Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

A REPORT ON A HERITAGE IMPACT ASSESSMENT (AIA) FOR THE PROPOSED PHOTO-VOLTAIC SOLAR POWER GENERATION PLANT ON THE FARM ADAMS 328 NEAR HOTAZEL IN THE NORTHERN CAPE

For:

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REPORT: **AE01220P**

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April 2012

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DISCLAIMER:

Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof.

The South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report and clients are advised not to proceed with any action before receiving these.

SUMMARY

Archaetnos cc was appointed by EScience & Associates, on behalf of Aurora Power Solutions, to conduct a Heritage Impact Assessment for a proposed Photo-Voltaic Solar Power Generation Plant on the farm Adams 328, near Hotazel the Northern Cape Province.

One site was found in the area, but this site is not significant and probably dates to less than 60 years of age as well. A single, out of context, stone tool was also recorded. The report provides a discussion of the finds and observations made during the fieldwork and also gives an indication of the methodology followed. It also indicates how to deal with any archaeological material that may be unearthed or disturbed during the development activities.

From a Cultural Heritage point of view there should be no objection to the continuation of the proposed development, taking into consideration the conclusions and recommendations made at the end of this report.

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1. INTRODUCTION

Archaetnos cc was appointed by EScience & Associates, on behalf of Aurora Power Solutions, to conduct a Heritage Impact Assessment for a proposed Photo-Voltaic Solar Power Generation Plant on the farm Adams 328, near Hotazel the Northern Cape Province.

One site was found in the area, but this site is not significant and probably dates to less than 60 years of age as well. A single, out of context, stone tool was also recorded.

The client indicated the boundaries of the area to be surveyed and the work was confined to this area.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

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

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (**see Appendix B**).

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, should this be applicable.

5. Review applicable legislative requirements.

3. CONDITIONS & ASSUMPTIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.

2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.

3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).

4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.

5. All recommendations are made with full cognizance of the relevant legislation.

6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area due to number of reasons such as visibility, accessibility and the subterranean nature of many sites, features and objects. Developers should however note that the report should make it clear how to handle any other finds that might be found.

4. 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).

4.1 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 or scientific or technological value.

The national estate (**see Appendix C**) 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 000m^2 or involve three or more existing erven or subdivisions thereof
d. Re-zoning of a site exceeding 10 000 m^2
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) 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.

4.2 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.

5. METHODOLOGY

5.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the history and archaeology of the area. Sources consulted in this regard are indicated in the bibliography.

5.2 Field survey

The survey was conducted according to generally accepted HIA/AIA practices and was aimed at locating all possible objects, sites and features of cultural (archaeological and historical) significance in the area of proposed development. If required, the location/position of any site is determined by means of a Global Positioning System (GPS), while photographs are also taken where needed.

The survey was undertaken mainly on foot

5.3 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.

5.4 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.

6. DESCRIPTION OF THE AREA

The project area is located on the farm Adams 328 in the Kuruman district of the Northern Cape Province near Hotazel. It is situated close to ESKOM's Mamatwan Substation and SAMANCOR's Mamatwan Manganese Mine.

The area's topography is fairly flat and contains grassveld, shrubs and some thorn trees. There are also some sandy patches in between. As a result of the open nature of the landscape, archaeological visibility is fairly high.

It does not seem that the area has been disturbed through agricultural activities such as crop growing in the past, although it has been used extensively for cattle grazing. Portions of the farm are still being used for this purpose. Mining activities (possibly related to the Mamatwan mine) is evident in the area and the one site recorded here forms part of this. Other developments that have impacted on the area in the past is the development of the ESKOM substation, powerline and pylons and road that runs between the farm and Mamatwan Mine.

