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**REPORT ON A PHASE 1 HERITAGE ASSESSMENT
FOR THE PROPOSED VANADIUM & PALLADIUM SPP DEVELOPMENT
ON VARIOUS FARMS AND FARM PORTIONS
NEAR NORTHAM, LIMPOPO PROVINCE**

For:

ENVIRONAMICS

REPORT: **APAC022/122**

by:

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December 2022

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A handwritten signature in black ink, appearing to be 'A. Elser', is centered on the page.

SUMMARY

APelser Archaeological Consulting (APAC) was appointed by Environamics, on behalf of Subsolar Energy (Pty) Ltd, to undertake a Phase 1 HIA for the proposed Vanadium & Palladium SPP developments on various portions of the farms Zwartdoorns 412KQ, Makayskraal 18JQ, Tusschenkomst 15JQ and Uitduiker 17JQ, near Northam in the Limpopo Province.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific study and development area footprint, but a number were identified & recorded in the study area during the field assessment. The report will discuss the results of the desktop and field assessment and provide recommendations on the way forward at the end of the document.

From a Cultural Heritage point of view the proposed development actions can continue, taking into consideration the mitigation measures proposed in the report.

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1. INTRODUCTION

APelser Archaeological Consulting (APAC) was appointed by Environamics, on behalf of Subsolar Energy (Pty) Ltd, to undertake a Phase 1 HIA for the proposed Vanadium & Palladium SPP developments on various portions of the farms Zwartdoorns 412KQ, Makayskraal 18JQ, Tusschenkomst 15JQ and Uitduiker 17JQ, near Northam in the Limpopo Province.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific study and development area footprint, but a number were identified & recorded in the study area during the field assessment.

The Heritage Specialist was accompanied to and in the study and development area by representatives of the property owners, who indicated the location and existence of the cultural heritage resources in the area.

2. TERMS OF REFERENCE

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

Aspects are dealt with mainly in the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998) are the two main legislations concerning the conservation of cultural resources, used as guidelines when conducting the Heritage Impact Assessment.

3.1. The National Heritage Resources Act (Act 25 of 1999)

According to the National Heritage Resources Act (Act 25 of 1999) (NHRA), the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures, and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures, and sites older than 75 years
- e. Historical objects, structures, and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures, and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

The Heritage Impact Assessment (HIA) process is done to determine whether there are any heritage resources located within the area to be developed as well as to determine the possible impacts of the proposed development. An Archaeological Impact Assessment (AIA) only looks at archaeological resources, such as material remains of human life or activities which are at least 100 years of age, and which are of archaeological interest. A HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34(1) of the Act states that no person may demolish any structure or part thereof that is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure refers to any building, works, device or other facility made by people, and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

To alter means any action taken that affects the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology, and Meteorites

Section 35(4) of the Act deals with archaeology, palaeontology, and meteorites. The Act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- i. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- ii. destroy, damage, alter, exhume, or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- iii. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province, and local police. Furthermore, permission must also be gained from the various landowners (i.e., where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker, or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

3.1. The National Environmental Management Act (No. 107 of 1998)

The National Environmental Management Act (NEMA) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and recommendations for the mitigation thereof are made in the Discussion and Conclusions & Recommendations sections of the Report.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied. The report is drafted and developed in line with the requirements of Appendix 3 of the EIA regulations.

4. METHODOLOGY

4.1. Review of literature

A review of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

4.2. Field survey

The field assessment component of the study was conducted on the 6th of December 2022 according to generally accepted HIA practices and aimed at locating all possible objects, sites, and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

4.3. Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. This is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4. Documentation

All sites, objects, features, and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. PROJECT DESCRIPTION

Subsolar Energy (Pty) Ltd is planning to develop Solar Power facilities, connecting to existing ESKOM Powerlines & infrastructure, on various portions of the farms Zwartdoorns 412KQ, Makayskraal 18JQ, Tusschenkomst 15JQ & Uitduiker 17JQ. The proposed Vanadium and Palladium SPP Projects study and development area is located close to the town of Northam in the Limpopo Province. The development is approximately 10km south-east of the town and the development will include not only the Solar Panels, but also supporting infrastructure.

6. DESCRIPTION OF THE AREA

The study & proposed development area is located close to the town of Northam in the Limpopo Province and on portions of the farms Zwartdoorns 412KQ, Makayskraal 18JQ, Tusschenkomst 15JQ & Uitduiker 17JQ.

The topography of the study & proposed development area is mostly flat and open, with no rocky outcrops, ridges or hills present. The area is also characterized by red sandy soils in some sections and black turf soils in others. The study & development area has been fairly extensively impacted in the recent past by agricultural activities that included ploughing and crop growing, as well as livestock (cattle) breeding/herding and grazing. The related farmsteads/homesteads also had an impact, but to a lesser degree. Many of the heritage resources present in the area are related to the earlier farming activities here. The existing ESKOM powerlines and servitudes also impacted the study area in general to some degree.



Figure 1: General location of the study and proposed development area (Google Earth 2022).

