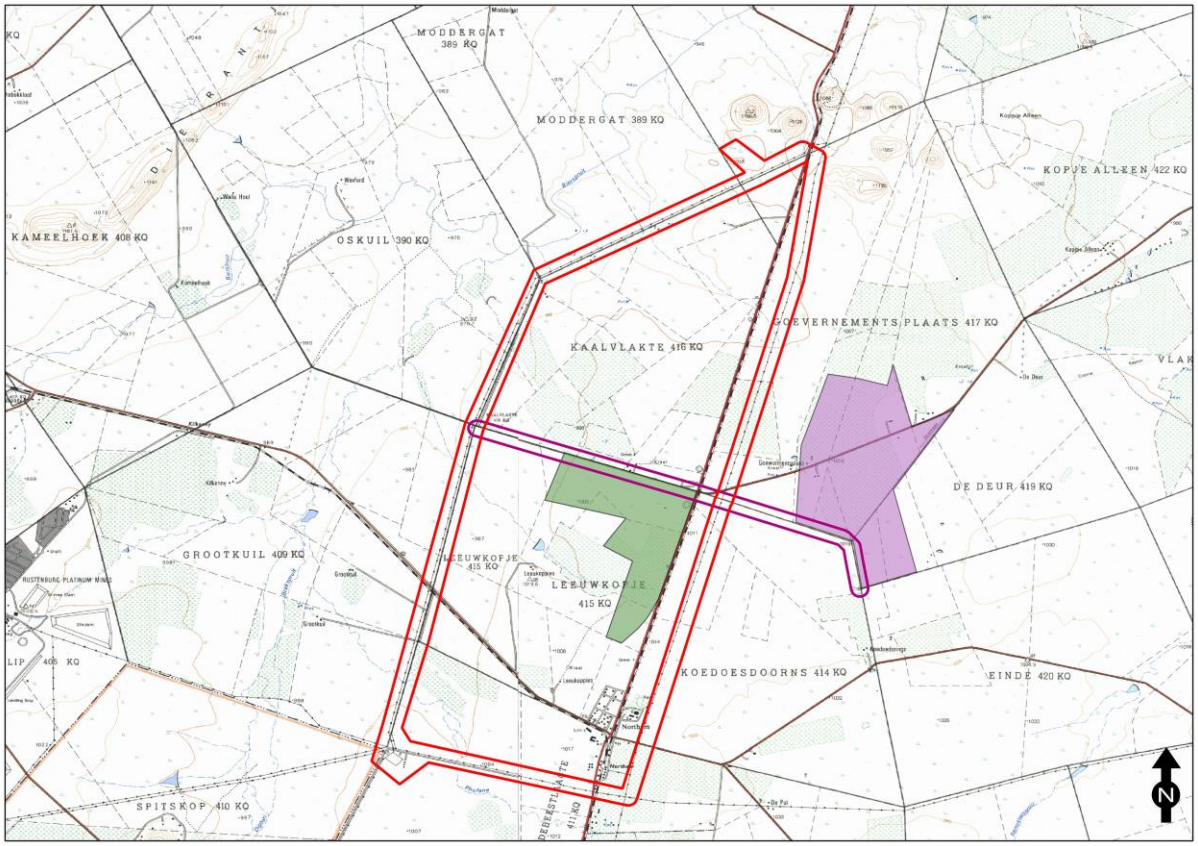


Figure 4: The survey area as indicated on the 1:50 000 topographic maps 2427CD and 2427CC (1980)

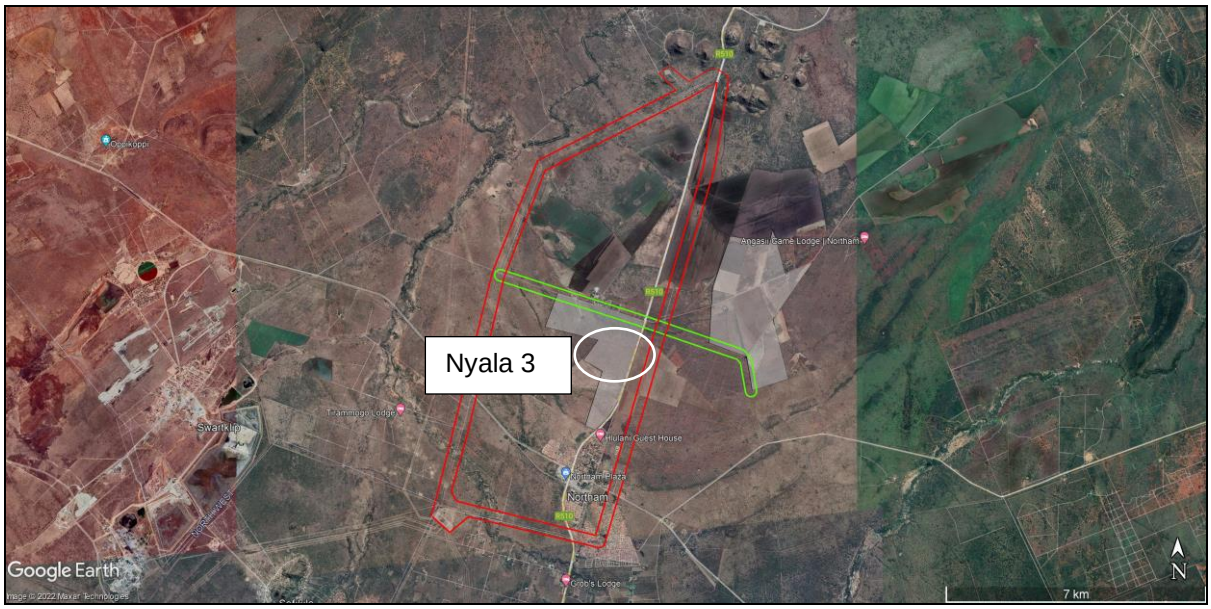


Figure 5: Survey area within local context (Google Earth Pro 2022)

4. Proposed Project Description

The project is the proposed development and establishment of a Solar PV Facility along with associated infrastructure, namely Nyala 3. The project site and study area are situated in the area just north of the small Town of Northam in the Thabazimbi Local Municipality, Waterberg District Municipality, Limpopo Province. Two potential areas were assessed for PV development along with two potential power line corridors between the Solar PV

Facilities and the existing substations. The Nyala Project cluster comprises of three proposed solar facilities, namely Nyala Solar Facility 1, 2 and 3, and associated infrastructure, including access roads. The larger cluster has been assessed holistically (to give effect to cumulative impact assessment) and each project has been assessed individually within their separate site verification reports.

The Applicant proposes the development of the three solar facilities within the larger assessed study area as follows:

- Nyala 1, a photovoltaic (PV) solar energy generation facility, of up to 65 MWac in capacity, and associated infrastructure on Portion 2 of the farm Gouvernements Plaats No. 417, situated 3.8 km north-east of Northam;
- Nyala 2, a photovoltaic (PV) solar energy generation facility, of up to 120MWac in capacity, and associated infrastructure on the Remaining Extent of the farm De Deur No. 419 and Portion 2 of the farm De Deur No. 419, situated 4.2 km north-east of Northam; and
- **Nyala 3, a photovoltaic (PV) solar energy generation facility, of up to 55MWac in capacity, and associated infrastructure on the Remaining Extent of the farm Leeuwkopje No. 415, situated 1.5 km north of Northam (which is the focus of this report).**

5. Legal Framework

The applicable legislation and guideline used to compile this report is listed in Table 3 below:

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE APPLIED
The National Heritage Resources Act (Act No. 25 of 1999)	Section 38, 34, 35, 36
World Heritage Convention Act (Act No. 49 of 1999)	Various sections
Thabazimbi Local Municipality (IDP) 2020-2021	Various sections

Table 3: Legal framework

Section 38 of the NHRA (Act No. 25 of 1999) stipulates that the following activities (relevant to the Nyala 3 proposal) trigger a heritage survey:

Development criteria in terms of Section 38(1a-e) of the NHRA (Act No. 25 of 1999)	Yes/No
Construction of road, wall, powerline, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 m^2 in extent	Yes
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been consolidated within past five years	No
Rezoning of site exceeding 10 000 m^2	Yes
Any other development category, public open space, squares, parks, recreation grounds	No

Table 4: Activities that trigger Section 38 of the NHRA

- The Field rating system as recommended by SAHRA is shown in Table 5 below:

Field Rating	Grade	Significance	Recommended Mitigation
National Significance	Grade I	High significance	Conservation by SAHRA, national site nomination, mention any relevant international ranking. No alteration whatsoever without permit from SAHRA.
Provincial Significance	Grade II	High significance	Conservation by provincial heritage authority, provincial site nomination. No alteration whatsoever without permit from provincial heritage authority.
Local Significance	Grade III-A	High significance	Conservation by local authority, no alteration whatsoever without permit from provincial heritage authority. Mitigation as part of development not process advised.
Local Significance	Grade III-B	High significance	Conservation by local authority, no external alteration without permit from provincial heritage authority. Could be mitigated and (part) retained as heritage register site.
Generally Protected A	Grade IV-A	High/medium significance	Conservation by local authority. Site should be mitigated before destruction. Destruction permit required from provincial heritage authority.
Generally Protected B	Grade IV-B	Medium significance	Conservation by local authority. Site should be recorded before destruction. Destruction permit required from provincial heritage authority.
Generally Protected C	Grade IV-C	Low significance	Conservation by local authority. Site has been sufficiently recorded in the Phase 1 HIA. It requires no further recording before destruction. Destruction permit required from provincial heritage authority.

Table 5: Field rating system to determine site significance

The following legislative aspects are furthermore noted:

- Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and they are valuable, finite, non-renewable and irreplaceable.

- All archaeological remains, features, structures and artefacts older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the **National Heritage Resources Act (NHRA) (Act No. 25 of 1999, Section 34 & 35)**. The Act makes an archaeological impact assessment as part of an EIA and EMPR mandatory (see **Section 38**). No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the **South African Heritage Resources Agency (SAHRA)**. Full cognisance is taken of this Act in making recommendations in this report.

- Cognisance will also be taken of the National Environmental Management Act (Act No 107 of 1998) when making any recommendations.

- Human remains older than 60 years are protected by the NHRA, with reference to Section 36. Human remains that are less than 60 years old are protected by the Regulations Relating to the Management of Human Remains (GNR 363 of 22 May 2013) made in terms of the National Health Act No. 61 of 2003 as well as local Ordinances and regulations.

- With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise.

- The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3, and the Australian ICOMOS (International Council on Monuments and Sites) Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.

- A copy of this report will be submitted on SAHRIS as stipulated by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), Section 38 (especially subsection 4) and the relevant Provincial Heritage Resources Authority (PHRA).

- Note that the final decision for the approval of permits, or the removal or destruction of sites, structures and artefacts identified in this report, rests with the SAHRA (or relevant PHRA).

6. Study Approach/Methodology

Geographical information (KML and shapefiles) on the proposed activities was supplied by Praxos 373 (Pty) Ltd. The most up-to-date Google Earth images and topographic maps were used to indicate the survey area. Topographic maps were sources from the Surveyor General. Please note that all maps are orientated with north facing upwards (unless stated otherwise).

6.1 Review of existing information/data

Additional information on the cultural heritage of the area was sourced from the following records:

- National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa);
- Environmental Potential Atlas (ENPAT);
- Online SAHRIS database;
- National Automated Archival Information retrieval System (NAAIRS);
- Maps and information documents supplied by the client; and
- Several heritage surveys have been conducted in the vicinity of the survey area (published and unpublished material) on the area (Pistorius 2007; Van Schalkwyk 2003; Van der Walt 2017, 2019).

The Surveyor General's maps of the farms within the survey footprint indicate that most of the farms were first surveyed in the 1894 (also see Addendum 2).