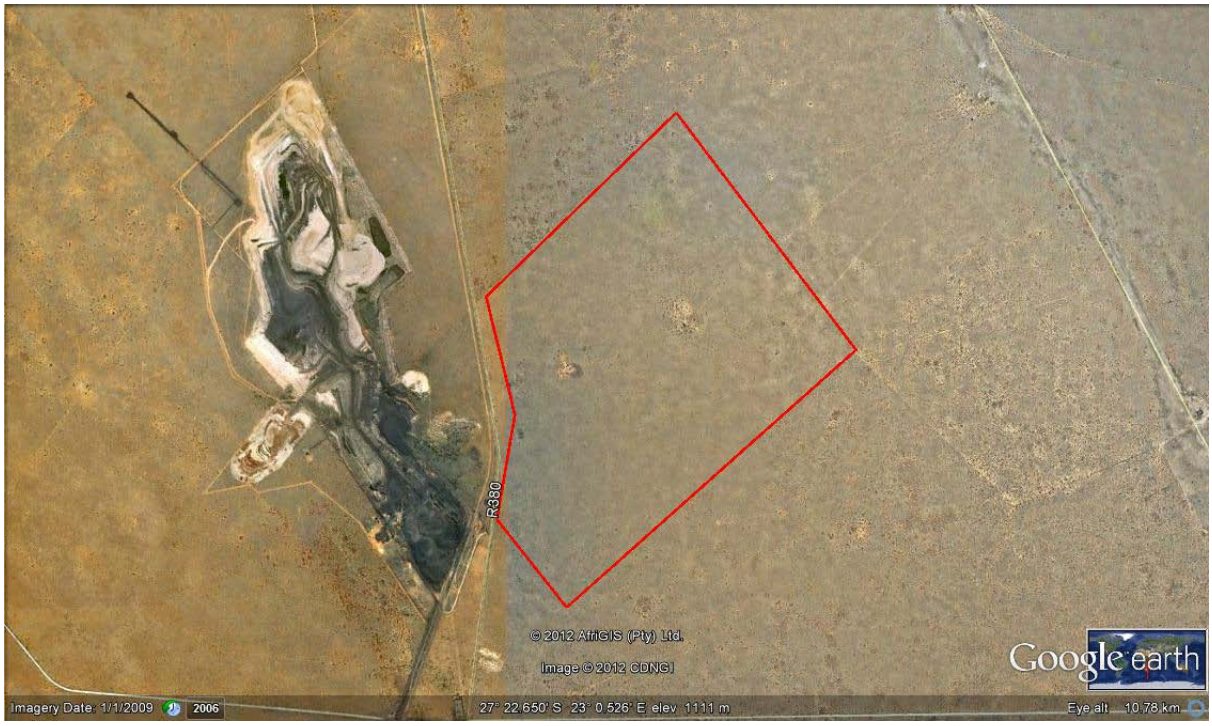


Figure 1: Aerial location of development (© Google 2009 and provided by client). Note the location of Mamatwan Mine close to the area.