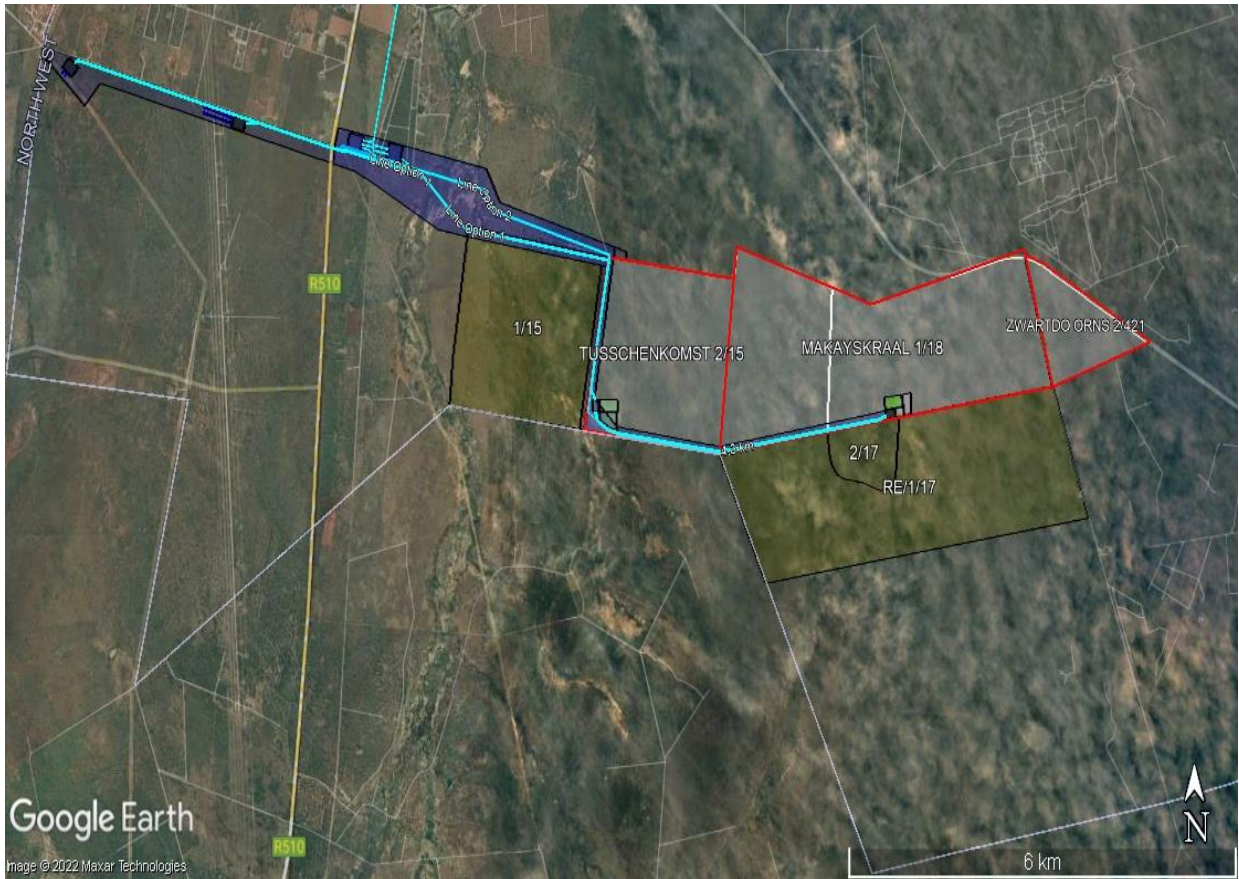


Figure 2: Closer view of the study and proposed development area footprint (Google Earth 2022).

7. DISCUSSION

7.1. Stone age

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided into three periods as listed below. It is important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

- Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago
- Middle Stone Age (MSA) less than 300 000 – 20 000 years ago
- Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

No Stone Age sites (including rock art) are known to occur in the immediate study area. The closest known Stone Age sites (Early to Later Stone Age) are found close to Rooiberg and Thabazimbi at sites called Blaauwbank & Olieboomspoor (Bergh 1999: 5).

No Stone Age sites and scatters of Stone Age material (stone tools) were identified in the study area during the December 2022 field assessment. One site with a scatter of MSA/LSA stone tools were identified during a recent HIA on the farm Haakdoornfontein 12JQ (Pelser 2021: 26-27).

7.2. Iron age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts. In South Africa it can be divided in two separate phases (Bergh1999: 96-98), namely:

- Early Iron Age (EIA) 200 – 1000 A.D
- Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

- Early Iron Age (EIA) 250 – 900 A.D.
- Middle Iron Age (MIA) 900 – 1300 A.D.
- Late Iron Age (LIA) 1300 – 1840 A.D.

There are no known Iron Age sites (EIA or LIA) in the immediate study area, although a large number of EIA to LIA sites are known to exist in the larger geographical landscape in which the study area falls. The closest and best-known Iron Age site is located at Rooiberg near Thabazimbi to the north of the study area (Bergh 1999: 7).

The closest Early Iron Age site is located at Broederstroom near Brits (Bergh 1999: 6). In a band stretching from Pretoria to Brits as many as 125 Late Iron Age sites have been identified and many more between Brits and Rustenburg (Bergh 1999: 7). Tswana chiefdoms flourished in the area during AD 1600 to 1840 (Pistorius 2009: 18). Late Iron Age sites are also known between Brits and Thabazimbi (Bergh 1999: 7).

At the beginning of the 19th century different Tswana groups settled in the larger area. It includes the Kwena, Po and Kgatla. During the so-called difaqane (period of war or stress) they fled to the north-west and the Ndebele of Mzilikazi settled in around the Brits area and further north between 1827 and 1832 (Bergh 1999: 10-11, 106-107, 111; Pistorius 2009: 18-19).

Tom Huffman's research work shows that Iron Age sites, features or material could possibly be found in the area (based on pottery analysis combined with radiocarbon dates from related sites). This could include the so-called Moor Park facies of the Urewe Tradition dating to between AD1350 and AD1750 (Huffman 2007: 159); Uitkomst facies of the same tradition dating to between AD1650 and AD1820 (p.171); Rooiberg facies of Urewe dating to between AD1650 and AD1750 (p.175); the Oilfantspoort & Madikwe facies of the Urewe tradition both dating to between AD1500 and AD1700 (p.191 & 199); the Buispoort facies of Urewe dating to between AD1700 and AD1840 (p.203); the Diamant facies of the Kalundu

Tradition dating to between AD750 & AD1000 (p.223) and finally the Eiland facies of the same tradition dating to between AD1000 and AD1300 (Huffman 2007: 227).