Although several heritage impact assessments have been completed in the general vicinity of the survey area, only one falls within the survey footprint. A survey conducted on the farms Elandsfontein 386KQ, Moddergat 389KQ, Kaalvlakte 416KQ and Goverments Plaats 417KQ and a number of Late Iron Age stone-walled settlements were recorded on the farm Elandsfontein 386KQ inside the Madelein Robinson Nature Reserve (Van Schalkwyk 2003). An Eskom powerline survey over a large area also included a section near Northam during which several historical structures and Iron Age stone-walled sites were recorded (Pistorius 2007). A survey near Amandelbult Mine revealed no heritage sites (Gaigher 2016). A heritage survey at the Zondereinde 3 Shaft near Northam also makes reference to the large Iron Age settlement on the northern periphery of the survey footprint (van der Walt 2017, 2019). A mitigation project at the Rhino Andalusite Mine north east of the survey area resulted in the excavation and mapping of Early and Late Iron Age sites, specifically Happy Rest and Mzonjane facies (EIA) and Icon and Madikwe facies of the Moloko (LIA)

(Huffman 2006). A survey on De Put Residential Township situated south of Northam revealed no heritage remains (Hutten 2010).

A number of historical and archaeological sites were noted on the SAHRIS Database system but **none are situated within the survey footprint or the Nyala 3 site.** Also note that there are no declared Provincial or National Heritage sites recorded near the survey footprint or the Nyala 3 site (SAHRIS Database July 2022). Refer to **Figure 6 - Figure 12** below.

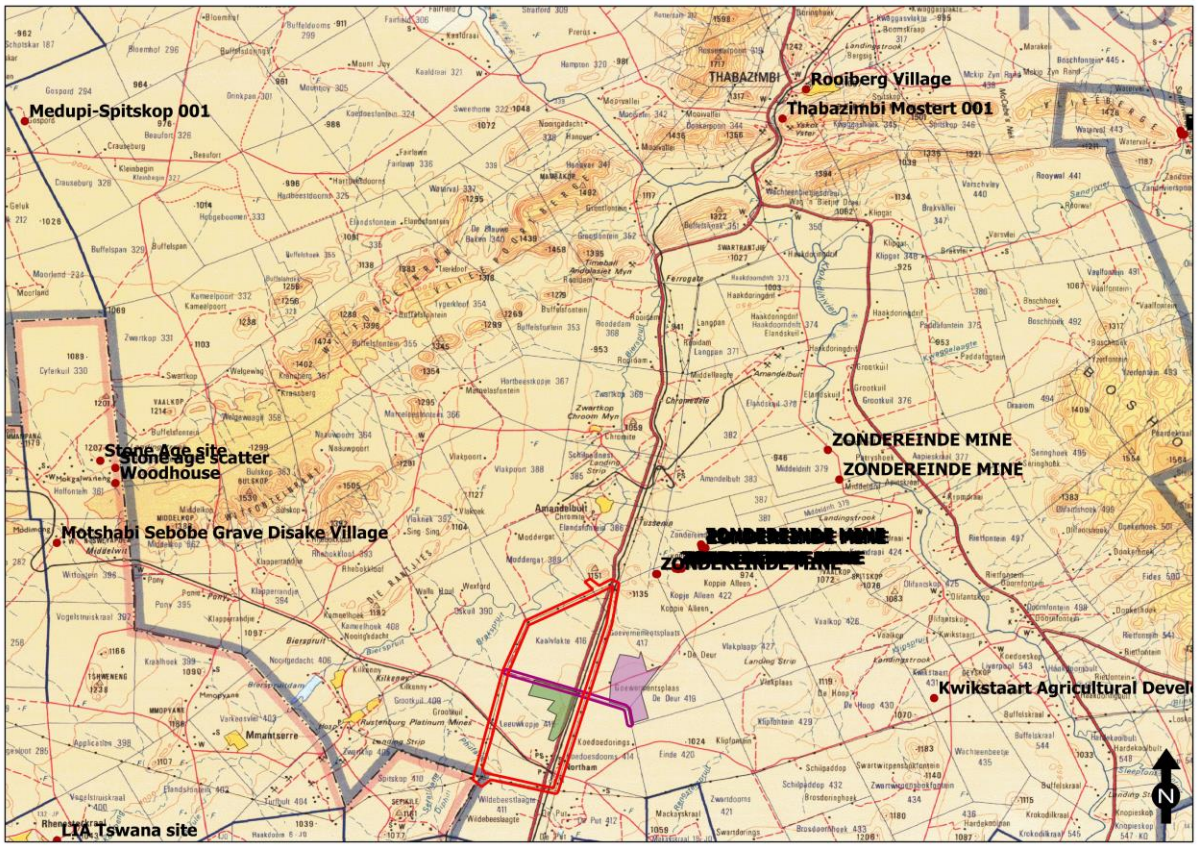


Figure 6: Recorded sites near the survey footprint (SAHRIS as at July 2022)

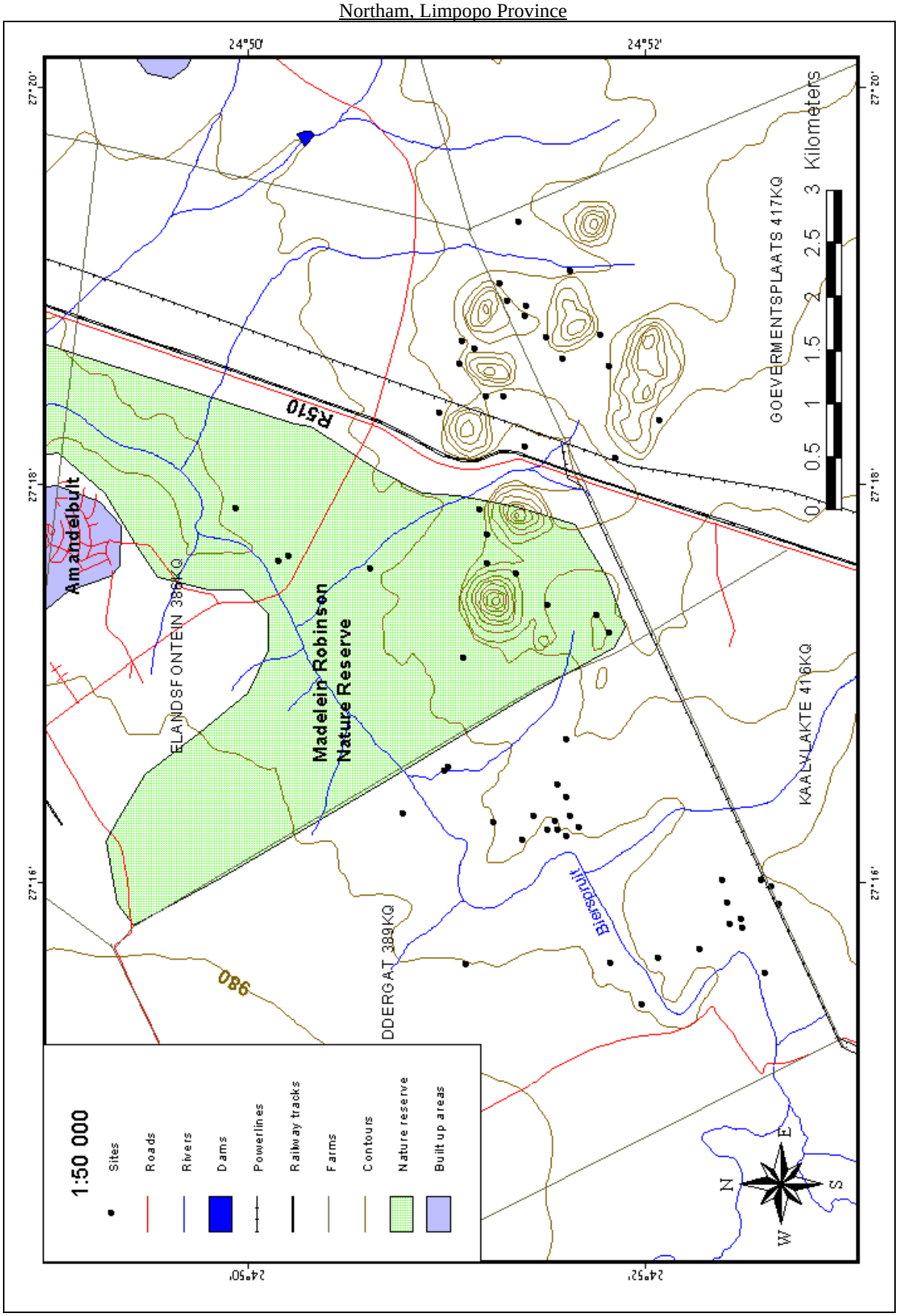


Figure 7: Location of the various Iron Age Stone-walled sites in the farm Elandsfontein 386KQ (after Van Schalkwyk 2003)

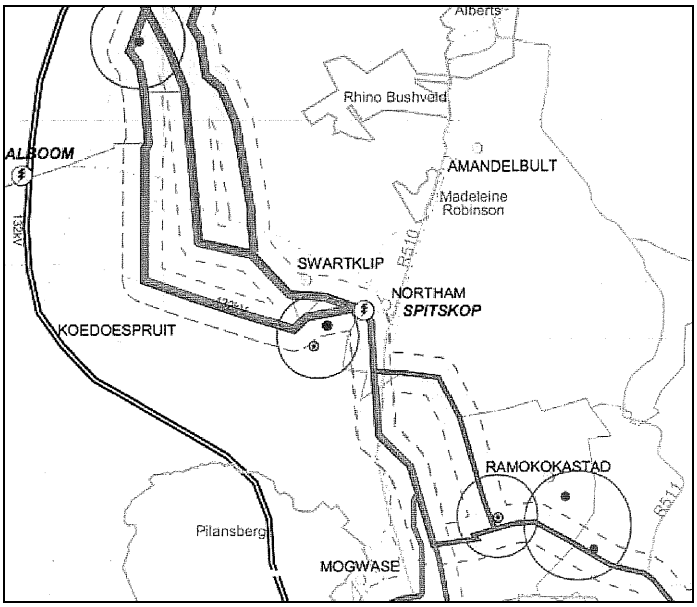


Figure 8: Location of Iron Age sites south of Northam (after Pistorius 2007)

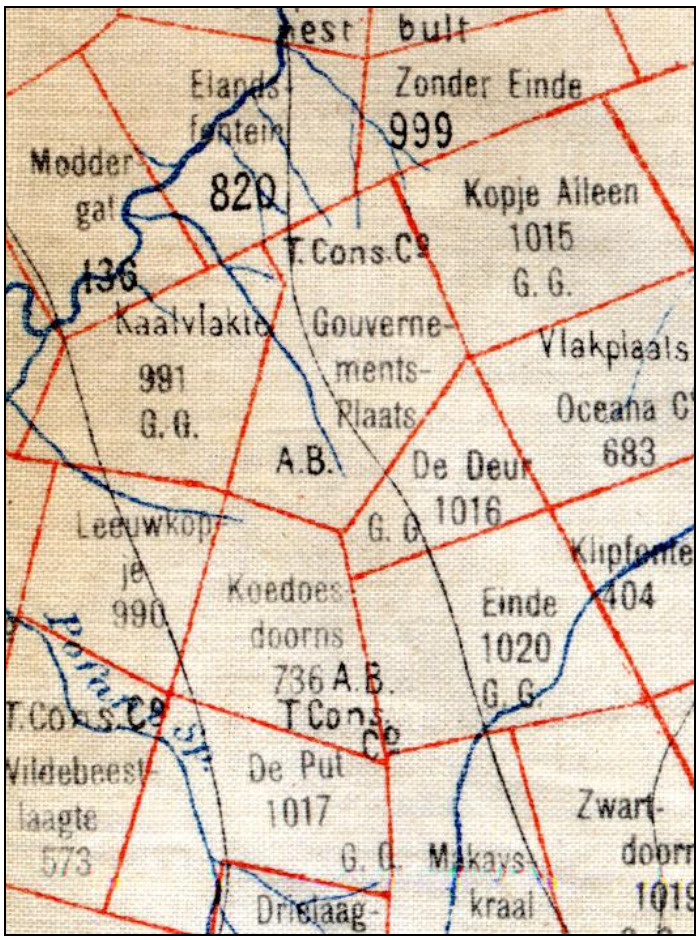


Figure 9: The farms within the survey footprint indicated on Jeppe's Map dating to 1899

