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**A FINAL REPORT ON A PHASE 1 HIA
FOR THE PROPOSED YZERMYNE UNDERGROUND COAL MINE
NEAR DIRKIESDORP, PIXLE KA SEME LOCAL MUNICIPALITY
MPUMALANGA PROVINCE**

For:

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REPORT: APAC014/35

by:

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SUMMARY

APELSER ARCHAEOLOGICAL CONSULTING cc was appointed by EcoPartners, on behalf of Atha Africa Venture (Pty) Limited, to conduct a Phase 1 HIA for the proposed Yzermyn Underground Coal Mine near Dirkiesdorp in the Pixley ka Seme Local Municipality of Mpumalanga. A similar assessment was conducted here in 2012 by Archaetnos cc on a section of the development and the earlier 2014 survey focused on an additional area identified for the development of a Mine Discard dump. SAHRA, in their comments on both the 2012 & additional 2014 (discard dump) survey, then indicated that a detailed Phase 1 AIA and heritage survey be undertaken in terms of the final Mine Layout, and that the impact of the development on any possible significant cultural heritage (archaeological & historical) resources be assessed and incorporated in a Final Report.

The 2012 assessment by Van Vollenhoven identified 18 sites of cultural heritage (archaeological & historical) in the mining area. The significance of these sites varies and some will be directly impacted by the mining activities. Mitigation measures were recommended in his report. The 2014 survey identified an additional 8 sites located in the new area identified for the discard dump. The earlier 2014 Report discussed the results of the assessment and provided recommendations on mitigation measures to minimize the negative effects of the development on these sites, taking into consideration the results of the 2012 Archaetnos survey as well. The July 2014 assessment focused mainly on the areas where the proposed Surface Mining Infrastructure for the underground coal mine will be located, as well as the adit and other surface operations. The results of this survey, together with the findings and recommendations contained in the earlier reports, will be discussed in this Final Report and recommendations made on required mitigation measures should the sites identified be negatively impacted by the proposed Mining Operations.

If the recommendations put forward at the end of this document are implemented, then, from a Cultural Heritage point of view, there should be no objection to the continuation of the proposed development.

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1. INTRODUCTION

APELSER ARCHAEOLOGICAL CONSULTING cc was appointed by EcoPartners, on behalf of Atha Africa Venture (Pty)Limited, to conduct a Phase 1 HIA for the proposed Yzermyn Underground Coal Mine near Dirkiesdorp in the Pixley ka Seme Local Municipality of Mpumalanga. A similar assessment was conducted here in 2012 by Archaetnos cc on a section of the development and the earlier 2014 survey focused on an additional area identified for the development of a Mine Discard dump. SAHRA, in their comments on both the 2012 & additional 2014 (discard dump) survey, then indicated that a detailed Phase 1 AIA and heritage survey be undertaken in terms of the final Mine Layout, and that the impact of the development on any possible significant cultural heritage (archaeological & historical) resources be assessed and incorporated in a Final Report.

The 2012 assessment by Van Vollenhoven identified 18 sites of cultural heritage (archaeological & historical) in the mining area. The 2014 survey identified an additional 8 sites located in and around the new identified area for the discard dump. The July 2014 assessment focused mainly on the areas where the proposed Surface Mining Infrastructure as well as the mine adit and other surface operations.

The location and boundaries of the study area were identified in the field and the assessment focused on these demarcated portions of land. During the survey the heritage specialist was accompanied by a representative of Atha Africa Venture (Pty) Ltd. (AAV).

2. TERMS OF REFERENCE

The Basic Terms of Reference for the study, based on the methodology employed by Heritage Impact Assessors, were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located in and around the proposed development area;
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;

Previous Heritage work done in the area (Van Vollenhoven 2012) was to be taken into Consideration as well as part of the background research, as his work was done for the same Development in a separate area earmarked for part of the proposed mining operations. An earlier 2014 assessment by APelser focused mainly on a new area earmarked for the Mine Discard dump. This and new sites located during the current survey in the area where the

underground mine will be developed, needed to be incorporated into the Final Report, also taking into consideration comments by SAHRA on the previous impact assessments.

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

According to the above-mentioned act 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 palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An 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 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

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

A structure means 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.

Alter means any action affecting 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 this 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 palaeontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological 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 palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological 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:

- a. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. 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
- c. 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)**.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.2 The National Environmental Management Act

This act 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 proposals for the mitigation thereof are made.

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.

4. METHODOLOGY

4.1 Survey of literature

A survey of available literature, including previous heritage studies in the area, was undertaken in order to place the development area in an archaeological and historical context. The sources consulted in this regard are indicated in the bibliography.

4.2 Field survey

The assessment was conducted according to generally accepted HIA practices and in this case was aimed at identifying and recording any possible cultural heritage resources that might be located in the development area, assessing their archaeological & historical significance, while taking into consideration the negative impacts of the proposed development on these resources. The location/position of all sites, features and objects are determined by means of a Global Positioning System (GPS) where possible, while 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. It needs to be stated that 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 the general minimum standards accepted by the archaeological profession. 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. DESCRIPTION OF THE AREA

The Yzermyn underground coal mine development area is located approximately 13km west of Dirkiesdorp, and halfway between Wakkerstroom & Piet Retief. It is situated in the Pixley ka Seme Local Municipality of Mpumalanga. The farms Kromhoek 93 HT portion-1 and remainder Yzermyn 96HT portion-1 are covered by the surface infrastructure including discard dump for the underground mine that formed the focus of the earlier 2014 assessment located on Kromhoek 93 HTportion-1 The Surface Infrastructure area is located on Portion 1 of Yzermyn 96HT.

The study area is characterized by rolling grassveld and hills, as well as valleys, streams and wetlands in sections. Certain sections have been utilized in the past for agricultural purposes (crop raising and cattle grazing), as well as historical coal mining. The new area for the Discard dump is relatively flat and open, with little tree cover. A few low rocky ridges and outcrops are also located here. Archaeological visibility was fairly good with the area having burnt recently and only low grass cover present. The area where the Surface Infrastructure is proposed is similar than the rest of the area, but does contain some clumps of trees (in general tree cover is sparse), while some rocky (sandstone) outcrops are present.

The Surface Infrastructure area focused on during the July 2014 assessment includes underground adits, stockpile areas, pollution control dams and other associated mining infrastructure. It should be noted that the mining in the area will be mainly underground, with the coal seams accessed via openings/adits.