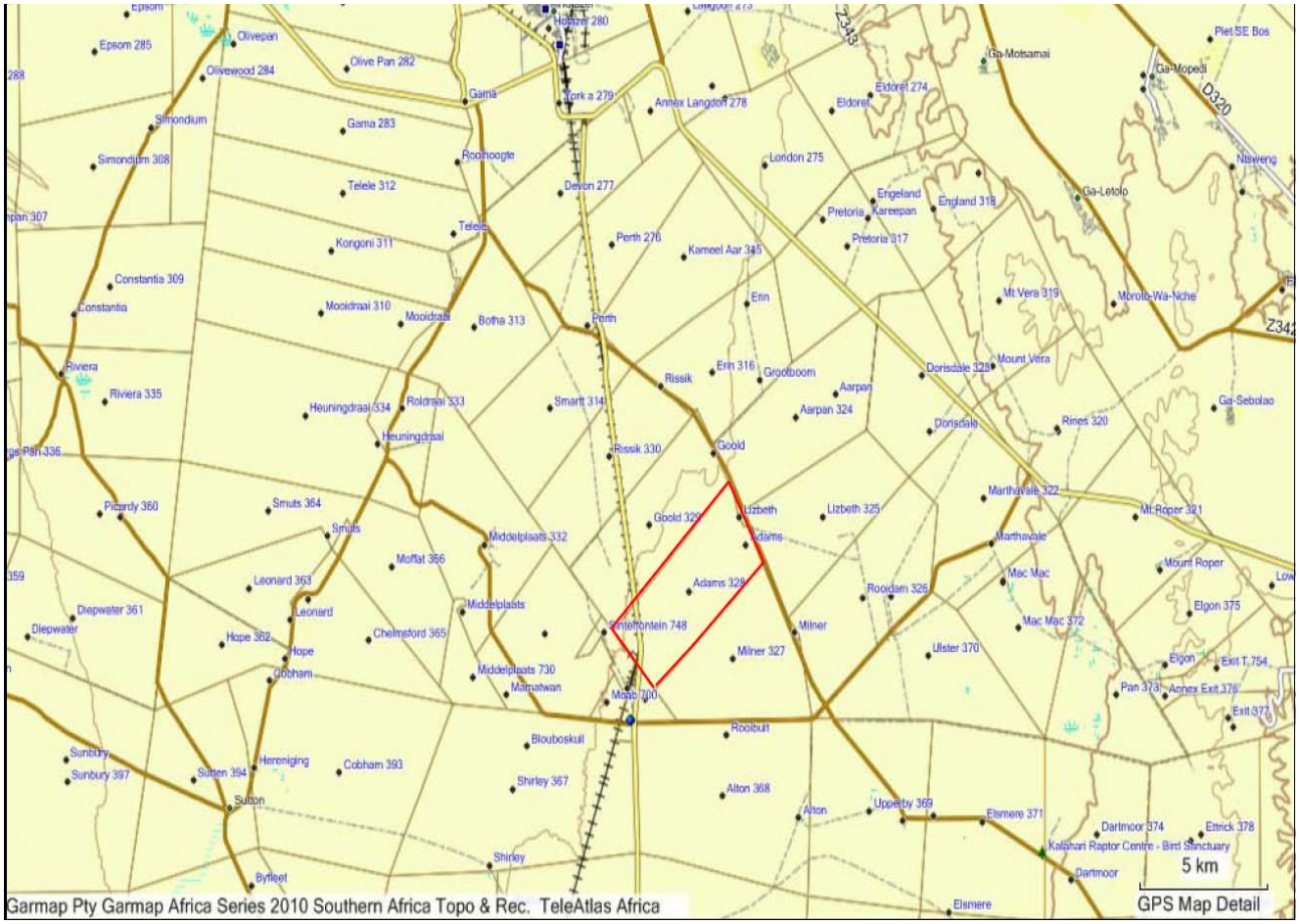


Figure 2: Topographic Location of development (© Map Source 2010)

Figure 3: View of the ESKOM Substation in the area.

Figure 4: General view of the area.

Figure 5: Another view of the area, showing exposed sand because of grazing.

7. DISCUSSION

During the assessment only one site, dating to the very recent historical period, were identified and recorded in the area. A single Stone Age tool was also identified. In order to enable the reader to understand cultural heritage (archaeological and historical) objects, features and sites that could possibly be unearthed and disturbed during development, it is necessary to give a background regarding the different phases of human history in South Africa, as well the general history and archaeology of the area.

7.1 Stone Age

The Stone Age is the period in human history when stone was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. **It is however important to note that dates are relative and only provide a broad framework for interpretation**. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Later Stone Age (LSA) 40 000 years ago – 1850 AD

According to David Morris of the McGregor Museum in Kimberley the archaeology of the Northern Cape is rich and varied, covering long spans of human history. The Karoo is particularly bountiful. Some areas are richer than others, and not all sites are equally significant. The significance of sites encountered in the study area may be assessed against previous research in the region and subcontinent. The region's remoteness from research institutions accounts for a relative lack of archaeological research in the area. The area has probably been relatively marginal to human settlement for most of its history, yet it is in fact exceptionally rich in terms of Stone Age sites and rock art, as a relatively few but important studies have shown (Morris 2006).

Stone Age sites are known to occur in the larger geographical area, including the well-known Wonderwerk Cave in the Kuruman Hills, Tsantsabane, an ancient specularite working on the eastern side of Postmasburg, Doornfontein, another specularite working north of Beeshoek and a cluster of important Stone Age sites near Kathu. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3).

Studies done by Kusel (2009) and by Pelser & Van Vollenhoven (2011) at Black Rock and Gloria Mines near Hotazel, not far from the study area at Adams, did reveal a number of Early to Later Stone Age artifacts and sites in the area. A single stone tool was identified during the site assessment in 2012.

7.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 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.

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots), mined ore and smelted metals, occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages (De Jong 2010: 35).

While there is some evidence that the EIA continued into the 15th century in the South African Lowveld, on the escarpment it had ended by AD1100. The Highveld became active again from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the interior. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman (De Jong 2010: 35-36).