No Iron Age sites, features or material were identified in the area during the December 2022 assessment. With no rocky ridges or hills present in the area, and therefore little or no building material available for the construction of the typical Late Iron Age stone-walled settlements, it is unlikely that LIA sites would be present here. Large parts of the study & development area is also characterized by turf-soils, and this would also have inhibited building. Areas like these could rather have been favored for livestock grazing & agricultural purposes as is the case in recent historical times. However, during earlier assessments in the larger area, and again on the farm Haakdoornfontein 12JQ, some Iron Age-related material (mostly pottery and grinding stones) were identified (Pelser 2021: 26-30)

7.3. Historic age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. The first European group to pass close by the area were that of Cowan & Donovan in 1808, followed by Scoon & McLuckie in 1829, Hume & Scoon in 1835 and by the famous Dr. David Livingstone in 1847 (Bergh 1999: 12-14).

The information below was obtained from a HIA Report by Dr. Julius Pistorius done in 2013 for Samancor's proposed Mining Right Application for Portions of the farm Varkensvlei 403KQ and Nooitgedacht 406KQ near Northam (p.22-23).

"It is highly unlikely that the Project Area was occupied by Early Iron Age (EIA) Bantu-Negroid people who lived elsewhere in the Limpopo, Mpumalanga, KwaZulu-Natal and North-West Provinces of South Africa during the 3rd to 9th centuries AD. The earliest Iron Age settlers who moved into the larger project area were Late Iron Age Sotho-speaking groups who belonged to the Moloko tradition. These Kgatla and Kwena communities are associated with stone walled settlements which date from AD1600 although earlier settlements, devoid of any stone walls, also probably occur in the region. Moloko sites have been recorded in Rooiberg, north of the Project Area, at the Pilanesberg and in Madibeng and Rustenburg further to the south where these sites are associated with kopjes and randjes. Iron Age settlements occur in the Ben Alberts Nature Reserve and elsewhere in the Thabazimbi district.

The Rooiberg area is also renowned for early tin mining activities, possibly dating from the Late Iron Age. It seems as if large quantities of tin ore were mined from the Rooiberg and transported to an unknown destination. The abundance of iron ore in the area, particularly around Thabazimbi, also led to the smelting of these ores by local Late Iron Age people in order to manufacture products such as weapons (spears) and tools (hoes, axes, etc.).

The closest towns to the Project Area are Thabazimbi and Northam. Thabazimbi's name is derived from the Tswana words for 'mountain of iron'. This was due to the discovery of the

exceptionally rich iron ore deposits at Vliegpoort ('defile of flies') by the geologists J.H. Williams in 1919. The South African government bought the ore body and production for the Iscor Iron Ore mine in 1928. The mine started with its operations in 1931 A branch railway line was built from Northam to Thabazimbi on the Pretoria-Middelwit line. The town of Thabazimbi was laid out on the farm Kwaggashoek and proclaimed 23 on 4 May 1953. Millions of tons of iron ore are annually mined and hauled by train to Vanderbijlpark and New Castle.

The town of Northam was laid out by E.H. Fulls on the farm Leeukoppie and formally proclaimed in 1946. This farm together with several others was owned by H. Herd who had purchased the properties from British soldiers to whom they have been allocated after the Anglo Boer War. Herd was allowed to choose the name for the new village which he called Northam after the village Northam in Devonshire, England".

The Chief Surveyor General's Database (www.csg.dla.gov.za) was scrutinized for old maps of the various farms. For Zwartdoorns 412KQ the oldest map that could be obtained dates to 1956 (CSG Document 10F2KM01). The farm was then numbered as No.1019 and was then located in the District of Rustenburg in the Province of Transvaal. The specific map shows that it was surveyed for an electrical servitude/line between July & August 1956. For Makayskraal 18JQ (then numbered as No.1018) the oldest map also dates to 1956 (CSG Document 10G82T01) and was also surveyed between July & August 1956 for an electrical servitude/line at the time. The Tusschenkomst 15JQ map dates to 1894 (CSG Document 10G81J01) and was then numbered as No.287. The farm was at the time located in the District of Rustenburg, Ward of Elands Rivier and the old Zuid-Afrikaansche Republiek (ZAR). The farm was surveyed in August 1893 for one S.J. Oosthuysen. The oldest map for Uitduiker 17JQ also dates to 1894 (CSG Document 10G82901) and shows that the farm was then numbered as No.173. It was surveyed for C. Hanau & H.C. Trull in August 1893 as well. They were Curators for the African Real Estate Finance Co. Ltd at the time.

No historical sites or features are indicated on any of these maps.

S.G. OFFICE 1024

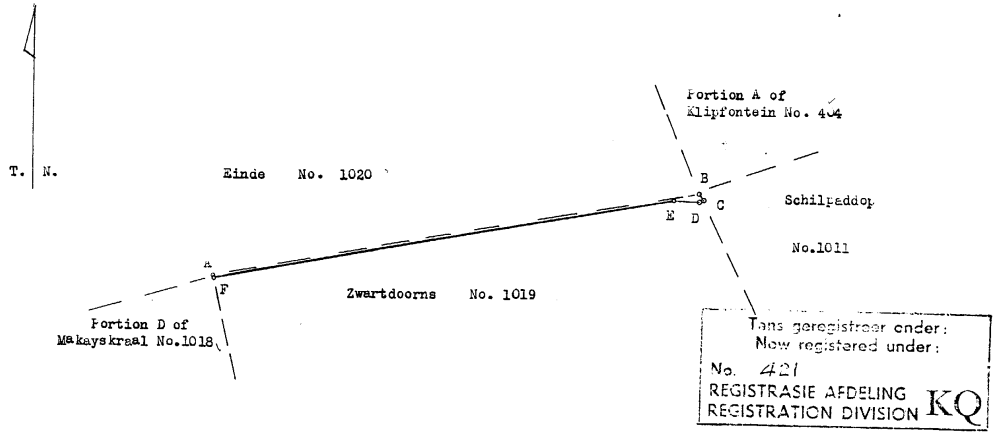
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Approved

M. Allen
Surveyor-General

DESCRIPTION OF BEACONS
 A B : Monoliths
 C D Z F : Not beacons
 E D : Unbeaconed centre point between two electric power line poles 11 ft. apart.