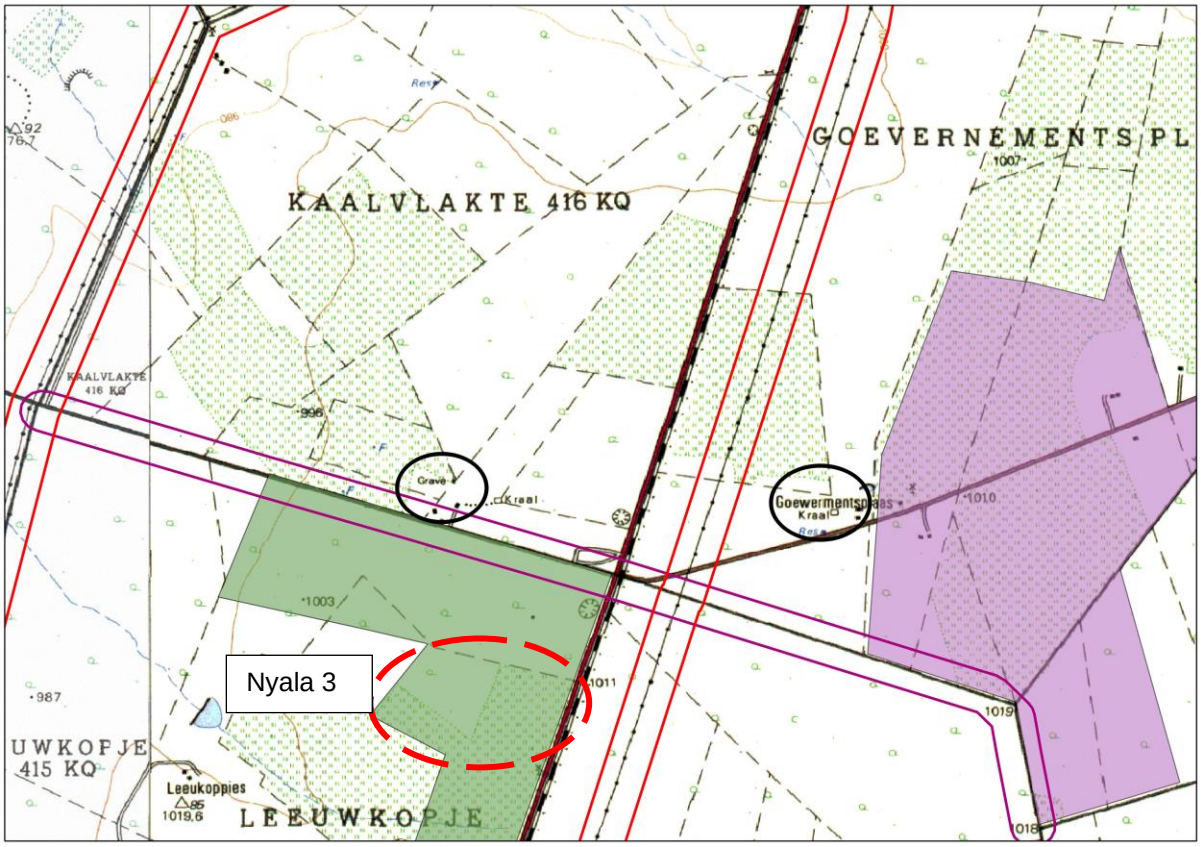


Figure 10: The possible heritage sites as indicated on the 1:50 000 topographic maps 2427CD and 2427CC

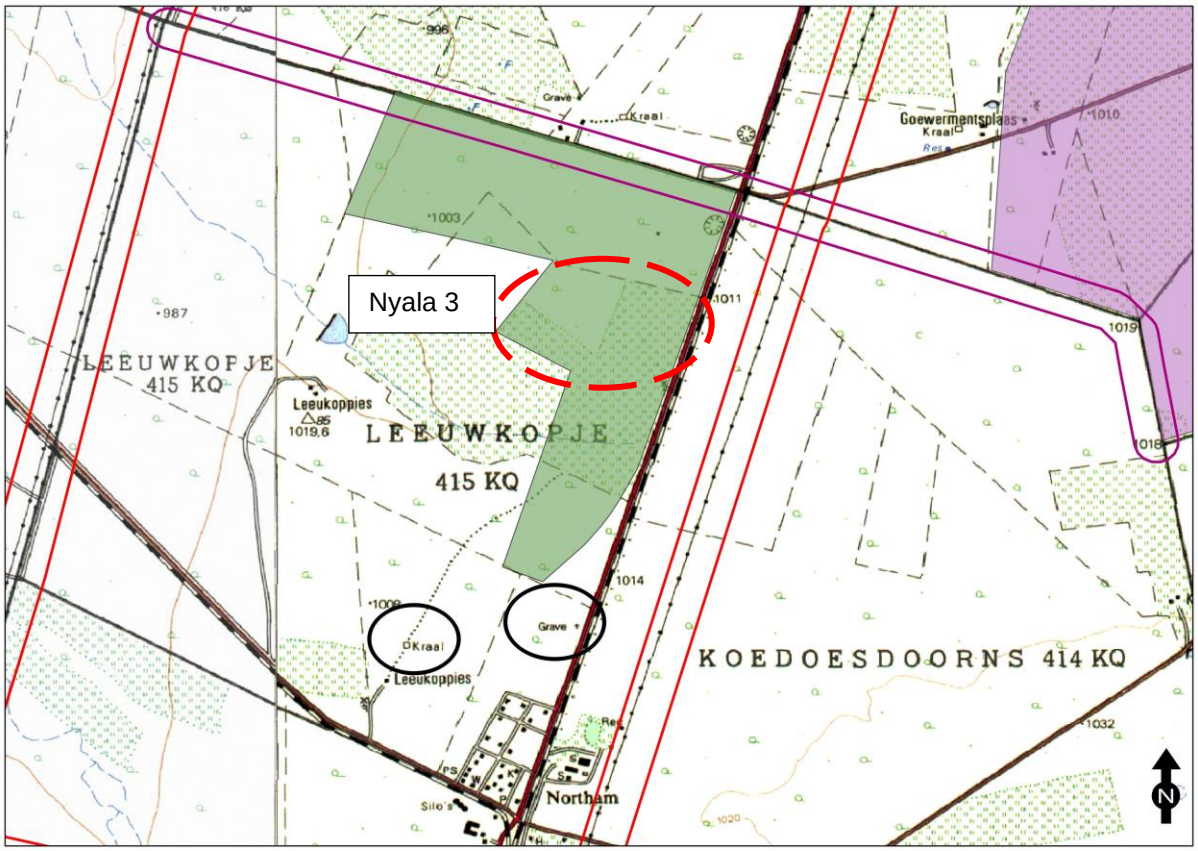


Figure 11: The possible heritage sites as indicated on the 1:50 000 topographic maps 2427CD and 2427CC

After integrating the location of all possible sites that were identified during the desktop screening study the following map was compiled (see Figure 14). Please note that the data from old topographical maps and the SAHRIS database were primarily sourced.

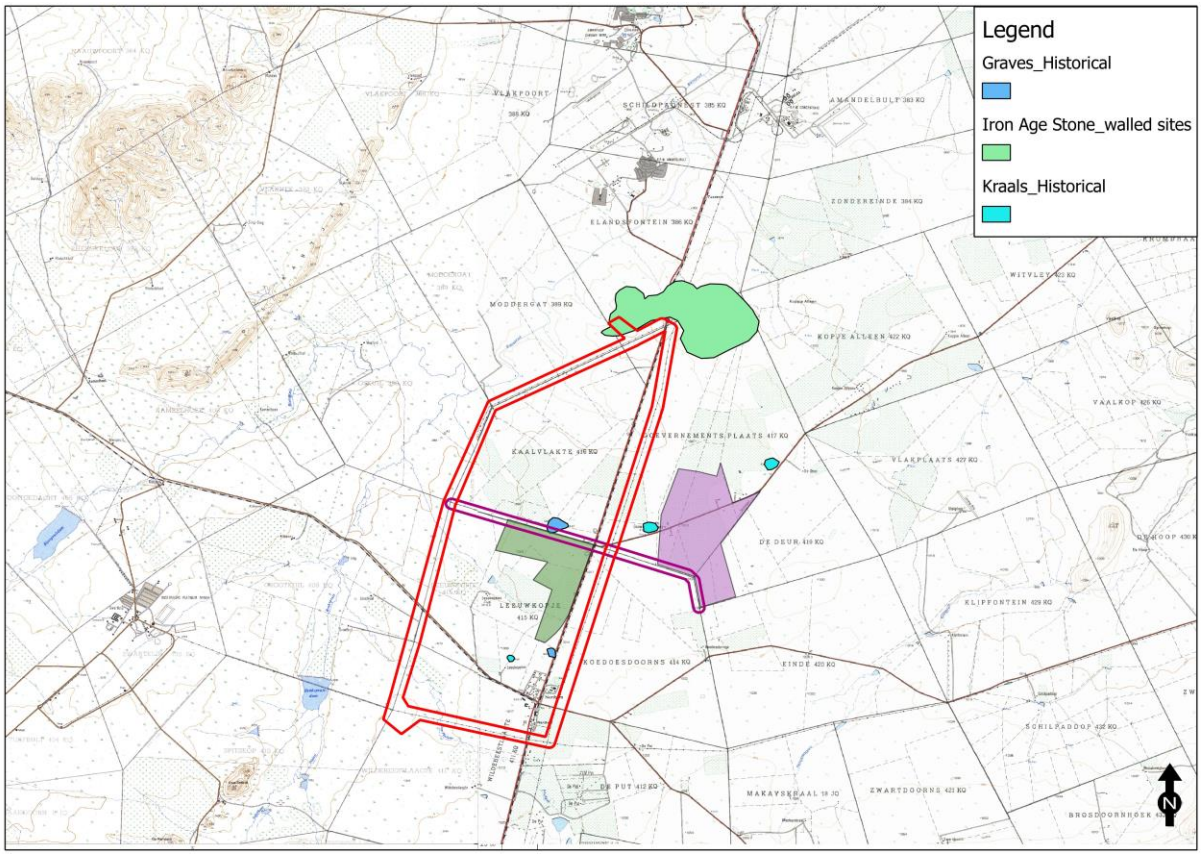


Figure 12: Areas of heritage sensitivity after the screening process

6.2 Palaeontological sensitivity

The palaeontological sensitivity map was extracted from the SAHRIS database and indicates grey (zero) sensitivity for both the farms (refer to Figure 13 and table below). As a result, no palaeontological assessment will be required for the Nyala sites.