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36).

No Iron Age sites, features or objects were found during the survey.

7.3 Historical Age

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the *difaqane* or *Mfecane*, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa. Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwana and Phuting tribal groups.

The *difaqane* coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read.

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centered on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and

diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination (De Jong 2010: 36).

The first Geologist to have surveyed the Northern Cape was Dr. A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit. The ore is extracted by both underground and open cast operations. Mines in the area include Wessels, N'Chwaning I, N'Chwaning II, Black Rock, Hotazel, Langdon, Devon, Perth, Smart, **Adams**, **Mamatwan**(largest opencast mine in the area), Middleplaats and Gloria. Gloria Mine was opened in 1978 (Kusel et.al. 2009: 3).

The oldest map that could be found in the database of the Chief Surveyor General (www.dla.gov.za) shows that the farm was surveyed and beaconed by the Government Land Surveyor W.R..Lanham between 1913 and 1914 and that a title deed was issued to L.L.Kruger in 1924. A later map shows that Portion L1 of the farm was framed in August 1958 for the purpose of a Mining Lease by the Land Surveyor C.P.M.Rautenbach.

No. 1294, 1914.

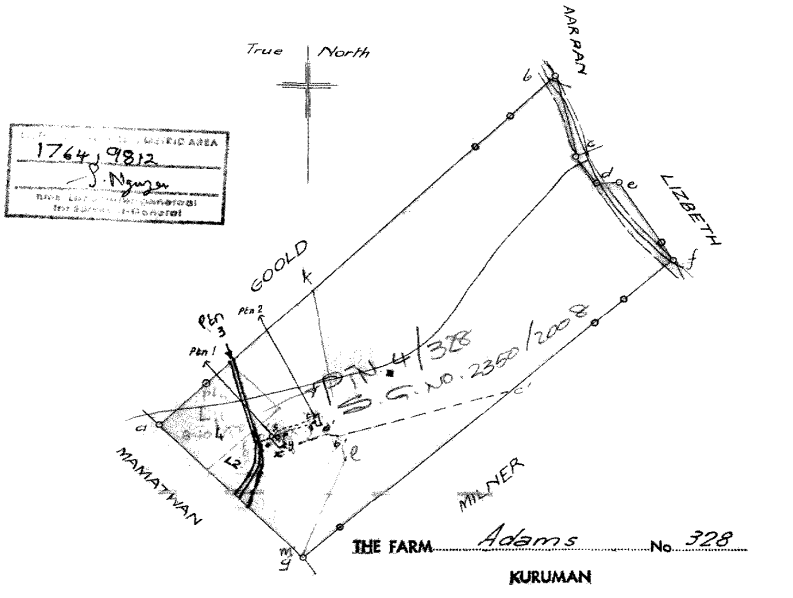
Approved. 1294/1914 117

Surveyor General.

SIDES Cape Roods.	
a b	1828.09
b c	300.88
c d	121.00
d e	80.67
e f	333.84
f g	1649.03
g a	685.66

ANGLES.			
a	91	28	40
b	59	57	50
c	198	44	20
d	237	00	00
e	120	06	40
f	101	37	30
g	91	05	00

CO-ORDINATES.	Y	X
a	+2556.18	−8516.65
b	+1247.77	−9793.37
c	+1173.65	−9501.76
d	+1107.75	−9400.28
e	+1027.08	−9400.28
f	+859.60	−9111.49
g	+2090.14	−8013.72



1764/9812 J. Nguyen

The above diagram lettered a b c d e f g represents 2060 Morgen 368 Square Roods of land situate in Field-Cornetcy No.

***DIVISION OF KURUMAN,** being the farm ADAMS*

Bounded N.W. GOOLD
N.E. AARPAN AND LIZBETH
S.E MILNER
S.W. MAMATWAN

This diagram is annexed to the Title Deed No. 6/1924 dated ..... in favour of .....

566

FOR ENDORSEMENTS SEE BACK OF DGM.

Surveyed and beaconed by me according to regulations.

1913-1914.

W.R. Lanham

Government Land Surveyor.