SIDES Cape Feet	ANGLES OF DIRECTION	CO-ORDINATES. x SYSTEM Lo 27°	
		Constant	- x 50,000. 0 + 8,730,000. 0
AB 10 082. 3	259° 25' 06"	A	- 60 810. 1 + 43 021. 3
BC 146. 0	334 11 10	B	- 70 720. 9 + 41 169. 8
CD 71. 4	70 12 45	C	- 70 784. 5 + 41 301. 2
DE 503. 5	90 38 50	D	- 70 717. 3 + 41 325. 4
EF 9 552. 2	79 25 20	E	- 70 213. 8 + 41 319. 7
FA 53. 8	165 02 20	F	- 60 824. 0 + 43 073. 3



The Lines lettered F E D C F B D D B C represent the centre lines of the Overhead Electric Power Lines with Underground Cables traversing the Farm ZWARTDOORNS NO. 1019 situate in the DISTRICT of RUSTENBURG Framed for the purpose of a Servitude from actual Survey in July - September 1956 by me *J. P. Pennington* Land Surveyor. PROVINCE OF TRANSVAAL

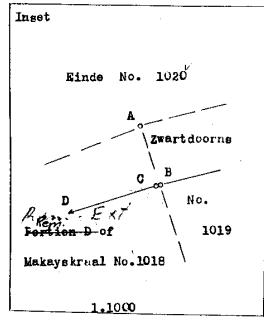
This diagram is annexed to Deed of *Fr.* No. 945/57 dated in favour of Registrar of Deeds. The original diagram is No. A 932/94 relating to Deed of Grant No. 397/51 D. B. 155/43 S.G. File No. 6566/16208/56 Survey Records No. 2125/56 Compilation No. 1937 General Plan

Figure 3: 1956 map of Zwartdoorns 412JQ (www.csg.dla.gov.za).

S.G. No. A 6827/56

Approved

C. H. Deen
Surveyor-General

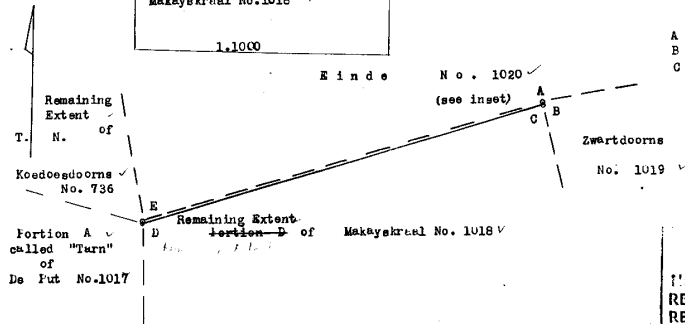


SIDES	Cape Feet	ANGLES OF DIRECTION	y CO-ORDINATES. x SYSTEM Lo 27°	
			Constant	
AB	53.6	345° 02' 20"	A - 50 000.0	+6,730,000.0
BC	1.2	79 29 18	B - 60 810.1	+ 43 021.3
CD	9 461.5	73 22 10	C - 60 824.0	+ 43 073.3
DE	55.8	178 37 00	D - 60 822.8	+ 43 073.5
EA	9 449.5	253 22 10	E - 51 757.2	+ 45 781.5
				+ 45 725.7

DESCRIPTION OF BEACONS

- A E : Monoliths
- B & D : Not beacons
- C : Unbeaconed centre point between two electric power line poles 11ft. apart.

Approved



Transvaal Land Survey Office
No. 18
REGISTRARIE AFDELING
REGISTRATION DIVISION JQ

D & B Scale 1: 25,000

The Line lettered **D & B**

represents the centre lines of

Overhead Electric Power Lines with Underground Cables traversing **Portion D Remaining Extent**

of the farm **MAKAYSKRAAL NO. 1018**
situate in the DISTRICT of **RUSTENBURG**

PROVINCE OF TRANSVAAL

Framed for the purpose of a Servitude from actual Survey in **July - September 1956**

by me

J. P. Pennington
Land Surveyor.

This diagram is annexed to Deed of *servitude*
No. *1131/57* dated
in favour of

The original diagram is No. A *185/94*
~~4366/00~~
relating to Deed of *Transfer Grant*
No. ~~4366/00~~ *31/1916*
D.B. 155/23
D.B. 125/125

S.G. File No. *10474/16 208/56*
Survey Records No. **2125/56**
Compilation No. *KQ 7*
General Plan

Registrar of Deeds.

Figure 4: 1956 map of Makayskraal 18JQ (www.csg.dla.gov.za).