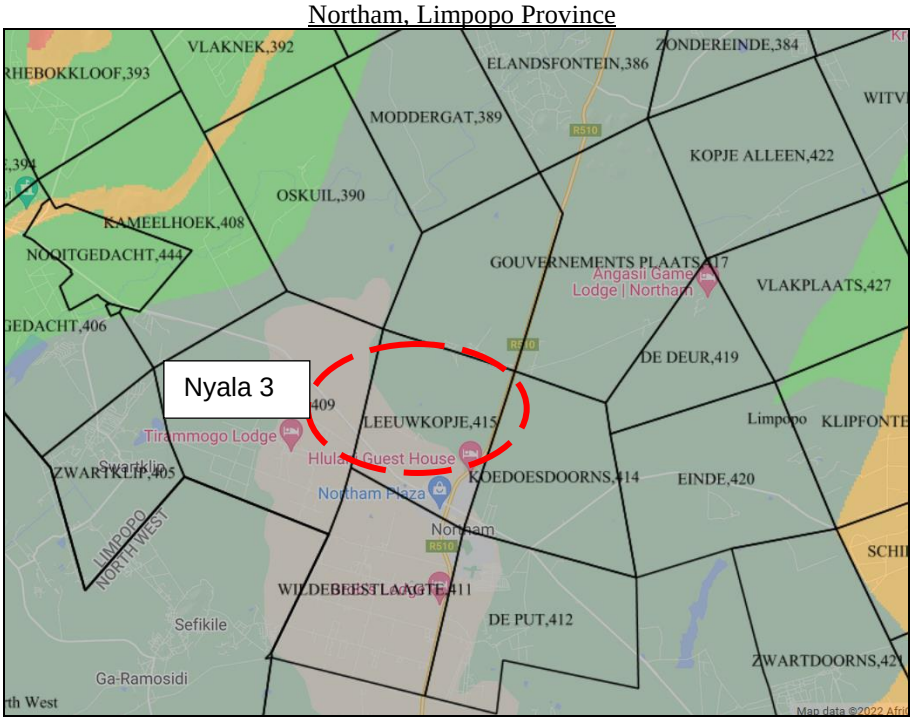


Figure 13: Palaeontological sensitivity of the region (SAHRIS 2022)

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	Will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

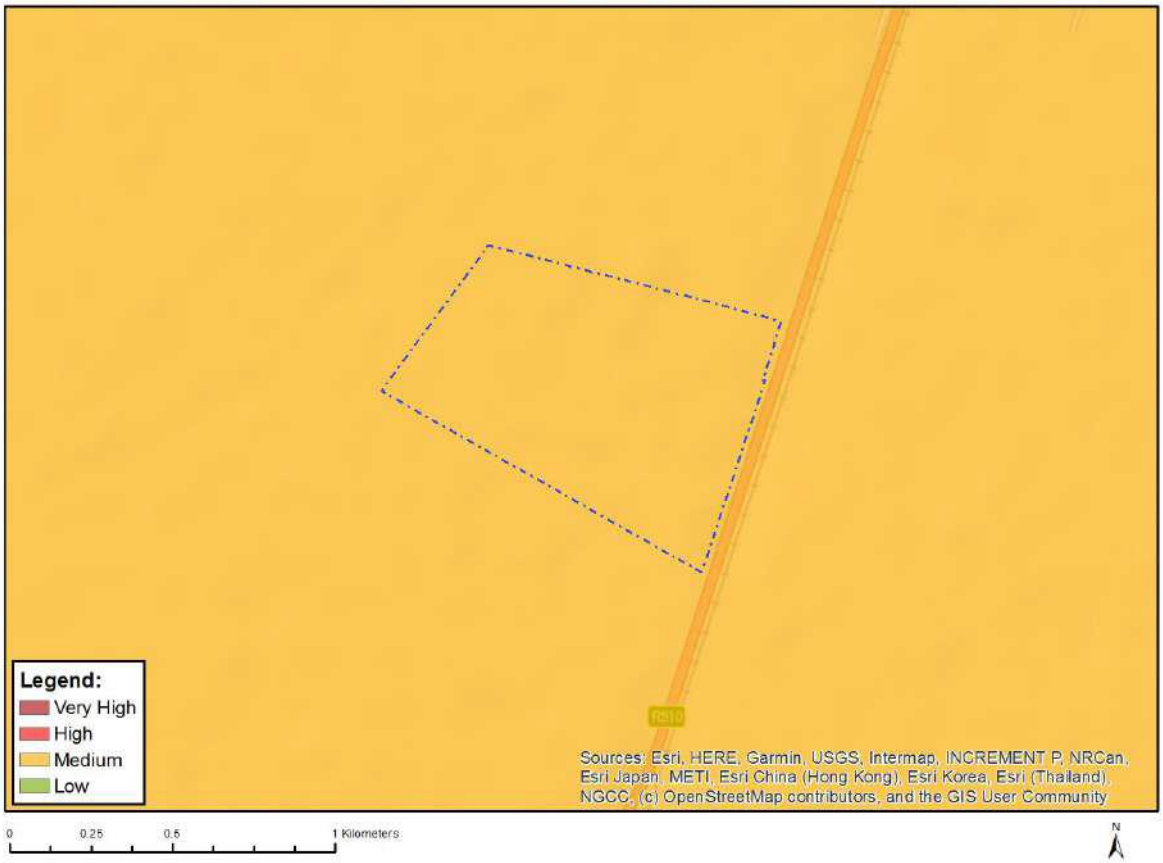


Figure 14: Palaeontological sensitivity from the DFFE screening tool

Based on the site verification results, the specialist **disputes the DFFE screening** tool rating of medium sensitivity, as the site should be rated as having a **LOW Palaeontological sensitivity**.

7. Verification of Nyala Solar Energy Facility 3

7.1 Field Investigation

The field verification survey was conducted on 30 May 2023. The strategy during this survey was to conduct a thorough investigation of the various sections of the survey footprint that form part of the application. The aim was therefore to conduct a detailed pedestrian (foot) and predictive survey of the survey footprint. Existing infrastructure was used to gain access to the area followed by detailed pedestrian investigations. No physical restrictions were encountered and the survey area was readily accessible.

7.2 Verification Results

No historical or archaeological (both Stone Age and Iron Age) features, structures, assemblages or sites were recorded within Nyala 3. The site which was surveyed in relation to the broader study area is shown in Figure 14.

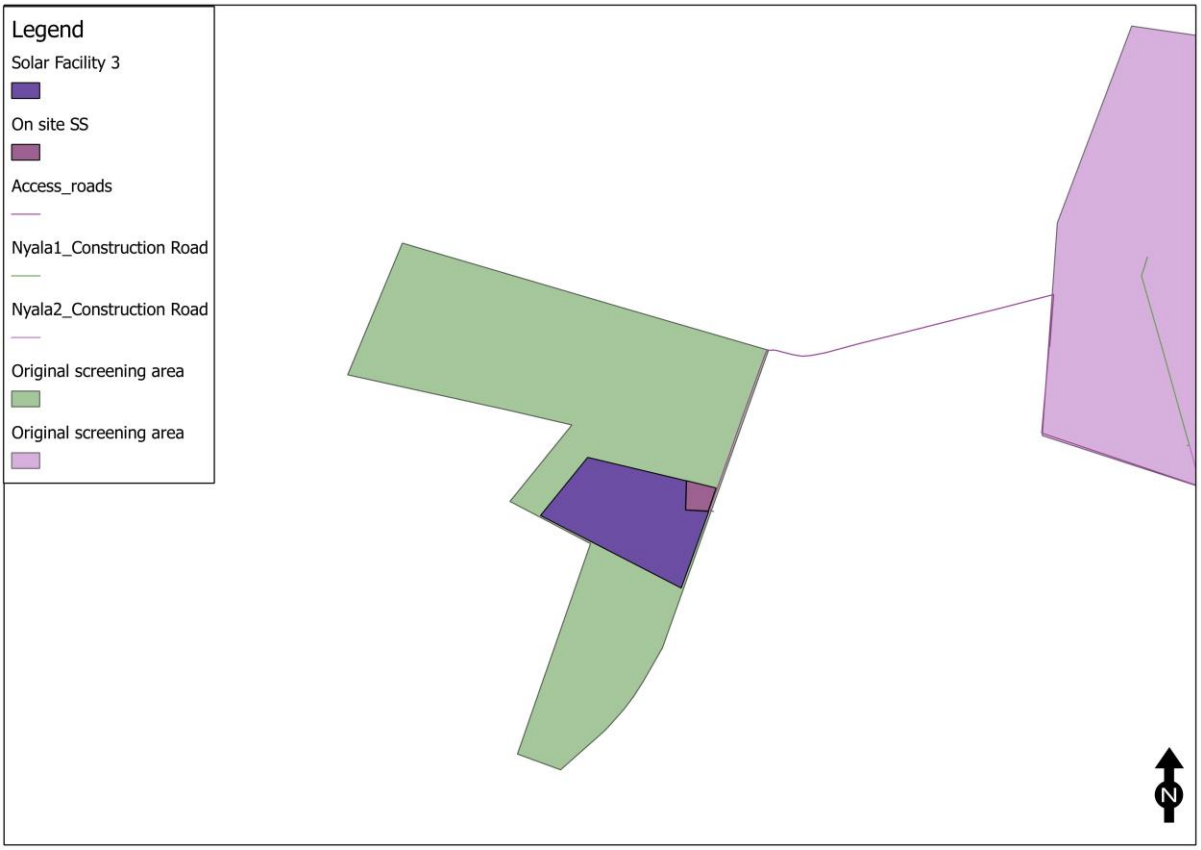


Figure 15: The Nyala Solar Energy Facility 3 in relation to the original screening footprint

Figure 16: Low sensitivity rating awarded by the DFFE Screening Tool

Figure 17: Photographs showing general condition of the area

Based on the field verification, the specialist **agrees with the DFFE screening** tool sensitivity rating for the Nyala 3 site as having a low sensitivity as there are no cultural heritage sites of significance within the site footprint.

8. Recommendations and Conclusions

Preliminary indications are that the region around the survey footprint is fairly saturated with historical and archaeological remains. In this regard please note the following:

- Possible graves and historical livestock kraals on the farm Kaalvlakte 416KQ
- Possible graves and historical livestock kraals on the farm Leeukopje 415KQ
- Possible historical livestock kraals on the farm Gouvernements Plaats 417KQ
- Extensive Late Iron Age stone-walled sites on the southern portion of the farm Elandsfontein 386KQ
- Extensive Late Iron Age stone-walled sites on the southern portion of the farm Gouvernements Plaats 417KQ

However, during the site verification proses **no historical or archaeological** (both Stone Age and Iron Age) features, structures, assemblages or **sites were recorded** within Nyala 3. Also, please note, archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place **(*cf*. NHRA (Act No. 25 of 1999)**, Section 36 (6)).

To comply with Section 38 of the NHRA (Act No. 25 of 1999), **it is therefore recommended that a Phase 1 Heritage Assessment be conducte**d to reflect this result, and that the report be submitted to SAHRA for comment and approval.

9. References

Gaigher, S. 2016. Heritage Impact Assessment (HIA) Report for the Proposed Re-alignment of the Railway Line at the proposed 37 open pit, Amandelbult Mine, Limpopo Province

Huffman, T.N. 2006. Archaeological Mitigation of the Rhino Mine.

Hutton, M. 2010. Heritage Impact Assessment Heritage Impact Assessment for the Proposed De Put Residential Township Development south of Northam, Limpopo Province.

Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M., Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age Sequence Update (I). *The South African Archaeological Bulletin*. Vol 67 (195): 123-144.

Mucina, L. & Rutherford, M.C. 2010. The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia 19*. Pretoria: South African National Biodiversity Institute.

National Heritage Resources Act. Act No. 25 of 1999. Government Printer: Pretoria.

Office of the President. 27 November 1998. National Environmental Management Act (Act No. 107 of 1998). Government Gazette Vol 401 (19519). Pretoria: Government Printer.

Pistorius, J.C.C. 2007. A Phase 1 Heritage Imapct Assessment Study for Eskom's Proposed New 400kV Power Line Route between the Matimba B Power Station and the Marang Substation near Rustenburg.

SAHRA, 2005. Minimum Standards for the Archaeological and the Palaeontological Components of Impact Assessment Reports, Draft version 1.4.

South African Heritage Resources Agency (SAHRA). Report Mapping Project. Version 1.0, 2009.

Tyson, P.D. 1992. The climate of the last 2000 years in Southern Africa. *The Holocene*. Vol. 2.