I certify that this Diagram belongs to the Title Deed ~~this day~~ issued in favour of L. L. Kruger, on 1.2.1924 (Vryh No 6/1924)

FOR ENDORSEMENTS SEE BACK OF DGM.

N/S. 5727 5731

VIR NOTERING VAN SERWITUUT SIEN KEERSY. FOR SERVITUDE NOTING SEE BACK OF DIAGRAM.

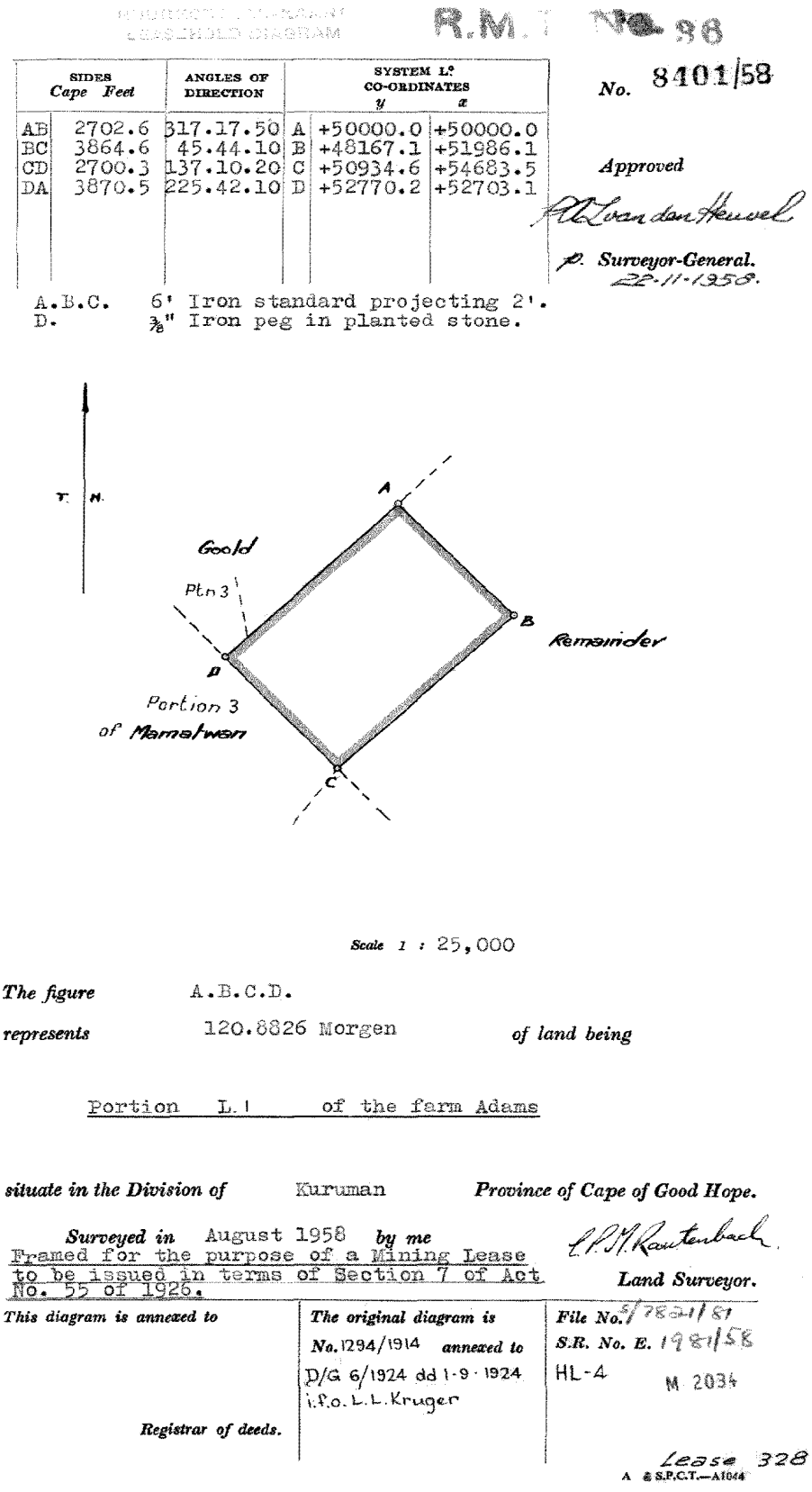
328

Department of Lands, Pretoria.