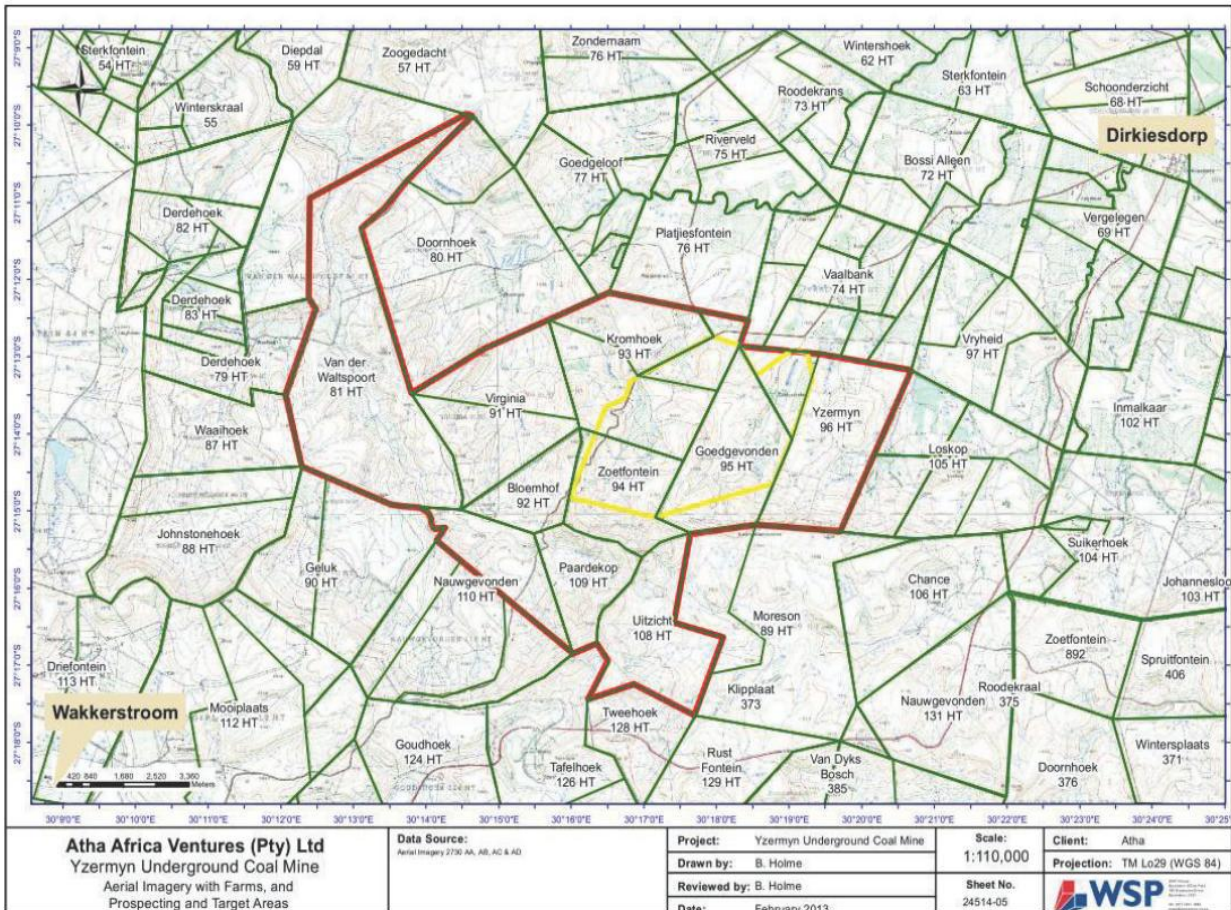


Figure 1-3: Locality Map Detailing Prospecting Right, Target Area and Farm Names

Figure 1: Location of study area (in yellow). Map provided by EcoPartners (courtesy of WSP).

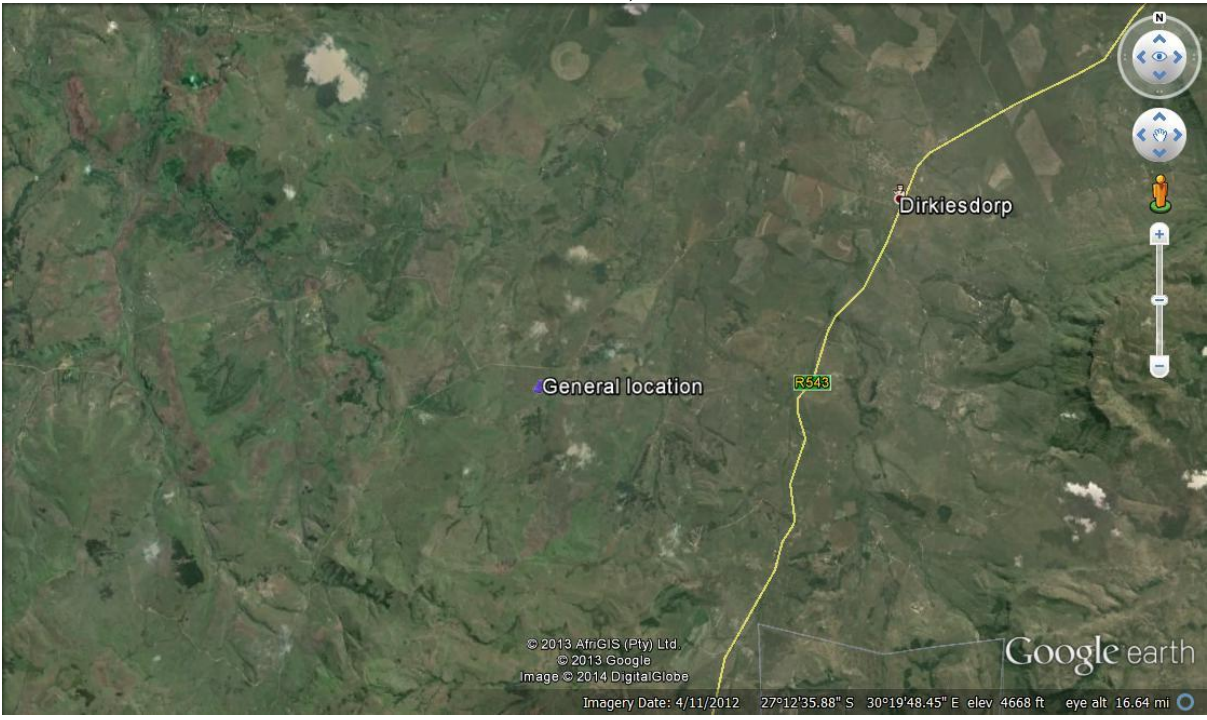


Figure 2: Aerial view of study area location (Google Earth 2014 – Image date 2012/04/11).