Van der Walt, J. 2017. Archaeological and Heritage Resources Impact Assessment of Listed Activities associated with mining right activities at Northam Platinum Limited.

Van der Walt, J. 2019. Heritage Impact Assessment for the proposed Northam Zondereinde 3 Shaft, Limpopo Province.

Van Schalkwyk, J.A. 2003. A survey of archaeological sites for the Amandelbult Platinum Mine seismic exploration program.

Other Sources

Google Earth Pro 2022 (Images: 2022)

http://samilitaryhistory.org/vol041dp.html (Accessed: July 2022)

National Archives (NAAIRS) (Accessed: July 2022)

SAHRIS Database. http://www.sahra.org.za/sahris (Accessed July 2022)

The Heritage Portal (www.heritageportal.co.za) (Accessed July 2019)

www.saexplorer.co.za (Accessed July 2022)

https://www.cwgc.org [Commonwealth War Grace Commission] (Accessed July 2022)

Addendum 1: Archaeological and Historical Sequence

The table provides a general overview of the chronological sequence of the archaeological periods in South Africa.

PERIOD	APPROXIMATE DATES
Earlier Stone Age	more than 2 million years ago to >200 000 years ago
Middle Stone Age	<300 000 years ago to >20 000 years ago
Later Stone Age (Includes hunter-gatherer rock art)	<40 000 years ago up to historical times in certain areas
Early Iron Age	c. AD 200 - c. AD 900
Middle Iron Age	c. AD 900 – c. AD 1300
Late Iron Age (Stonewalled sites)	c. AD 1300 - c. AD 1840 (c. AD 1640 - c. AD 1840)

< = less than; > = greater than

Archaeological Context

Stone Age Sequence

Concentrations of Early Stone Age (ESA) sites are usually present on the flood-plains of perennial rivers and may date to over 2 million years ago. These ESA open sites may contain scatters of stone tools and manufacturing debris and secondly, large concentrated deposits ranging from pebble tool choppers to core tools such as handaxes and cleavers. The earliest hominins who made these stone tools, probably not always actively hunted, instead relying on the opportunistic scavenging of meat from carnivore fill sites.

Middle Stone Age (MSA) sites also occur on flood plains, but are also associated with caves and rock shelters (overhangs). Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom preserve. Limited drive-hunting activities are also associated with this period.

Sites dating to the Later Stone Age (LSA) are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

The following chronological sequence was recently established by prominent Stone Age archaeologists (Lombard et al 2012):

Later Stone Age

- Age Range: recent to 20-40 thousand years ago

- General characteristics: expect variability between assemblages, a wide range of formal tools, particularly scrapers (microlithic and macrolithic), backed artefacts, evidence of hafted stone and bone tools, borers, bored stones, upper and lower grindstones, grooved stones, ostrich eggshell (OES) beads and other orna ments, undecorated/decorated OES fragments, flasks/flask fragments, bone tools (sometimes with decoration), fishing equipment, rock art, and ceramics in the final phase.

    - **Ceramic or Final Later Stone Age**
        - Generally < 2 thousand years ago
        - MIS 1
        - Contemporaneous with, and broadly similar to, final Later Stone Age, but includes ceramics
        - Economy may be associated with hunter-gatherers or herders

      Technological characteristics
        - Stone tool assemblages are often microlithic
        - In some areas they are dominated by long end scrapers and few backed microliths; in others formal tools are absent or rare
        - Grindstones are common, ground stone artefacts, stone bowls and boat-shaped grinding grooves may occur
        - Includes grit- or grass-tempered pottery
        - Ceramics can be coarse, or well-fired and thin-walled; some times with lugs, spouts and conical bases; sometimes with decoration; sometimes shaped as bowls
        - Ochre is common
        - Ostrich eggshell (OES) is common
        - Metal objects, glass beads and glass artefacts also occur

    - **Final Later Stone Age**
        - 100 – 4000 years ago
        - MIS 1
        - Hunter-gatherer economy

      Technological characteristics
        - Much variability can be expected
        - Variants include macrolithic (similar to Smithfield [Sampson 1974]) and/or microlithic (similar to Wilton) assemblages
        - Assemblages are mostly informal (Smithfield)
        - Often characterised by large untrimmed flakes (Smithfield)
        - Sometimes microlithic with scrapers, blades and bladelets, backed tools and adzes (Wilton-like)
        - Worked bone is common
        - OES is common
        - Ochre is common
        - Iron objects are rare
        - Ceramics are absent

    - **Wilton**
        - 4000 – 8000 years ago
        - MIS 1

- At some sites continues into the final Later Stone Age as regional variants (e.g. Wilton Large Rock Shelter and Cave James)

Technological characteristics

- Fully developed microlithic tradition with numerous formal tools
- Highly standardised backed microliths and small convex scrapers
- OES is common
- Ochre is common
- Bone, shell and wooden artefacts occur

- **Oakhurst**
  - 7000 – 12 000 years ago
  - MIS 1
  - Includes Albany, Lockshoek and Kuruman as regional variants

Technological characteristics

- Flake based industry
- Characterised by round, end, and D-shaped scrapers and adzes
- Wide range of polished bone tools
- Few or no microliths

- **Robberg**
  - 12 000 to 18 000 years ago
  - MIS 2

Technological characteristics

- Characterised by systematic bladelet (<26mm) production and the occurance of outils ecailles or scaled pieces
- Significant numbers of unretouched bladelets and bladelet cores
- Few formal tools
- Some sites have significant macrolithic elements

- **Early Late Stone Age**
  - 18 000 – 40 000 years ago
  - MIS 2-3
  - Informal designation
  - Also known as transitional MSA-LSA
  - Overlapping in time with final Middle Stone Age

Technological Characteristics

- Characterised by unstandardised, often microlithic, pieces and includes the bipolar technique
- Described at some sites, but not always clear whether assemblages represent a real archaeological phase or a mixture of LSA/MSA artefacts

Middle Stone Age

- Age Range: 20 000 – 30 000 years ago
- General characteristics: Levallois or prepared core techniques occur in which triangular flakes with convergent dorsal scars, often with faceted striking platforms,

are produced. Discoidal systems and intentional blade production from volumetric cores also occur; formal tools may include unifacially and bifacially retouched points, backed artefacts, scrapers, and denticulates; evidence of hafted tools; occasionally includes marine shell beads, bone points, engraved ochre nodules, engraved OES fragments, engraved bone fragments, and grindstones.

- In the sequence below we highlight differences or characteristics that may be used to refine interpretations depending on context.

- **Final Middle Stone Age**
  - 20 000 – 40 000 years ago
  - MIS 3
  - Informal designation partly based on the Sibudu sequence

Technological characteristics

- Characterised by high regional variability that may include, e.g. bifacial tools, bifacially retouched points, hollow-based points
- Triangular flake and blade industries (similar to Strathalan and Melikane)
- Small bifacial and unifacial points (similar to Sibudu and Rose Cottage Cave)
- Sibudu point characteristics: short, stout, lighter in mass com pared to points from the Sibudu technocomplex, but heavier than those from the Still Bay
- Can be microlithic
- Can include bipolar technology
- Could include backed geometric shapes such as segments, as well as side scrapers

Sibudu

- 45 000 – 58 000 years ago
- MIS 3
- Previously published as informal late Middle Stone Age and post-Howieson's Poort at Sibudu
- Formerly known post-Howieson's Poort, MSA 3 generally, and MSA III at Klasies River

Technological characteristics

- Most points are produced using Levallois technique
- Most formal retouch aimed at producing unifacial points
- Sibudu unifacial point (type fossil) characteristics: faceted platform; shape is somewhat elongated with a mean length of 43.9 mm), a mean breadth of 26.8 mm and mean thickness of 8.8 mm (L/B ratio 1.7); their mean mass is 11.8 g
- Some plain butts
- Rare bifacially retouched points
- Some side scrapers are present
- Backed pieces are rare

- **Howieson’s Poort**
- 58 000 – 66 000 years ago
- MIS 3-4

Technological characteristics

- Characterised by blade technology
- Includes small (<4 cm) backed tools, e.g. segments, scrapers, trapezes and backed blades

- Some denticulate blades
- Pointed forms are rare or absent

- **Still Bay**
    - 70 000 – 77 000 years ago
    - MIS 4-5a

Technological characteristics

- Characterised by thin (<10 mm), bifacially worked foliate or lanceolate points
- Semi-circular or wide-angled pointed butts
- Could include blades and finely serrated points (Lombard et al. 2010)

- **Pre-Still Bay**
    - 72 000 – 96 000 years ago
    - MIS 4-5

Technological characteristics

- Characteristics currently being determined / studied

- **Mossel Bay**
    - 77 000 to —105 000 years ago
    - MIS 5a-4
    - Also known as MSA II at Klasies River or MSA 2b generally

Technological characteristics

- Characterised by recurrent unipolar Levallois point and blade reduction
- Products have straight profiles; percussion bulbs are prominent and often splintered or ring-cracked
- Formal retouch is infrequent and restricted to sharpening the tip orshaping the butt

- **Klasies River**
    - 105 000 to —130 000 years ago
    - MIS 5d-5e
    - Also referred to as MSA I at Klasies River or MSA 2a generally

Technological characteristics

- Recurrent blade and convergent flake production
- End products are elongated and relatively thin, often with curved profiles
- Platforms are often small with diffused bulbs
- Low frequencies of retouch
- Denticulate pieces

- **Early Middle Stone Age**
    - Suggested age MIS 6 to MIS 8 (130 000 to —300 000 years ago)
    - Informal designation

Technological characteristics

- This phase needs future clarification regarding the designation of cultural material and sequencing

- Includes discoidal and Levallois flake technologies, blades from volumetric cores and a generalised toolkit

- **Earlier Stone Age**
    - Age range: >200 000 to 2 000 000 years ago
    - General characteristics: early stages include simple flakes struck from cobbles, core and pebble tools; later stages include intentionally shaped handaxes, cleavers and picks; final or transitional stages have tools that are smaller than the preceding stages and include large blades.
    - In the sequence below we highlight differences or characteristics that may be used to refine interpretations depending on context.

- **ESA-MSA transition**
- 200 to —600 thousand years ago
- MIS 7-15

Technological characteristics
- Described at some sites as Fauresmith or Sangoan
- Relationships, descriptions, issues of mixing and ages yet to be clarified
- Fauresmith assemblages have large blades, points, Levallois technology, and the remaining ESA components have small bifaces
- The Sangoan contains small bifaces (<100 mm), picks, heavy and light-duty denticulated and notched scrapers
- The Sangoan is less well described than the Fauresmith

- **Acheulean**
    - 300 thousand to —1.5 million years ago
    - MIS 8-50

Technological characteristics
- Bifacially worked handaxes and cleavers, large flakes > 10 cm
- Some flakes with deliberate retouch, sometimes classifiedas scrapers
- Gives impression of being deliberately shaped, but could indicate result of knapping strategy
- Sometimes shows core preparation
- Generally found in disturbed open-air locations

- **Oldowan**
    - 1.5 to >2 million years ago
    - MIS 50-75

Technological characteristics
- Cobble, core or flake tools with little retouch and no flaking to predetermined patterns
- Hammerstones, manuports, cores
- Polished bone fragments/tools

Iron Age Sequence

In the northern regions of South Africa at least three settlement phases have been distinguished for early prehistoric agropastoralist settlements during the **Early Iron Age** (EIA). Diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. The first phase of the Early Iron Age, known as **Happy Rest** (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of **Diamant** is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the **Eiland** tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water.

The Late Iron Age (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops c. AD 1640 - AD 1830). This occupation phase has been linked to the arrival of ancestral Northern Sotho, Tswana and Ndebele (Nguni–speakers) in the northern regions of South Africa with associated sites dating between the sixteenth and seventeenth centuries AD. The terminal LIA is represented by late 18th/early 19th century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. These settlements can in many instances be correlated with oral traditions on population movements during which African farming communities sought refuge in mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called difaqane (or mfecane).