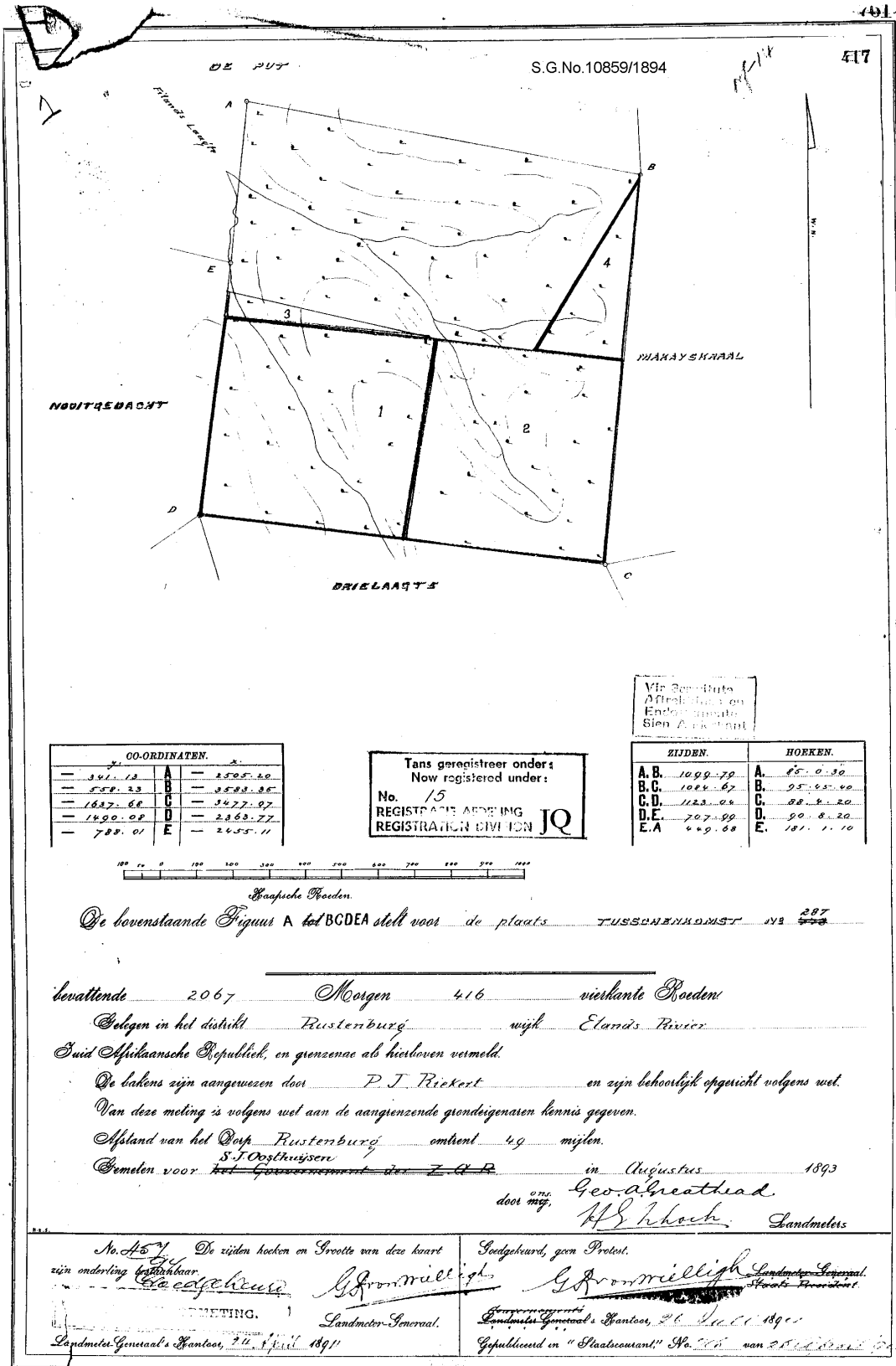


Figure 5: 1894 map of Tusschenkomst 15JQ (www.csg.dla.gov.za).

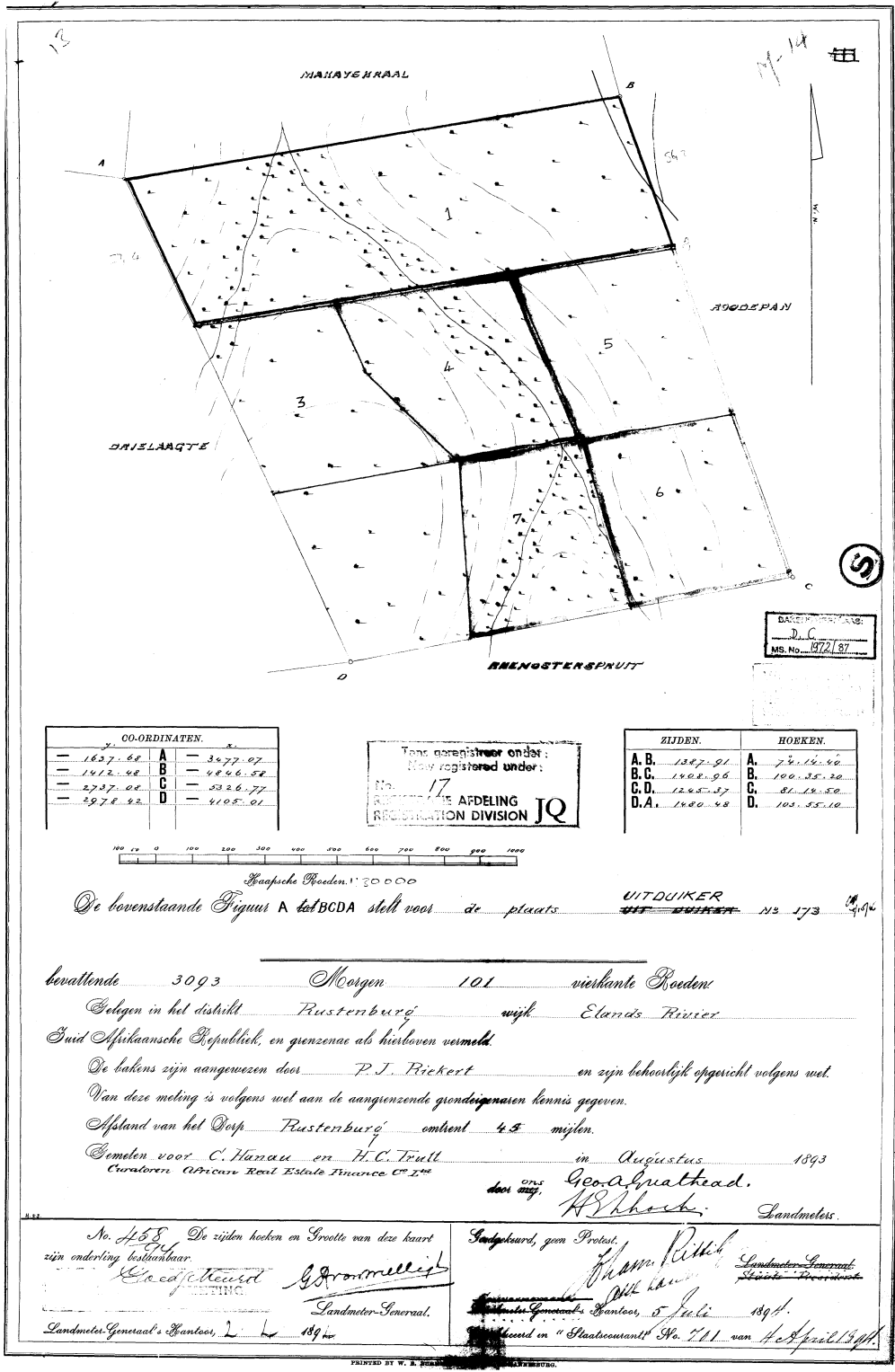


Figure 6: 1894 map for Uitduiker 17JQ (www.csg.dla.gov.za).