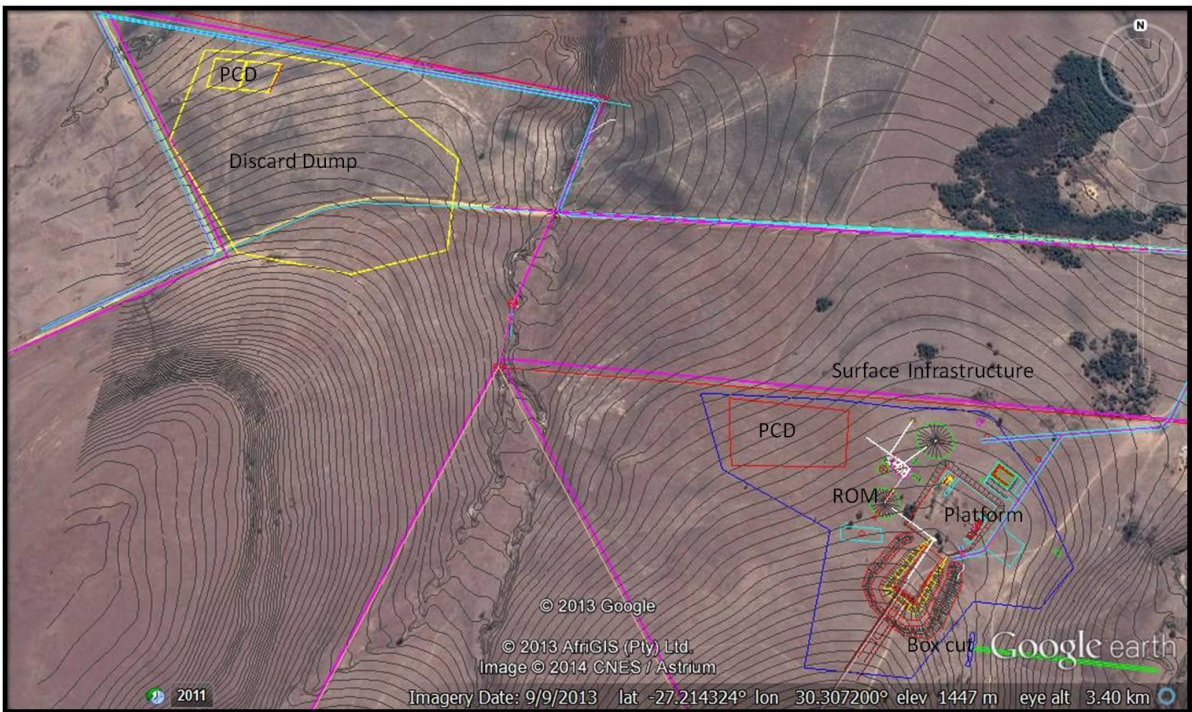
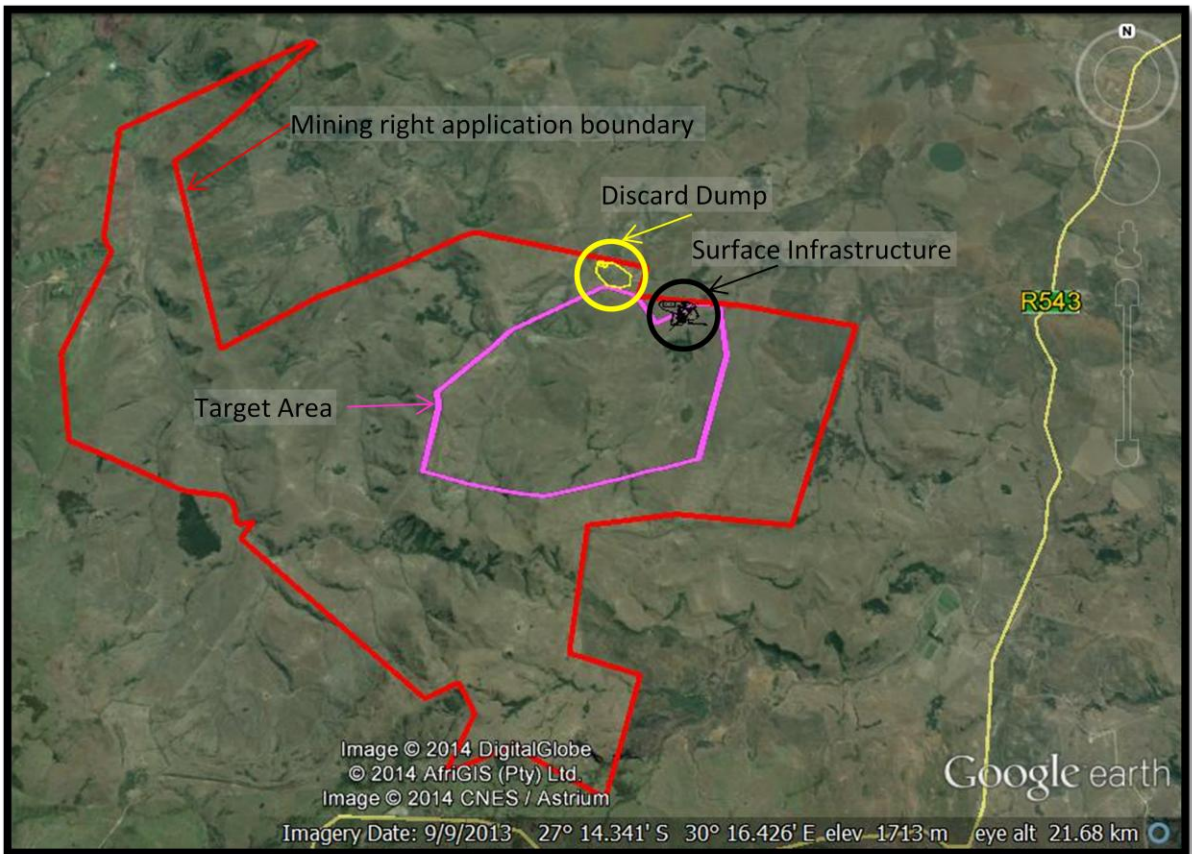


Figure 3: Closer aerial view of study area covering surface infrastructure and discard dump (Google Earth 2014 – Image date 2013/09/09).



**Figure 4: View of a section of the general area.
Note the hills, grassveld and stream.**



Figure 5: Another view of a portion of the study area.



Figure 6: General view of the location of the Discard dump.



Figure 7: A view of a section of the Surface Infrastructure study area.



Figure 8: Another view of the Infrastructure area. Note the sparse tree cover, although some clumps of trees does occur here and there.



Figure 9: Further view of study area taken from a sandstone hill/outcrop in the top section of the study area where the adits will go underground.

6. DISCUSSION

A short background to the archaeology & history of the larger geographical and specific study area is given in the section below before the results of the fieldwork will be discussed. Various sources were utilized for this purpose, including the Heritage Report on previous work conducted by Archaetnos cc (See References) for the Yzermyn development.

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 in basically into three periods. It is however 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).