Sites that were identified during the survey are archaeological sites dated to the later (stone walled) phase of the Late Iron Age (c. AD 1640 - AD 1830s) also known as the Late Moloko. These sites all conform to a general settlement layout that forms part of a certain worldview. As such, the livestock enclosures are situated in the central area of a settlement. The court (kgotla) is also located in this central area and is associated with men (men are usually also buried here). The surrounding scalloped walling is where the houses are situated and is associated with women. This type of settlement layout is generally known as the Central Cattle Pattern (CCP).

Ethno-historical Context

Northam

The town was proclaimed in 1946 by E.H.J. Fulls on the farm Leeukoppie, which belonged to H. Herd, and was originally one of a number of farms allocated to British veterans of the Anglo-Boer war (1899-1902).

Addendum 2: Surveyor General Farm Diagram

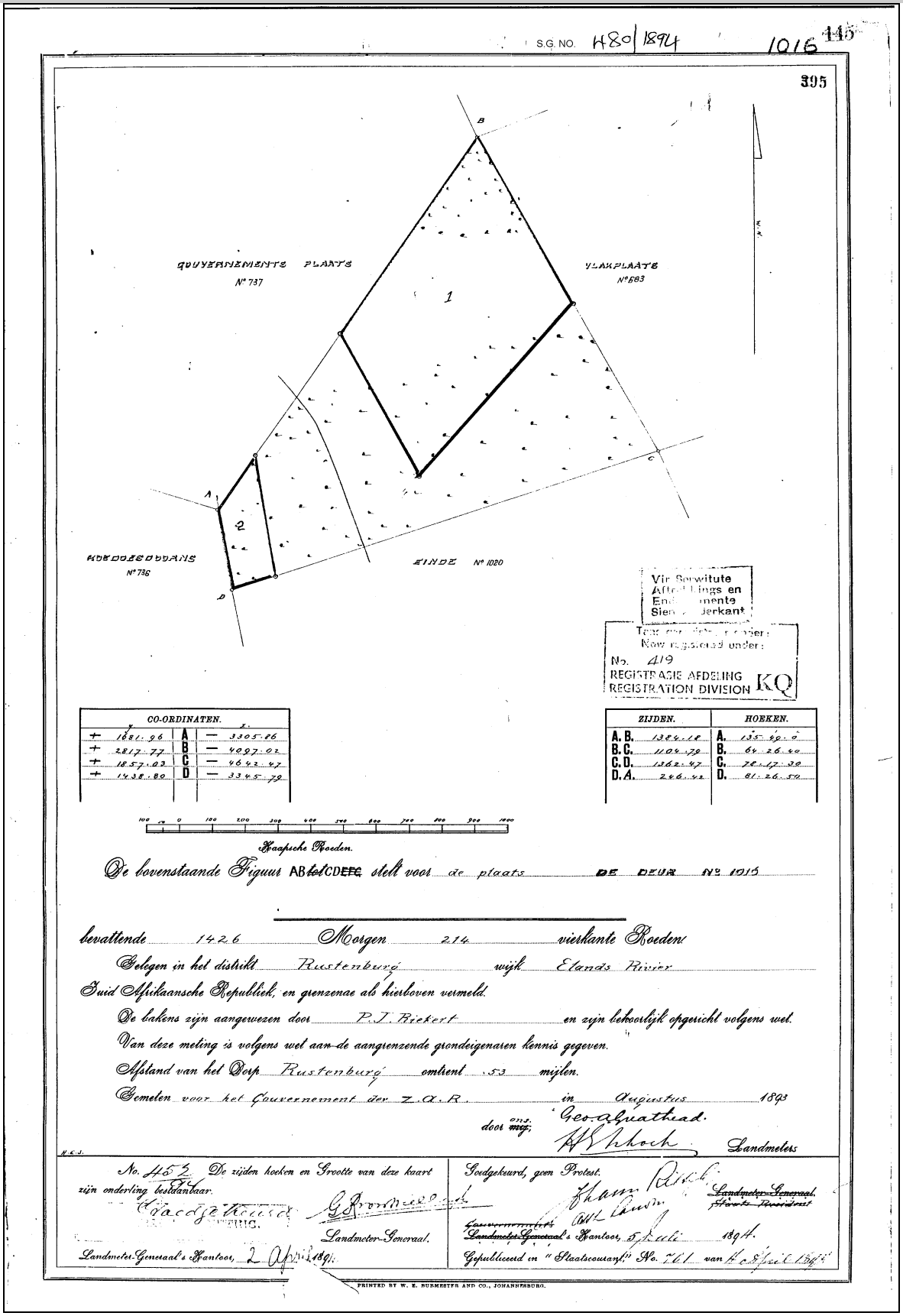


Figure 18: Surveyor General's map of the farm De Deur 419KQ which was first surveyed in the 1894

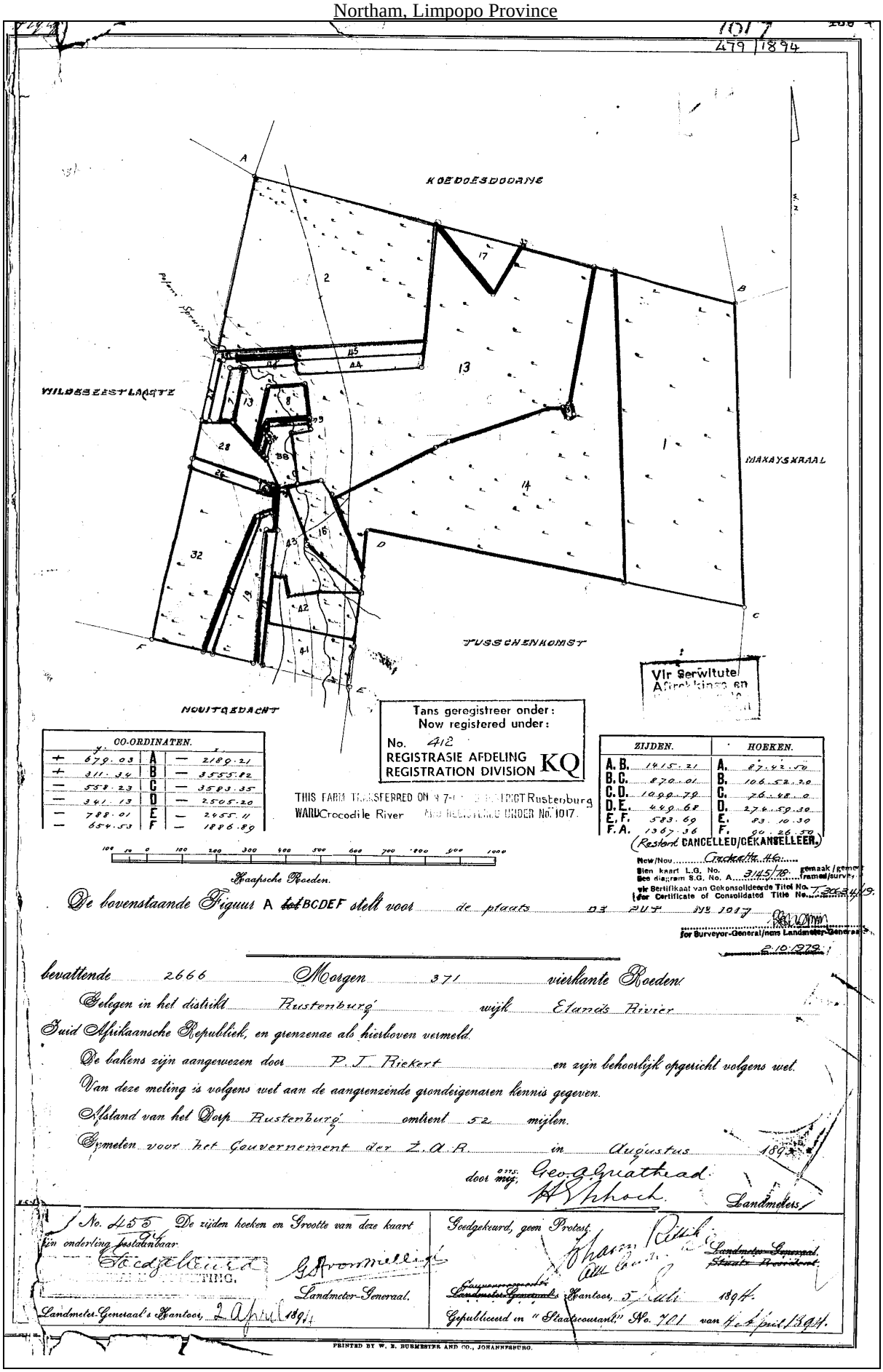


Figure 19: Surveyor General's map of the farm De Put 412KQ which was first surveyed in the 1894

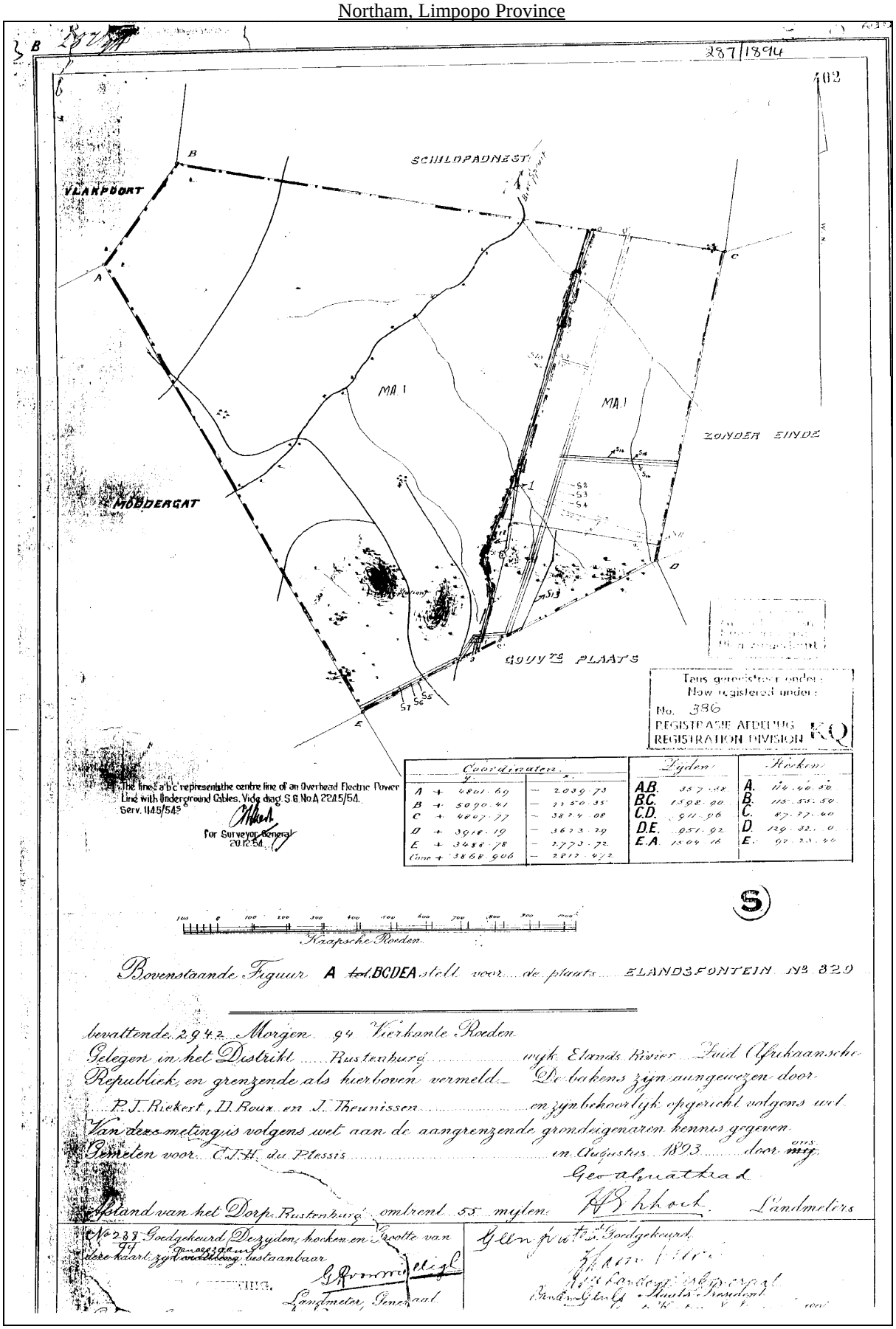


Figure 20: Surveyor General's map of the farm Elandsfontein 386KQ which was first surveyed in the 1894