Some recent historical sites and features were identified and recorded in the study & development area in December 2022. These include the remains of farm labourer homesteads; farmsteads & related homestead and structures and grave sites. Some fall outside of the direct areas of impact although some are located in the study area and proposed development footprint

Results of the December 2022 Field Assessment

Dense vegetation cover at the time of the assessment limited visibility on the ground and in some respects hampered access to some sections. However, large parts of the study and development area has been fairly extensively impacted in the recent past through agricultural activities such as cattle/livestock farming and grazing, with some old fields for pasture also present. Other impacts include the related farmsteads/homesteads and Eskom Powerlines and servitudes. The fact that the study and development area is also mostly flat (with no rocky outcrops, ridges or prominent hills present), as well as the mostly red sandy soils and turf characterizing the topography and natural stratigraphy of the area would mean that Late Iron Age stone-walled settlement remains are unlikely to occur in the area. These settlements typically tend to concentrate on and around rocky ridges and prominent hills. Landscapes such as these would also have been utilized mainly for cattle/livestock grazing and limited crop raising and growing in pre-historical times.

All the cultural heritage resources recorded in the area during the assessment dates to the recent historical past, with these sites known to the property owners and their representatives and indicated to the Heritage Specialist. No other sites or features are known to occur in the area and none over and above the recorded ones were identified.



Figure 7: A view showing the dense vegetation characterizing large parts of the area at the time of the field assessment.



Figure 8: A view of another section. Dirt roads traverse the area creating some open patches. The turf soils characterizing large parts of the area is evident here.



Figure 9: Another view of the very dense vegetation cover.



Figure 10: A view of a section of the area where the red sandy soils typical in some parts are evident in the dirt road here.



Figure 11: Some sections are slightly more open as a result of cattle grazing.



Figure 12: Another section where the impact of agriculture and grazing is evident. In this case it is the planting of pastures that had an impact.



Figure 13: Another view showing the dense vegetation and an old dirt track in a part of the area.

Site 1 - Graves

This site is located on Makayskraal and contains between 4 and 5 stone-packed graves with no headstones. There is a possibility of more graves but grass cover hampered visibility on the ground. The identity and age of the graves are not known, but they most likely belong to farmworkers who worked and had settled on the farms.

As the graves are unknown in terms of their age they are deemed as older than 60 years of age until proven otherwise through consultation. During an earlier land claim process the BaPhalane initially indicated that these graves belong to their community members, but this claim was later retracted.

Graves always carry a High Significance rating from a Cultural Heritage perspective and therefore all possible care should be taken to avoid and impacts or damage to sites such this by any development actions. Although the possibility that this site will be directly impacted by the proposed development, it is recommended that the site be protected by fencing it in with a proper fence and to implement a buffer zone of at least 30m from the outer perimeter of the site within which no development should be allowed. The site should also be cleared of excess vegetation and kept clean at regular intervals. The drafting and implementation of a Cultural Heritage Management Plan (CHMP) for the cultural heritage resources of the area should also be considered, with this and other grave sites also included in this document.



Figure 14: A view of Site 1.



Figure 15: Closer view of some of the stone-packed graves.

Site 2 – Ruins of farmworker homestead

This site contains the ruins of what is possibly a farmworker’s homestead. It is constructed of bricks and cement, with plastered walls. The hollow bricks found alongside indicates that it is probably less than 60 years of age. The site is not deemed of any heritage significance and no mitigation measures are required to protect it against the impacts of development. The documentation conducted during the Phase 1 HIA assessment is seen as sufficient.



Figure 16: A view of Site 2.

Site 3 – Ruins of Farmstead and related features

This site contains a number of buildings and farming-related features, including the homestead, outbuildings, cement dam, outside bathroom/toilet and other structural remains. The site is also located on Makayskraal.

The age of the structures/homestead at the site is not known, could originally have been older than 60 years of age. Some additions and alterations were more than likely undertaken over the years. Most of the structures are not well preserved and have been vandalized (elements such as doors, roofing, handles, window frames etc.) having been removed. The site is based on that deemed of low significance and can be demolished should the proposed development directly impact on the site.



Figure 17: The foundations of a structure on Site 3.



Figure 18: Another structure on the site.



Figure 19: A view of the main homestead on the site.



Figure 20: A rondavel structure that formed part of the main homestead.



Figure 21: A view inside the main homestead.



Figure 22: Remnants of the old fireplace/hearth in the main homestead.



Figure 23: Remains of an old cement dam/reservoir on the site.



Figure 24: Old outside toilet/bathroom on the site.

Site 4 – Remains of old farm dams

These are the remains of old soil and cement/concrete-walled dams that were constructed between the 1915's/1920's according to Mr. Francois Swart (owner of the properties). As such this site is of relatively high heritage significance although the feature/s are not in good state of preservation and highly visible as a result of soil erosion and dense vegetation cover.

If the site and dam features are going to be directly and negatively impacted by the proposed development it is recommended that it be mapped and recorded in detail before demolition and that a demolition permit be obtained from SAHRA to do this. If the site can be excluded from the development with a buffer zone placed around it then it is recommended that it should be included in a CHMP for the area.



Figure 25: A partial view of the area where the dam site is located.



Figure 26: A view of the remnants of the cement/concrete walling associated with the dams.