According to Van Vollenhoven no Stone Age sites have been identified by scientists previously in the study area (2012: 14). This most likely however only indicates the lack of Stone Age research in the area. This is confirmed in a historical atlas which also does not

show any such sites in the broader geographical area (see Bergh 1999). This includes rock art sites which are sometimes associated with the Late Stone Age. A popular publication about Wakkerstroom indicates that rock art have been identified on the farms Rietvlei, Driefontein and Doornhoek. Driefontein is adjacent to the study area (Van Vollenhoven 2012: 14).

A number of natural shelters are present in the sandstone hills in the larger area and one rock art site was found in such a shelter during the 2012 survey by Archaetnos (Van Vollenhoven 2012: 15; 38). Note that the site is not located on the mine right application area.

No Stone Age occurrences (stone tools) were identified during the 2014 assessment of the Discard dump area.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) indicates that a Middle Iron Age should be included. His dates, which are 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.

No Early or Middle Iron Age sites are known to occur in the study area (Bergh 1999: 6-7), while Late Iron Age sites are found in a band stretching from Wakkerstroom in the east to far within the boundaries of the Free State Province (Bergh 1999: 7). According to Huffman Iron Age people from the Maguga facies of the Kalundu tradition could have inhabited this area as early as 1100 A.D (Huffman 2007: 301).

During the 2012 assessment and during the 2014 assessment for the discard dump a number of LIA/early historical related stone walled settlement features were identified in the area.

The historical period usually starts with the moving into an area of people that were able to read and write and record histories such as early European travellers and/or missionaries. Early Europeans did not travel to this area (Bergh 1999: 12-13). White farmers only moved into the south-eastern Mpumalanga after 1853 when the government of the South African Republic (ZAR or Transvaal) traded the land from the Swazi. Wakkerstroom became a town and district in 1859 (Bergh 1999: 17-19). The town was originally known as Marthinus Wesselstroom. Missionaries also came to this part of the country during the 19th century. The Dutch Reformed Church and the Hermannsburg Missionaries established mission stations at Volksrust and Wakkerstroom during this time (Bergh 1999: 57).

During the Anglo-Transvaal War (1880-1881) the south-eastern part of Mpumalanga was the focus point of battles between the British and the Boers. The British had a camp in Wakkerstroom and were beleaguered by the Boers. Three important battles were fought during this time. These were at Laingsnek on 25 January 1881, Schuinshoogte on 8 February

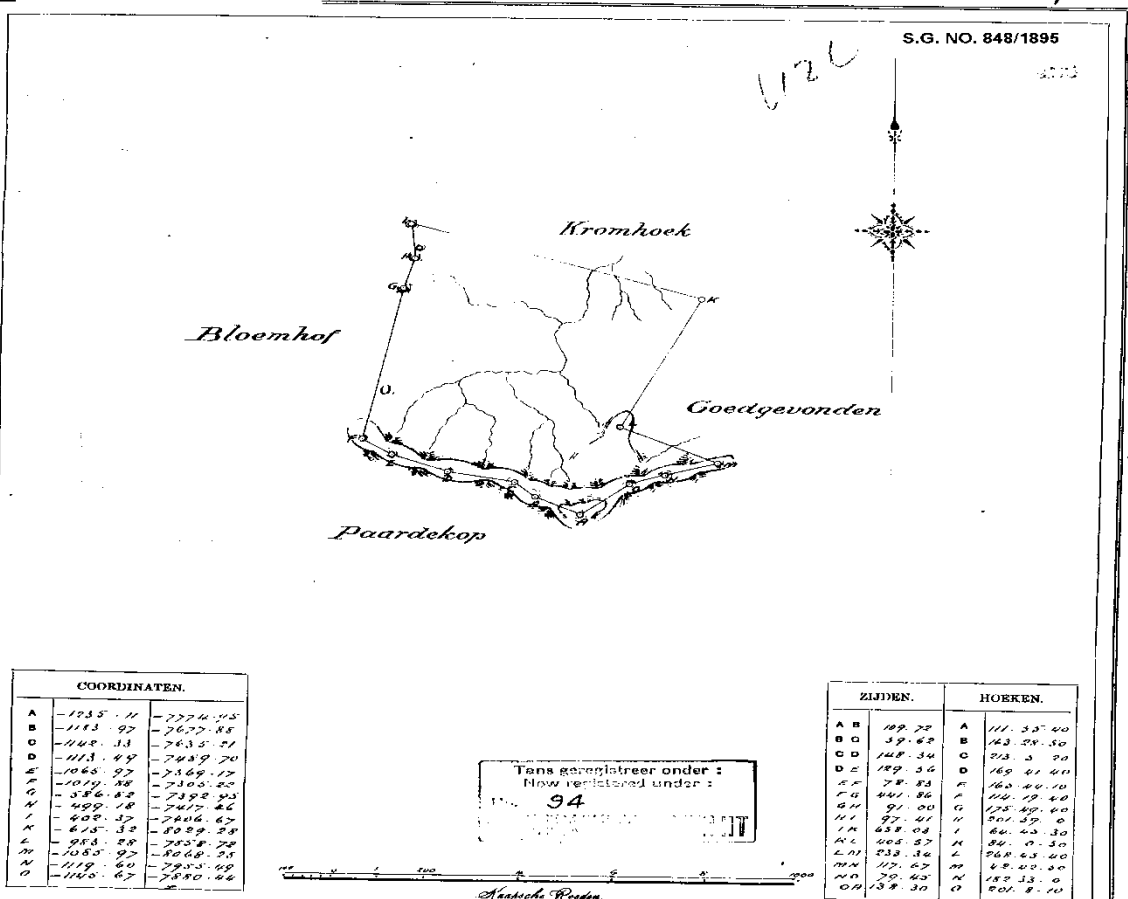
1881 and Amajuba on 27 February 1881. The Boers were victorious in all of these which led to peace being declared (Bergh 1999: 46).

The broader geographical area also experienced some action during the Anglo-Boer War (1899-1902). During the British offensive, Lt-Genl. R. Buller moved through the area and occupied Volksrust on 12 June 1900. He then moved further to the north and reached Amersfoort on 7 August 1900. At this time Boer commandos were placed at Laingsnek and Amajuba, but Buller had them on the retreat. They moved through Volksrust and Amersfoort. The only battle in this area was on 22 July 1900 when a skirmish broke out to the north of Volksrust, between the Boer commando of General D Joubert and the British troops under command of Genl. Coke (Bergh 1999: 51). There were however also a skirmish, namely at Kastrolsnek, close to Wakkerstroom (Hofmeyr & Smith 2009: 96).

The British later established a concentration camp for the Boer woman and children in Volksrust (Bergh 1999:54). The British also occupied Wakkerstroom and established a large camp here. This included blockhouses at Kastrolsnek (Hofmeyr & Smith 2009: 99). They also erected some blockhouses (small fortifications) in the broader geographical area during this War. Between Volksrust and Wakkerstroom they build 19 of these and the line of blockhouses was completed on 6 February 1902. Unfortunately it is not known exactly how many of these survived even partially. Between Wakkerstroom and Piet Retief the remains of 11 blockhouses have been identified (Van Vollenhoven 2012: 17). A number of recent historically related sites, including graves and remains of earlier coal mining, were recorded here during the 2012 survey by Archaeos (Van Vollenhoven 2012). Some graves and LIA/early historical settlement remains were also identified in the 2014 assessment by the author of this report.