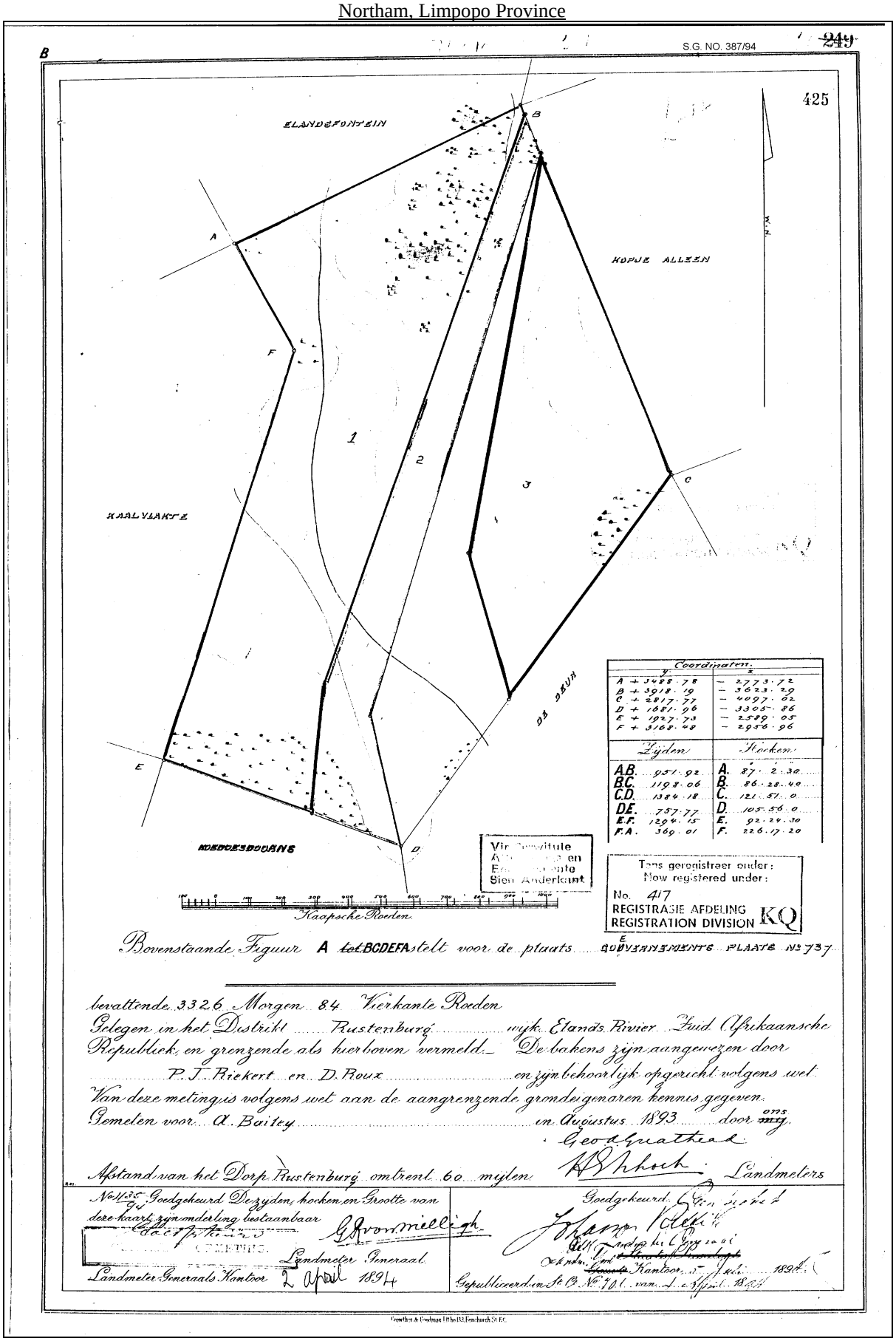


Figure 21: Surveyor General's map of the farm Gouvernements Plaas 417KQ which was first surveyed in the 1894

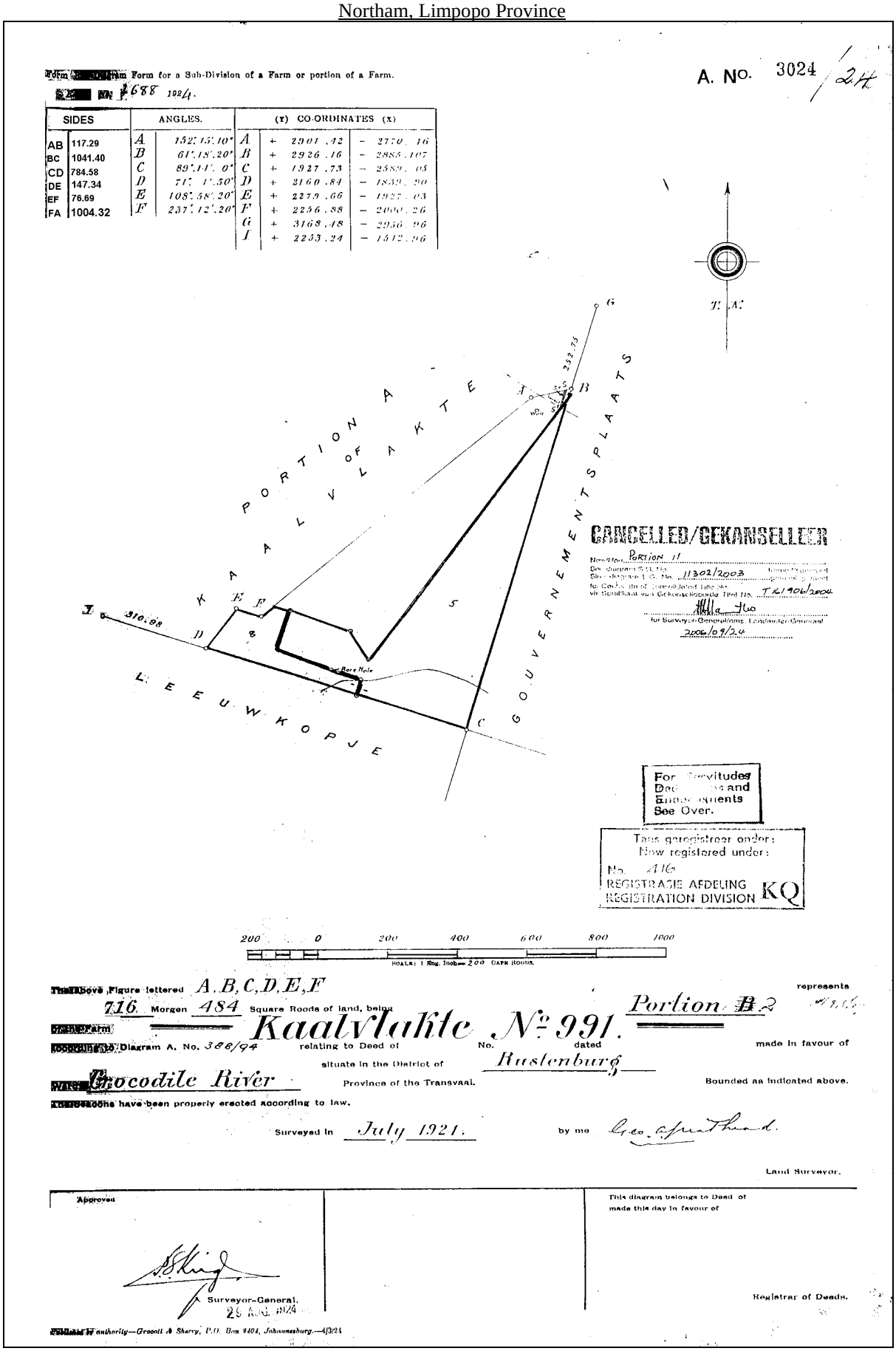


Figure 22: Surveyor General's map of the farm Kaalvlakte 416KQ which was first surveyed in the 1921

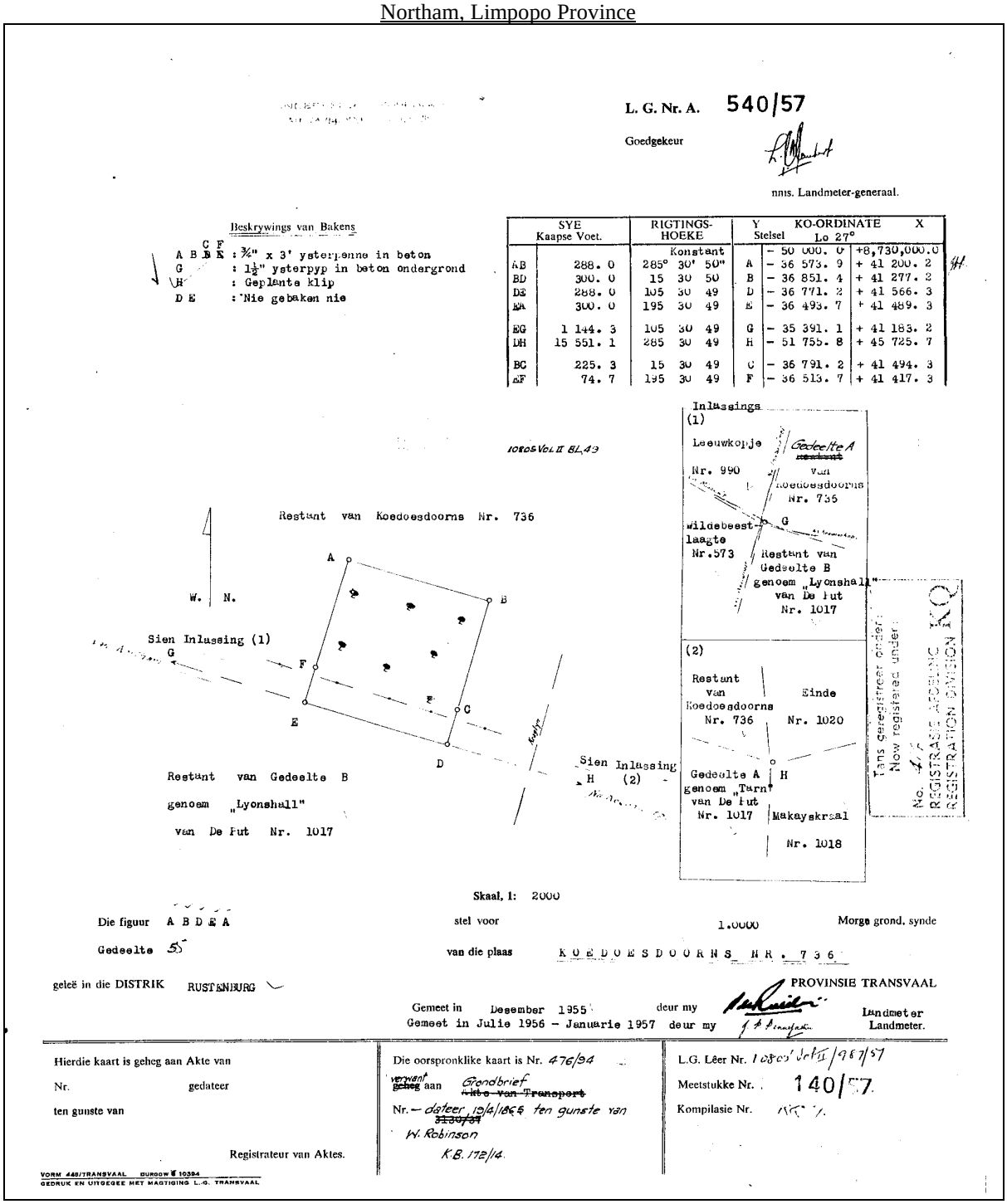


Figure 23: Surveyor General's map of the farm Koedoedoorns 414KQ which was first surveyed in the 1894