Site 5 – Bush Camp

This bush camp with its associated structures are located on Tusschenkomst is not of any historical origin or heritage significance. No mitigation measures are therefore required and the site can be demolished should it be impacted by the proposed development.



Figure 27: A partial view of the Bush Camp on Tusschenkomst.



Figure 28: Another view of the modern structures and associated features at the Bush Camp.

Site 6 – Farmstead & Related infrastructure

This site located on Uitduiker contains a number of buildings and structures associated with a dairy and piggery on the farm, including a large dam and livestock enclosures. It is not old (less than 60 years of age) and not of historical or cultural heritage significance. The documentation done during the Phase 1 HIA is seen as sufficient and should the proposed development directly impact on the site it can be demolished and no further mitigation measures are required.



Figure 29: One of the structures on Site 6. This is probably a shed/store room.



Figure 30: Large steel/corrugated iron dam on the site.



Figure 31: View of the dairy/piggery on the site.



Figure 32: Closer view of a section of the structure in Figure 31.



Figure 33: Part of the dairy on Site 6.



Figure 34: Another structure on the site.



Figure 35: Cement drinking/feeding trough on the site.

Site 7 – Historical Farmstead and Related Infrastructure

This site – also located on the farm Uitduiker – is located in fairly close proximity to Site 6. It contains an historic farmhouse and associated outbuildings and features. Although the exact age of the original farmhouse is not known, it could date from around the late 19th/early 20th to mid-20th centuries based on building style and some architectural elements. It has however been extensively altered over the years, with large sections fairly modern and less than 60 years of age.

Although the site might fall outside of the direct area of impact by the proposed development it is recommended (based on the historical origin and age of the structure) that the site be documented in detail by an architectural historian before it falls into complete disrepair and disappears from the historical landscape. Based on its age, and the fact that not many of these types of Farmsteads are still present in the larger geographical landscape the site given a Heritage Rating of between Medium and High. The site should therefore be protected against any direct and negative impacts by development and be included in a CHMP for the area. If the site cannot be excluded from the development and needs to be demolished then a detailed assessment has to be undertaken before a demolition permit from SAHRA is applied for.



Figure 36: One of the outbuildings on Site 7. This is probably a shed/storeroom. Note the Cape Dutch style gable.



Figure 37: A front view of the main homestead on Site 7. Although there has been many alterations and additions, the original style is typical of the late 19th/early 20th centuries.



Figure 38: A back view of the main homestead.



Figure 39: A later addition to the main house. The gable style is Cape Dutch.



Figure 40: A view of the garage on the site. Originally this could have been a wagon shed.



Figure 41: A view inside the house of the enclosed veranda. Originally this would have been open and typical of the wide verandas of farmhouses of the late 19th/early 20th centuries.



Figure 42: View of the old fireplace/hearth for the kitchen in the main house.



Figure 43: A more recent past structure on the site.

Site 8 – Grave/s

This grave site contains a grave demarcated by a cement slab and headstone inlaid with slate. It is the grave of one Hermina Catharina De la Rey Wolfaardt and a date of 1919 is visible on the inscription. It is assumed that this is the Date of death. The grave is therefore older than 60 years of age and protected under the NHRA (Act 25 of 1999).

Another granite headstone was also identified on the site. This is for the 2 dogs of J.M. Lundie (John Lundie) who used to live and farm here on this portion of Uitduiker. According to a representative of the current farm owner this headstone used to be located close to the homestead and must have been move to the cemetery by Mr. Lundie at some point. Mr. Lundie had also dug himself a burial pit at the site before he moved away from the farm recently, with the intention of being buried here when he passed away.

Although the site and grave will most likely not be directly impacted by the proposed development, graves and grave site always carry a High Significance Rating from a Cultural Heritage perspective. All care should therefore be taken not to impact the site and to avoid any damage to it. The site is fenced-in with an access gate. It is recommended that the site be properly cleaned of excess vegetation and that it be included in the recommended CHMP for the area.



Figure 44: The grave of Hermina Catharina De la Rey Wolfaardt at Site 8.



Figure 45: A closer view of the slate headstone with inscription on the grave.



Figure 46: The granite headstone that used to be on the grave of Mr. Lundie's two dogs.

Site 9 – Old Quarry

This site is located on a portion of the farm Zwartdoorns. According to the representative/manager of the current farm owner (Mr. Francois Swart) this quarry was used to obtain material (gravel etc.) for the construction of the road/s in the area. The age is not known, but it is assumed to be less than 60 years old. There is no infrastructure associated with the quarry. The site does not have any historical origin or heritage significance and no mitigation measures are required for it.



Figure 47: View of the quarry at Site 9.



Figure 48: Another view of a section of the quarry.

GPS Location of Sites

S25 01 25.20 E27 20 50.00 (1)
S25 01 33.90 E27 20 41.60 (2)
S25 01 32.20 E27 20 36.30 (3)
S25 01 46.70 E27 20 09.60 (4)
S25 01 43.00 E27 17 45.50 (5)
S25 03 00.60 E27 20 17.40 (6)
S25 03 02.40 E27 20 25.40 (7)
S25 03 53.60 E27 21 58.90 (8)
S25 01 48.60 E27 22 38.70 (9)

Cultural Significance: Low (Sites 2, 3, 5, 6 & 9); Medium to High (Site 7); High (Sites 1, 4 & 8)

Heritage Significance: None (Sites 2, 3, 5, 6 & 9); Grade III: Other heritage resources of local importance and therefore worthy of conservation.