The oldest maps for the two farms were obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za). Zoetfontein (from a map dated to 1896) was then numbered as 129, and was located in the Wakkerstroom District. It was measured for one B.P.Uys. No sites are shown (CSG Document No.: 10KC3AO1). For Goedgevonden (undated map, but seemingly around the same time as Zoetfontein) the farm was then numbered 391 and was measured for one E.C. Klinkenberg (CSG Document 10KIIM01). Again no sites of cultural origin were indicated.

12900



COORDINATEN.	
A	-1235.11
B	-1185.92
C	-1148.33
D	-1018.49
E	-1065.97
F	-1019.88
G	-886.82
H	-659.18
I	-602.37
J	-615.33
K	-583.28
L	-4085.92
M	-1119.60
N	-1145.67
O	-7774.15
	-7672.88
	-7435.71
	-7289.70
	-7369.12
	-7305.25
	-7392.93
	-7412.86
	-7406.62
	-8029.28
	-7858.28
	-8069.75
	-7953.69
	-7880.42

ZIJDEN.		HOEKEN.	
AB	189.75	A	111.57.00
BC	39.82	B	163.24.50
CD	148.34	C	212.3.50
DE	189.54	D	160.01.00
EF	78.83	E	160.00.10
FG	441.86	F	102.12.00
GH	91.00	G	178.49.00
HI	97.41	H	501.39.0
IJ	658.03	I	86.43.30
JK	665.87	J	84.0.30
LK	538.36	K	264.53.00
LM	117.67	L	18.42.00
MO	79.65	M	187.33.0
OM	138.30	O	201.8.10

Tans geregistreer onder :
 Now registered under :
94

De bovenstaande Figuur NO. 129 stelt voor de plaats **Koelfontein No. 129**
 bevattende **646 Morgen** **342 Vierkante Roeden**.
 Gelegen in het district **Wekkersdorp** wijk **K. 3**.
 Zuid Afrikaansche Republiek, en grenzende als hierboven vermeld.
 De lakens zijn aangewezen door **B. P. Uys**, en **Landmeter en A. Van der** en zijn betrekkelijk afgerichte volgens wet.
 Van deze meting is volgens wet naar de aangrenzende grondeigenaars kennis gegeven.
 Afstand van het Dorp **Wekkersdorp** omtrent **19** mijlen.
 Gemeten door **B. P. Uys** door mij **W. J. J. J. J.** 1895 Landmeter.

Vir Serwitte
 Afrekkings en
 Endossements
 Sien Anderkant

No. 129 Goedgekeurd. De zijden hoeken en Grootte van
 deze kaart zijn genoegzaam bestaand. **W. J. J. J. J.**
 Landmeter-Generaal Kantoor, 7 Sept 1896.
 Landmeter-Generaal Kantoor, 7 Sept 1896.
 Gepubliceerd in 'Staatscourant' No. 134, van 4 Oct 1896.

Figure 10: Old map of Zoutfontein (ww.csg.dla.gov.za).

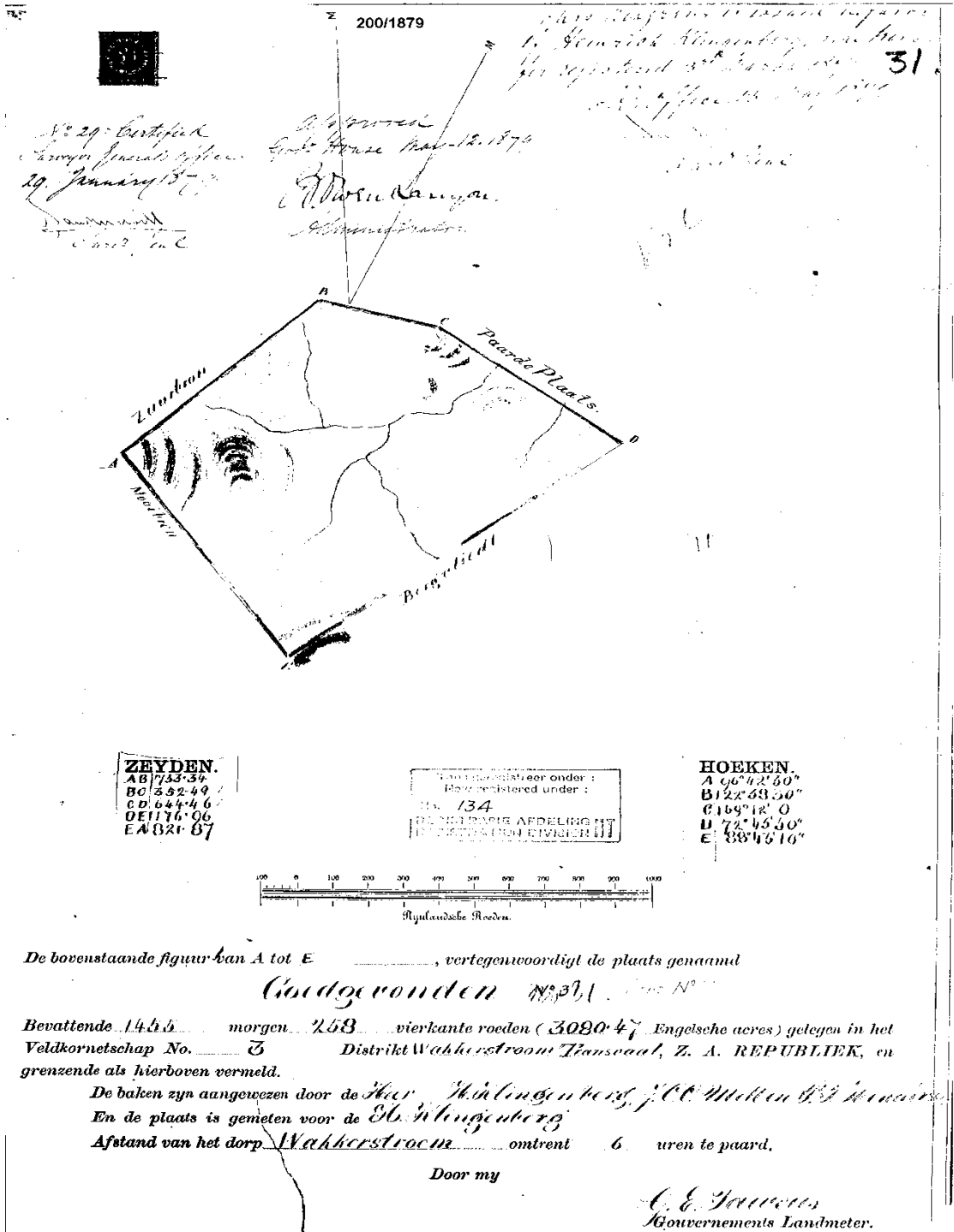


Figure 11: Old map of Goedgevonden (www.csg.dla.gov.za).