Secretary for Lands

328

Figure 6: Oldest map of farm (CSG document 100POB01).



LEASEHOLD DIAGRAM R.M. No. 96

SIDES Cape Feet		ANGLES OF DIRECTION	SYSTEM L° CO-ORDINATES y		x
AB	2702.6	317.17.50	A	+50000.0	+50000.0
BC	3864.6	45.44.10	B	+48167.1	+51986.1
CD	2700.3	137.10.20	C	+50934.6	+54683.5
DA	3870.5	225.42.10	D	+52770.2	+52703.1

No. 8401/58

Approved

A.L. van der Heevel

Surveyor-General.

22-11-1958.

A.B.C. 6' Iron standard projecting 2'.
D. ⅜" Iron peg in planted stone.

T. N.

Gould

Ptn 3

Portion 3 of Mamalwen

A

B

C

D

Remainder

Scale 1 : 25,000

The figure A.B.C.D.

represents 120.8826 Morgen of land being

Portion L.1 of the farm Adams

situate in the Division of Kuruman Province of Cape of Good Hope.

Surveyed in August 1958 by me

Framed for the purpose of a Mining Lease to be issued in terms of Section 7 of Act No. 55 of 1926.

C.P.J. Rautenbach

Land Surveyor.

This diagram is annexed to

Registrar of deeds.

The original diagram is No. 1294/1914 annexed to D/G 6/1924 dd 1-9-1924 i.f.o. L.L. Kruger

File No. S/7821/81

S.R. No. E. 1981/58

HL-4 M 2034

Lease 328

A & S.P.C.T.—A1044

Figure 7: 1958 map of farm, framed for Mining Lease purposes (CSG document 10015668).

Discussion of sites, features or objects found during the assessment

The first find is a single stone tool (core), possibly dating to the Middle Stone Age, found in the narrow strip between the tar road running between the farm and Mamatwan Mine and the farm boundary fence. No other stone tools were identified in the area.

GPS Location: **S27.38150 E22.99813**

Significance of find: **Low**.
Mitigation: **None required**

Figure 8: MSA core tool found in the area.

Site 1

The only site found in the area is represented by the remains of structures related to earlier mining on the farm. According to the client (Mr.Brian Gardner of EScience Associates and the current farm owner Mr.Hendrik Venter) the site is that of a mining hostel that were abandoned during the 1970's. Based on the cement and bricks from which the buildings were constructed the site is less than 60 years of age. Also, if the map dating to 1958 (for Mining Lease purposes) is taken into consideration then mining only started here after this date and the hostel would only have been built after this date as well. Other evidence of mining, in the form of trenches and soil walls are also visible here. Most of the structures here have been partially or completely demolished.

GPS Location: **S27.37878 E23.00126**

Significance of site: **Low**
Mitigation: **None required. Documentation during fieldwork seen as sufficient.**

Figure 9: One of the structures on the site.

Figure 10: One of the bricks found.

Figure 11: Remains of bathroom facilities on the site.

Figure 12: Another structure found here. Function unknown.

Figure 13: The best preserved structure on the site. Function unknown.

Figure 14: Aerial view of area with finds indicated.

Figure 15: Closer aerial view showing remains of mining hostel/compound.

8. CONCLUSIONS AND RECOMMENDATIONS

In conclusion it can be stated that the HIA of the area earmarked for the development of the Photo-Voltaic Solar Power Generation Plant on Adams 328 was conducted successfully. A single, out of context, possible MSA, stone tool was identified, while a recent historical site linked with mining on Adams was also recorded. Last mentioned site was the location of a mining compound/hostel, apparently abandoned in the 1970's. The site is less than 60 years of age and has been nearly completely dismantled. It therefore has no cultural heritage significance.

From a Cultural Heritage (Archaeological and Historical) point of view there is therefore no objection to the continuation of the planned development. **However, it should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken during any development activities that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate. Also, it is virtually impossible to locate or identify all possible sites, features or objects in a given area. This would include low, stone packed or unmarked graves.**

9. REFERENCES

Aerial views of development location as well as Site Distribution: Courtesy Google Earth and EScience Associates

Topographic Location of development: Courtesy Map Source 2010

Coertze, P.J. & Coertze, R.D. 1996. **Verklarende vakwoordeboek vir Antropologie en Argeologie.** Pretoria: R.D. Coertze.