Field Ratings: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (Low Significance sites)

Local Grade IIIB: Should be included in the heritage register and may be mitigated (High/Medium Significance sites)

Mitigation: See recommendations provided at the discussion of each site

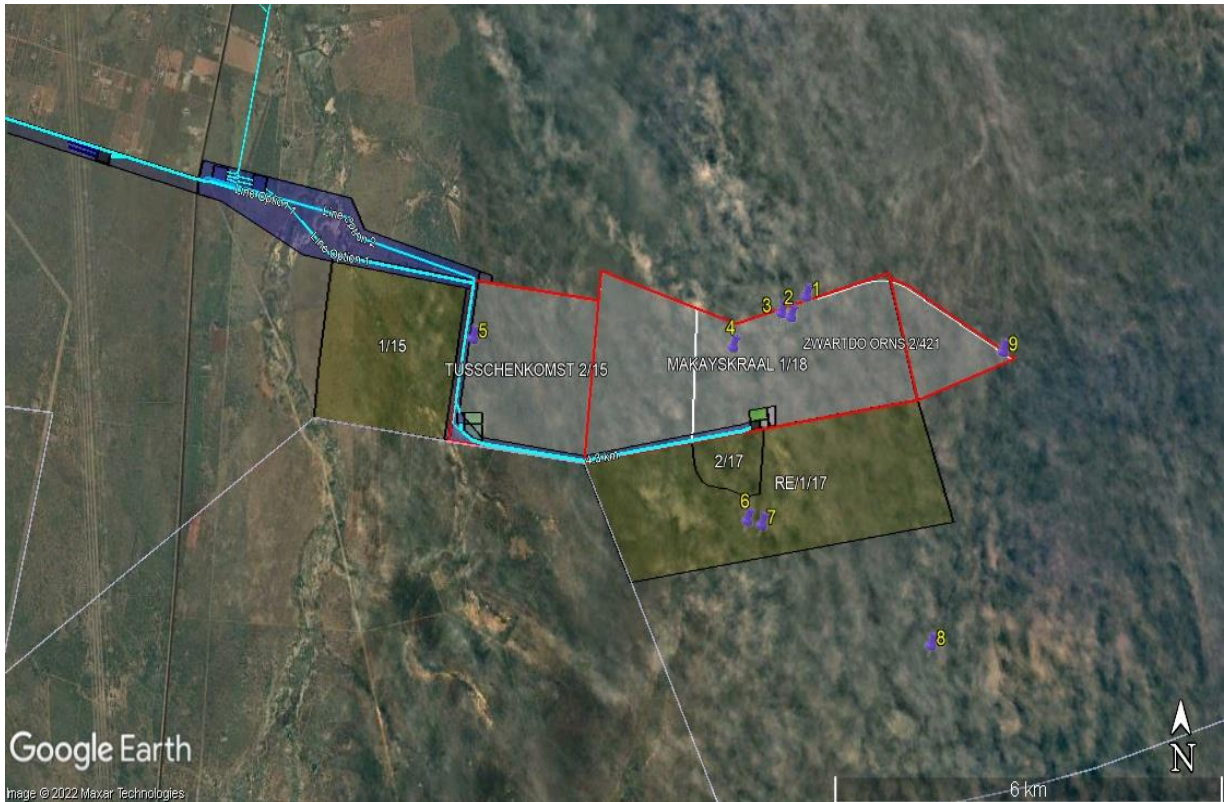


Figure 49: Map showing the location and distribution of the heritage sites recorded in the study area (Google Earth 2022).

Impact Assessment and Mitigation Measures

The significance of impacts is determined using the following criteria:

Probability: describes the likelihood of the impact actually occurring

- **Improbable:** the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- **Probable:** there is a probability that the impact will occur to the extent that provision must be made therefore.
- **Highly probable:** it is most likely that the impact will occur at some stage of the development.
- **Definite:** the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures or contingency plans to contain the effect.

Duration: the lifetime of the impact

- **Short Term:** the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- **Medium Term:** the impact will last up to the end of the phases, where after it will be negated.
- **Long Term:** the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.

- **Permanent:** the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale: the physical and spatial size of the impact

- **Local:** the impacted area extends only as far as the activity, e.g. footprint
- **Site:** the impact could affect the whole or measurable portion of the abovementioned property.
- **Regional:** the impact could affect the area including the neighboring residential areas.

Magnitude/Severity: Does the impact destroy the environment, or alter its function

- **Low:** the impact alters the affected environment in such a way that natural processes are not affected.
- **Medium:** the affected environment is altered, but functions and processes continue in a modified way.
- **High:** function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- **Negligible:** the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- **Low:** the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- **Moderate:** the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- **High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

With some sites, features or material of cultural heritage origin or significance found in the area during the assessment, the impact of the proposed development on heritage is deemed as Moderate.

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short Term	1
	Medium Term	3
	Long Term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude)	x Probability
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

Results: 4+2+6×2 = 24 i.e >20≤40

The impact of the proposed development on the cultural heritage in the area is therefore deemed as Low based on the Impact Assessment criteria used.

Finally it should also be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) in an area that there is always a possibility that some might have been missed as a result of grass cover and other factors.

8. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting (APAC) was appointed by Environamics, on behalf of Subsolar Energy (Pty) Ltd, to undertake a Phase 1 HIA for the proposed Vanadium & Palladium SPP developments on various portions of the farms Zwartdoorns 412KQ, Makayskraal 18JQ, Tusschenkomst 15JQ and Uitduiker 17JQ, near Northam in the Limpopo Province.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. A number of cultural heritage sites and features were identified & recorded in the study area during the field assessment. These include graves & grave sites as well as various farmsteads/homesteads and related structures. Many of these sites are not of any heritage significance or historical origin and if they are going to be impacted by the proposed development can be demolished without any mitigation required. A number of the sites are however of Medium to High Significance (the various grave sites, the historical dam site and the Site 7 homestead) and should they be directly impacted by the development mitigation measures need to be implemented prior to the development commencing. It is also recommended that these sites be included in a Cultural Heritage Management Plan (CHMP) for the area.

From a Cultural Heritage point of view, it can be recommended that the proposed Vanadium & Palladium SPP Development close to Northam in the Limpopo Province should be allowed to continue taking into consideration the recommendations provided in the report.

Finally, the often-subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves) should always be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

9. REFERENCES

General and closer views of study & development area location, footprint & Heritage Sites recorded: Google Earth 2022.

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APPENDIX A: DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B: DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE

Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C: SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D: PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, paleontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, paleontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E: HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.