Results of Heritage Assessments

Archaeon 2012

Eighteen (18) sites dating to the Stone Age, Iron Age and more recent historical period were identified during this study, varying in significance. Mitigation measures to negate any possible impacts by the proposed developed on these sites are provided by the author of the

Assessment Report (a prefeasibility report). These sites and the findings will be briefly discussed here.

Site 1

The site consists of the foundations of two small circular stone walled enclosures approximately 2.5 m in diameter. The function is unknown, but could have functioned as platforms for granary stands.

Cultural Significance: Medium

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Site should be recorded before destruction (medium significance).

Mitigation: It may therefore be demolished during site development.

Site location: S27°13.435 E30°18.461.



Figure 12: Site 1 stonewalled feature.

Site 2

The site consists of a semi-circular stone wall of approximately 4 m long and 0.5 m high. It is located on a high vantage point and a flat stone on top gives the impression that it might have had a defensive purpose. Van Vollenhoven therefore suggested that it is possibly a fortification wall erected during the Anglo Boer War (2012: 19).

The site has a medium cultural significance based on its historic value. It has a general local significance and is therefore given a rating of Grade B (IVB).

Cultural Significance: Medium

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Site should be recorded before destruction (medium significance).

Mitigation: A Phase II study was recommended. This should entail the drawing of the structure after which it may be demolished.

Site location: S27°13.372 E30°18.480.



Figure 13: Site 2.

Site 3

According to van Vollenhoven (2012: 20) this is a Late Iron Age/ Historical circular stonewalled cattle enclosure. The structure is approximately 30 m in diameter, with walls still 0.5m in height.

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.490 E30°18.448.



Figure 14: Site 3.

Sites 4, 5 & 8

These sites date to the Late Iron Age/ Historical period and consist of circular stonewalled enclosures between 20 and 30m in diameter with walls 0.30 & 0.50m high respectively.

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.863 E30°17.756 (4); S27°13.775 E30°13.755 (5); S27°13.621 E30°17.617 (8).

Site 6

Van Vollenhoven indicated this as a Historical site consisting of a rectangular enclosure (2012: 24). The structure measures 6m (l) x 4m (w) with walls around 0.80m in height. It is situated fairly close to Sites 4 and 5.

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.722 E30°17.723.



Figure 15: Site 6.

Site 7

This is another Late Iron Age/ Historical site. It is a circular stonewalled enclosure with a diameter of about 3m with walls 0.50m high. Van Vollenhoven interpreted this as a hut most likely used by a cattle herder at one of the cattle enclosures (outposts) situated at sites 4-6 (2012:25).

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.677 E30°17.663.



Figure 16: Site 7.

Site 9

This is a small grave yard consisting of at least six graves. It is located close to an abandoned homestead. The graves are stone packed and have no headstones with legible inscriptions. The graves are therefore not dated in terms of date of death, but it seems as if the homestead was abandoned fairly recently and therefore the graves are more than likely younger than 60 years of age.

Cultural Significance: Graves always are regarded as having a high cultural significance.

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/ medium significance).

Mitigation: If impacted then it could either be fenced in and Managed or Exhumed & relocated after social consultation has been undertaken and the required legal processes followed.

Site location: S27°13.865 E30°16.852.



Figure 17: Site 9. One of the graves.

Site 10

This is another Late Iron Age/ Historical site. It consists of two structures. The first one is similar to the supposed hut (Site 7). The second one consists of a circular stonewalled cattle enclosure with an L-shaped wall attached to it.

GPS: 27°13.505'S

30°17.736'E

The site has a medium cultural significance based on its historic value. It has a general local significance and is therefore given a rating of Grade B (IVB).

Cultural Significance: Medium

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Van Vollenhoven proposed a Phase II study if the site is to be demolished. This would entail drawing a plan of the site.

Mitigation: Map & Draw.

Site location: S27°13.505 E30°17.736.

Site 11

This is the ruins of a house and outbuildings from the recent historical period. It is located within a wattle and eucalyptus plantation and may therefore possibly be linked to the forestry history of the area according to Van Vollenhoven (2012:30). There are two main structures, namely a house and a rondavel. The structures were constructed with stone.

According to Van Vollenhoven (2012: 31) the site has low cultural significance based on its historic value as it is not very unique.

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.459 E30°18.839.



Figure 18: Site 11.

Sites 12 & 13

Site 12 consists of stones packed in an L-shape. The function is unknown, but it may have something to do with the outline of a farm road (Van Vollenhoven 2012: 32). Site 13 is a recent site located in one of the streams in the survey area. It consists of stone-packed walls which seem to have functioned in damming up the stream. According to the current farm owner (J. Uys) this was done by the previous owner (Van Vollenhoven 2012: 33).

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27°13.782 E30°18.549 (12) & S27°13.792 E30°18.596 (13).



Figure 19: Site 13.

Site 14

Site 14 consists of the remains of three structures built with stone. All of these are connected to the early mining history of the area. Two of these are probably houses, but the third is quite large. It may be communal accommodation or it may have been used for offices (Van Vollenhoven 2012: 34).

Cultural Significance: Medium

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Van Vollenhoven proposed a Phase II study if the site is to be impacted. This would entail drawing a plan of the site.

Mitigation: Documentation (Map & Draw).

Site location: S27°13.200 E30°17.170.



Figure 20: View of Site 14.

Site 15

Site 15 consists of a number of shafts and related features linked to the early mining history of the area. The shafts are cut into the rock face and seem to run in a horizontal direction.

Cultural Significance: Medium

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Van Vollenhoven indicated that no further mitigation would be required.

Mitigation: None.

Site location: S27°13.321 E30°17.269.

Site 16

This is a small grave yard containing at least six graves. Two of these are fenced in by a stone wall. It is located close to an abandoned homestead. All the graves are stone packed and have headstones without any inscriptions. The graves therefore have unknown dates of death, but it seems as if the homestead was abandoned fairly recently and therefore the graves might be younger than 60 years of age.

Cultural Significance: Graves always are regarded as having a high cultural significance.

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/ medium significance).

Mitigation: If impacted then it could either be fenced in and Managed or Exhumed & relocated after social consultation has been undertaken and the required legal processes followed.

Site location: S27°13.585 E30°16.841.



Figure 21: Site 16 grave yard.

Site 17

This is a rock shelter with rock paintings against its back wall. The whole rock face have been weathered and there probably were much more paintings originally according to Van Vollenhoven (2012: 37).