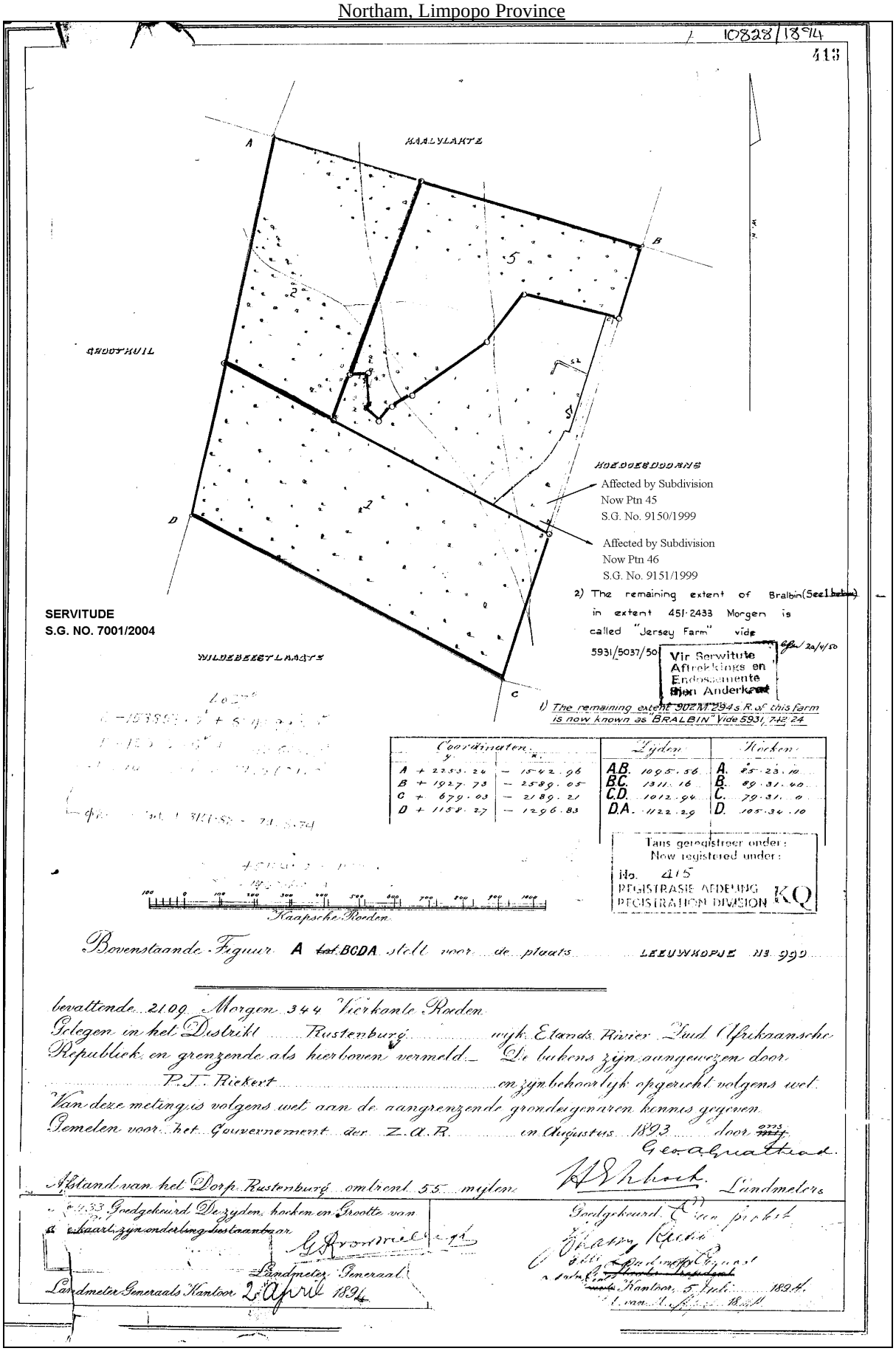


Figure 24: Surveyor General's map of the farm Leeukopje 415KQ which was first surveyed in the 1894

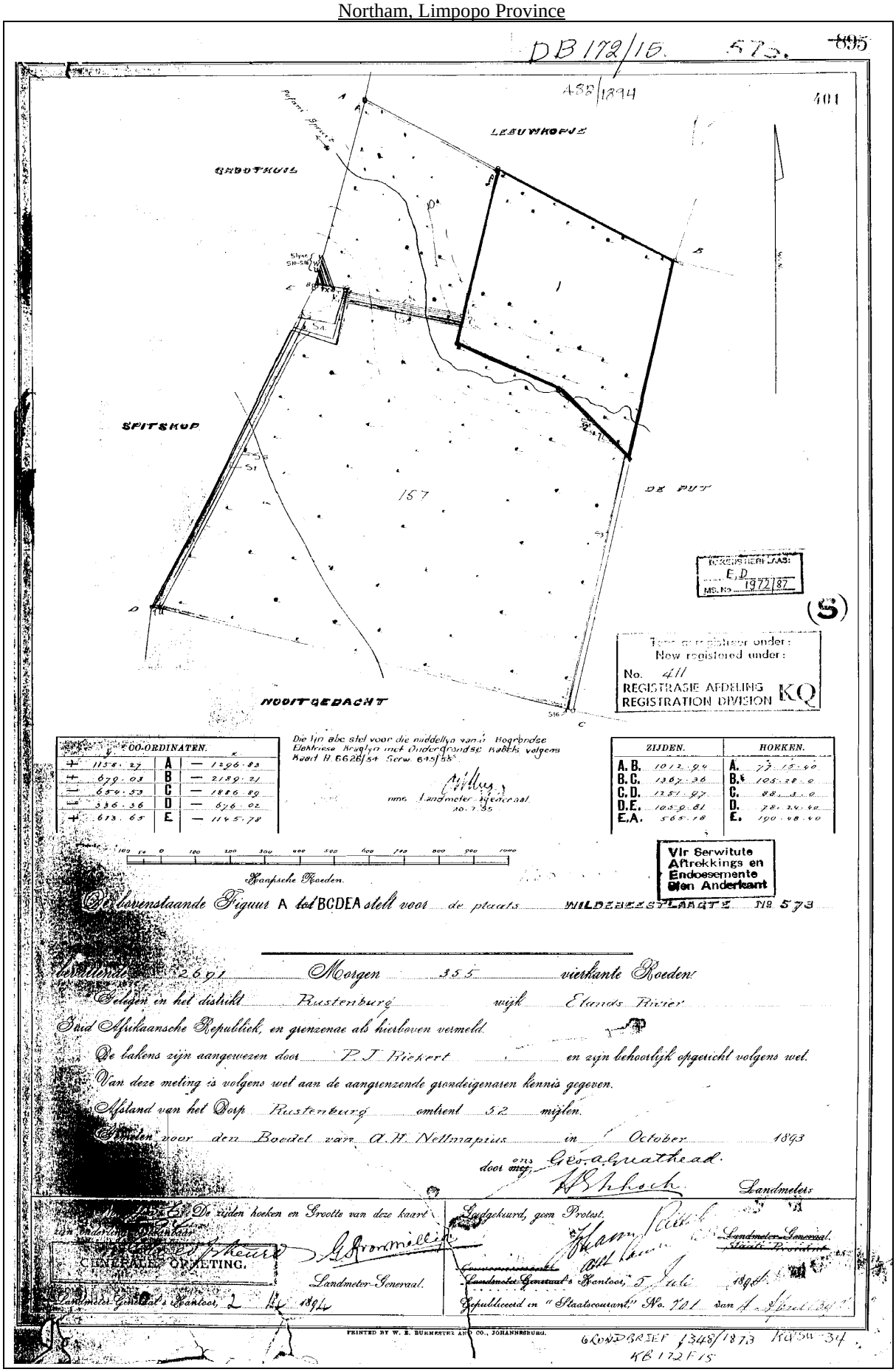


Figure 25: Surveyor General's map of the farm Wildebeestlaagte 411KQ which was first surveyed in the 1894

Addendum 3: Relocation of Graves

Marked graves younger than 60 years do not fall under the protection of the NHRA (Act No. 25 of 1999) with the result that exhumation, relocation and reburial can be conducted by an undertaker. This will include logistical aspects such as social consultation, purchasing of plots in cemeteries, procurement of coffins, etc. Other legislative measures which may be pertinent include the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925), Regulations Relating to the Management of Human Remains (GNR 363 of 22 May 2013) made in terms of the National Health Act No. 61 of 2003, Ordinance on Exhumations (Ordinance No. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Marked graves older than 60 years are protected by the NHRA (Act No. 25 of 1999) an as a result an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. Note that unmarked graves are by default regarded as older than 60 years and therefore also falls under the NHRA (Act No. 25 of 1999, Section 36).

The relocation of graves entails the following procedure:

- Notices of intent to relocate the graves must be put up at the burial site for a period of 60 days. This should contain contact information where communities and family members can register as interested and affected parties. All information pertaining to the identification of the graves must be documented for the application of a SAHRA permit. All notices must be in at least 3 languages, of which English is one. This is a requirement by law.
- These notices of intention must also be placed in at least two local newspapers and have the same information as above.
- Local radio stations can also be used to try contact family members. This is not required by law, but can be helpful.
- During this time (60 days) a suitable cemetery must be identified near to the development or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account.
- Once the 60 days have passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been issued, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any remains and any additional objects found in the grave.

Information needed for the SAHRA permit application

- The permit application must be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.
- All the information on the families that have identified graves.
- A letter of permission from the landowner granting permission to the developer to exhume and relocate the graves.

- A letter (or proof of purchase of the plots) from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district and GPS coordinates of the gravesite.

Graves are generally be classified into four categories. These are:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years; and
- Graves of victims of conflict or of individuals of royal descent.

environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Nyala 3 Solar Energy Facility

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

2.

Specialist Company Name:				
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	X	Percentage Procurement recognition	
Specialist name:	FP Coetzee			
Specialist Qualifications:	BA (Hons) Archaeology			
Professional affiliation/registration:	Association of Southern African Professional Archaeologists (ASAPA) CRM REG NO #028 Affiliated with SAHRA and AMAFA			
Physical address:	99 van Deventer Road, Centurion,			
Postal address:				
Postal code:	0157	Cell:	0827077338	
Telephone:		Fax:		
E-mail:	coetzfp@gmail.com			

3. DECLARATION BY THE SPECIALIST

I, _____FP Coetzee_____, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

Name of Company:

25/5/2023

Date

4. UNDERTAKING UNDER OATH/ AFFIRMATION

I, ____FP Coetzee_____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

Name of Company

25/5/2023

Date

0925206-1
M. LEGODI
WARRANT OFFICER

Signature of the Commissioner of Oaths

SUID-AFRIKAANSE POLISIEDIENS
SAPS LYTTELTON
2023 -05- 25
COMMUNITY SERVICE CENTRE
SOUTH AFRICAN POLICE SERVICE

2023-05-25

Date