De Jong, R.C. 2010. **Heritage Impact Assessment report: Proposed Manganese and Iron Ore Mining Right Application in respect of the Remainder of the farm Paling 434, Hay Registration Division, Northern Cape Province.** Unpublished Report Cultmatrix Heritage Consultants Project 2010/23 May 2010 for Kai Batla.

Knudson, S.J. 1978. **Culture in retrospect.** Chicago: Rand McNally College Publishing Company.

Korsman, S.A. & Meyer, A. 1999. Die Steentydperk en rotskuns. Bergh, J.S. (red.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Kusel, U., M.van der Ryst and S.Kusel. 2009. **Cultural Heritage Impact Assessment of Manganese Mining Areas on the farms Belgravia 264, Santoy 230, Gloria 226 and Nchwaning 267, at Black Rock, North of Kuruman, Kgalagadi District Municipality Northern Cape Province.** Unpublished Report African Heritage Consultants September 2009. For Assmang Limited.

Morris, David. 2005. **Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapstevel, west of Postmasburg, Northern Cape**. Kimberley: McGregor Museum.

Morris, David. 2006. **Archaeological Specialist Input to the EIA Phase for the proposed Aries-Garona ESKOM Transmission Power Line, Northern Cape and Comment on the Garona Substation Extension.** Unpublished Report September 2006 for Tswelopele Environmental.

Pelser, A.J. & A.C.van Vollenhoven. **A Report on a Heritage Impact Assessment (HIA) for a proposed new rail crossing over the Gamagara River for the Gloria Mine Operations, Assmang Black Rock, on Gloria 266, north of Hotazel, Northern Cape.** Unpublished Report Archaetnos cc AE1151. May 2011. For EScience Associates (Pty) Ltd.

Republic of South Africa. 1999. **National Heritage Resources Act** (No 25 of 1999). Pretoria: the Government Printer.

Republic of South Africa. 1998. **National Environmental Management Act** (no 107 of 1998). Pretoria: The Government Printer.

Van der Ryst, M.M. & Meyer, A. 1999. Die Ystertydperk. Bergh, J.S. (ed.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

APPENDIX A

DEFINITIONS:

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

Feature: Means a coincidental find of movable cultural objects.

Object: Means an Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITIONS/STATEMENTS 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:

1. 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.

2. 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.

3. Field ratings:

• National Grade I significance:	Should be managed as part of the national estate.
• Provincial Grade II significance:	Should be managed as part of the provincial estate.
• Local Grade IIIA:	Should be included in the heritage register and not be mitigated (high significance).
• Local Grade IIIB:	Should be included in the heritage register and may be mitigated (high/ medium significance).
• General protection A (IV A):	Site should be mitigated before destruction (high/ medium significance).
• General protection B (IV B):	Site should be recorded before destruction (medium significance).
• General protection C (IV C):	Phase 1 is seen as a sufficient recording of the existing structure and it may therefore be demolished of (low significance) .

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

1. Formal protection:

Formal protection is applicable to the following:

- National heritage sites and Provincial heritage sites – grades I and II
- Protected areas – which is described as an area surrounding a heritage site
- Provisional protection – described as protection for a maximum period of two years
- Heritage registers – listings of grades II and III
- Heritage areas – areas which include more than one heritage site
- Heritage objects – heritage objects include inter alia archaeological, paleontological, meteorites, geological specimens, visual art, military, numismatic and books.

2. General protection:

General protection is applicable to:

- 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

- Phase 1: Pre-assessment or scoping phase – the establishment of the scope of the project and the terms of reference.
- Phase 2: Baseline assessment – the establishment of a broad framework of the potential heritage of an area.
- Phase 3: Assessment of potential impacts – the identification of sites, assessment of their significance, commenting on the potential impact of the proposed development and recommending mitigation measures or the conservation thereof.
- Phase 4: Letter of recommendation for exemption –submitted in the event that no likelihood exists that any sites will be impacted upon.
- Phase 5: Mitigation or rescue – planning the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
- Phase 6: Compilation of and implementation of a management plan – in rare cases where sites are regarded as of high importance such that development cannot be permitted unconditionally.