The panel consists of two sections. On the left hand side one figure is visible and on the right a number of at least eight figures. These are divided by red ochre lines in between. All the figures are monochrome – only red ochre has been used. The figure on the left hand side may be that of a woman. Rock art are usually linked to the San people and the site dates to the Late Stone Age.

Cultural Significance: High.

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/ medium significance).

Mitigation: Detailed documentation. Do not impact. Preserve

Site location: S27°13.297 E30°17.595.



Figure 22: Site 17 rock paintings.

Site 18

This is another area containing a number of shafts and related features linked to the early mining history of the area. The shafts are cut into the rock face and seem to run in a horizontal direction.

According to Van Vollenhoven the site has a high cultural significance based on its historic and scientific value. The site is given a higher grading as Site 15 for two reasons. Firstly the site is from an aesthetic point of view more pleasing and accessible which means it should be much easier to utilize for research purposes. Secondly some artifacts close to the entrance were found indicating that this particular shaft dates back to the late 19th/ early 20th century (Van Vollenhoven 2012: 40).

Cultural Significance: High.

Heritage Significance: Grade II - Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate.

Field Rating: Provincial Grade II significance: Should be managed as part of the provincial estate.

Mitigation: Manage and Preserve.

Site location: S27°12.878 E30°19.367.



Figure 23: Site 18 Mine Shaft.

During the earlier 2014 assessment 8 sites of heritage origin were located in the area where the Discard dump is proposed. All the sites, or features, date to the LIA and recent historical time period.

Sites 19 & 20

This is the remains (graves) (Site 1) of what seem to be a historical farming settlement (possibly farmworkers or the settlement of a local black group who had settled here after the arrival of Europeans to the area). It contains the foundations of stone packed livestock enclosures (cattle kraals), huts, granary platforms and 2 stone packed graves (Site 2) enclosed in a stone packed graveyard. The way that the graves are marked and “fenced” put this site possibly within the late 19th to early 20th centuries.

If the site and especially the graves are to be impacted on negatively by the proposed development then mitigation measures will have to be implemented. Graves always carry a high cultural heritage rating and should be handled with caution. The graves can either be left in situ, fenced in and managed or they can be exhumed and relocated after all due legal processes have been followed. This will include extensive social consultation and the obtaining of permits before they are relocated. As they are probably older than 60 years of age a permit will also have to be obtained from SAHRA.

Cultural Significance: Medium (stone walled remains); High (Graves).

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection A (IV A): Site should be mitigated before destruction (high/ medium significance)

Mitigation: Mapping and recording of stone walled settlement remains. If impacted and cannot be avoided then graves should be exhumed and relocated after due processes have been followed. If not then the site and graves can be properly fenced and demarcated and managed through the implementation of a Cultural Heritage Management Plan.

Site location: S27 12.552 E30 18.135 (Site 19) & S27 12.537 E30 18.139 (Site 20).

Sites 21 - 26

All these sites or features are represented by the stone packed foundations of either livestock (cattle) enclosures, semi-circular enclosures (huts?) or stone cairns (the platforms for grain bins or grain baskets). The age of these are at this stage uncertain, but could date to the Late Iron Age or could be related to the later historical farmer settlement in the area. Although a number were identified during the survey it is possible that there are more similar sites and features in the area. No cultural material (such as pottery or others) was found in association with these sites, making identifying their occupants and time-frame of settlement difficult at this stage.

With the sites located within the boundaries of the proposed Discard dump development, and therefore in danger of being impacted upon negatively, it is therefore recommended that mitigation be implemented prior to the development work commencing. This will include the mapping of these sites and features to determine their spatial organization and distribution, as well as some superficial archaeological investigations (excavations) in order to determine their age, functionality and the cultural identity of their occupants.

Cultural Significance: Medium.

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Sites should be recorded before destruction (medium significance)

Mitigation: Mapping and recording of stone walled features. Limited archaeological excavations in predetermined areas

Site location: S27 12.481 E30 18.187 (Site 21); S27 12.456 E30 18.275 (Site 22); S27 12.396 E30 18.330 (Site 23); S27 12.423 E30 18.205 (Site 24); S27 12.433 E30 18.199 (Site 25); S27 12.436 E30 18.194 (Site 26).



Figure 24: View of location of Site 19.



Figure 25: Stone walled remains at Site 19.



Figure 26: Foundations of a hut.



Figure 27: The graves at Site 20.



Figure 28: One of the cattle kraals in the area (Site 22).



Figure 29: Another kraal (Site 24).



Figure 30: Granary platform (Site 25).

July 2014 Assessment – Surface Infrastructure area

Five sites, all dating to the Late Iron Age period, were recorded in this area.

Site 27

This is fairly extensive stonewalled Late Iron Age site, containing a number of livestock enclosures and smaller enclosures possibly used as hut bays. There are at least 3 individual homesteads making up the site. Although some of the walling is nothing more than foundations, there are sections of walling up to 0.50m in height. The site is located in the area the surface infrastructure will be developed, and will therefore be impacted on by the development. Mitigation measures are therefore proposed.

Cultural Significance: Medium.

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection B (IV B): Sites should be recorded before destruction (medium significance)

Mitigation: Mapping and recording of stone walled features. Limited archaeological excavations in predetermined areas

Site location: S27 13 01.80 E30 18 47.2.



Figure 31: Site 27. A view of a section of the site.



Figure 32: A possible hut bay on another part of Site 27.



Figure 33: Another circular stonewalled enclosure associated with Site 17. This part of the site is characterized by features made of mostly of foundations.

Sites 28 - 31

All four (4) these sites or features are characterized by individual circular stonewalled enclosures, situated in various locations of the study area. The sizes of these enclosures range between a maximum of 5m in diameter to in some cases less than 2m. Although some of these enclosures could have functioned as livestock enclosures, two of them are too small and might have been used as hut enclosures – possibly for the cattle herders. The Phase 1 assessment is seen as adequate recording and no further mitigation measures are required.

Cultural Significance: Low

Heritage Significance: Grade III - Other heritage resources of local importance and therefore worthy of conservation

Field Rating: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: No further mitigation required.

Site location: S27 13 20.40 E30 18 32.30 (28); S27 13 15.90 E30 18 39.70 (29); S27 13 12.30 E30 18 44.10 (30) & S27 13 09.20 E30 18 45.60 (31).



Figure 34: Site 28.



Figure 35: Site 29.



Figure 36: Site 30.



Figure 37: Site 31.

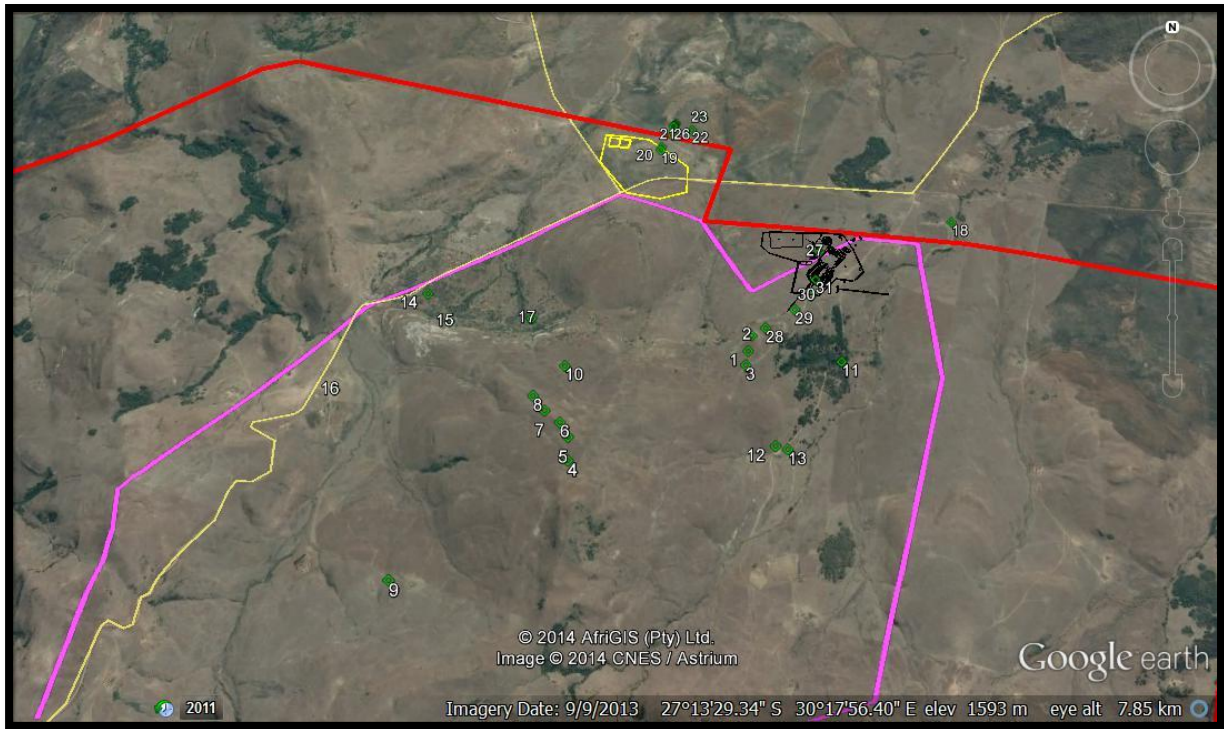


Figure 38: Heritage Sites and Surface Infrastructure/ Discard Dump footprints. (Google Earth 2014 – Image date 2013/09/09). It shows the site in relation to the development areas and those that will be directly impacted.

7. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is possible to say that the Phase 1 AIA & Heritage Survey for the proposed Yzermyn Coal Mine development on Komhoek 93 HT portion-1 & remainder Goedgevonden and Yzermyn 96 HT portion-1, located near Dirkiesdorp in Mpumalanga, was conducted successfully. A previous survey for the Yzermyn development (done in 2012 by Archaeos cc) identified a number (18 in total) of cultural heritage sites and features including graves, stone walled LIA and historical sites and San rock art in the larger geographical area, while a number of sites were identified by Pelsner in an earlier 2014 assessment for a proposed Discard dump for the Mine. During this assessment 8 sites dating to the LIA and more recent historical period (including 2 graves) were recorded. The final assessment in July 2014 (for the Mining Surface Infrastructure area) identified an additional 5 sites.

In comments by SAHRA on the 2012 and earlier 2014 assessments, it was recommended that once the layout of the mine has been decided, it be subject to an intensive heritage survey and an Phase 1 Archaeological Impact Assessment be submitted to SAHRA APM Unit for review, that assesses the impact of the proposed mine development on the resources identified as having medium and high archaeological significance. This assessment must include a map of all known heritage resources in relation to the areas proposed for development and mining including proposed roads.

- The larger project area must be subject to a Phase 1 Palaeontological Impact Assessment by a professional palaeontologist. This must include a field assessment for palaeontological resources and must include a program for monitoring by a palaeontologist. This report must

be submitted to SAHRA for assessment. **This report does not include the results of the palaeontological study, as this was independently commissioned by the client.**

- The cemeteries, Sites 9 and 16, identified in the report dated April 2012 and Site 2 (No. 20 in this Final Report) identified in the report dated February 2014, must be retained *in situ* and the mine layout must take cognizance of this recommendation. Subject to the re-assessment identified above, a Conservation Management Plan may need to be drafted for these resources. It is clear from the final study that both Site 9 and 16 falls outside the development area and will not be impacted. Site 20 does fall inside the Discard dump area and mitigation measures to protect it will have to be implemented. This could include fencing it off and managing the site, but if the site cannot be avoided then the graves can be exhumed and relocated after the required legal processes have been followed, social consultation with community members and possible descendants undertaken and consent for the relocation obtained.

The rock art site (Site 17) identified in the April 2012 report is deemed to be highly significant since little is known about the Later Stone Age of the area. It is therefore recommended that the site be conserved and no impact should occur on the area. Subject to the re-assessment identified above, a Conservation Management Plan may need to be drafted for this resource. The Phase-I assessment indicated that the site falls outside the direct surface infrastructure development area, but it is still recommended that the Site be preserved and a Conservation Management Plan be drafted for it.

After the reassessment during Phase 1 HIA it is clear that the following sites (as numbered in this report and indicated in Figure 38) will not be impacted by the development:

1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 21; 22; 23; 24; 25 26, 28 & 29. No mitigation measures as indicated in the report are therefore required. Out of the above said sites, 18; 22; 23; 24; 25 & 26 are located outside the Prospecting Right boundary.

The following sites will be directly impacted:

Sites 19; 20; 27; 30 & 31. Sites 19 & 20 fall inside the Discard dump area, while the other sites are located within the area of the Surface Infrastructure development. The mitigation measures as indicated will therefore have to be implemented before development commencing. This will include mapping and drawing and limited excavations for the Late Iron Age sites and the Conservation or Relocation of the graves.

Finally, from an Archaeological & Heritage point of view it is recommended that the development be allowed to continue once the mitigation measures have been implemented. **The possible subterranean presence of archaeological and/or historical sites, features or artifacts should however always be kept in mind. This could include unknown and unmarked burials. If during any development activities, any sites, features and objects of a cultural heritage (archaeological or historical) nature, are exposed, an expert should be called in to investigate and ensure that suitable mitigation measures are implemented. All development in these areas should be halted until the situation had been satisfactorily resolved.**

8. REFERENCES

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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, palaeontological, 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, palaeontology 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.