
PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**METSIMATALA SOLAR PROJECT, GROENWATER 453,
SIYANDA DISTRICT MUNICIPALITY,
NORTHERN CAPE, SOUTH AFRICA**

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EXECUTIVE SUMMARY

TERMS OF REFERENCE:

Afri-Devo Energy, project proponent of the *Metsimatala Solar Project*, Groenwater 453, Siyanda District Municipality, Northern Cape, proposes to develop a solar plant with a combined capacity of 100MW. The development will comprise of a Photovoltaic (PV) Plant of 50MW, a Concentrated Solar Power (CSP) Plant of 50MW (and related infrastructure) and an approximate 6.1km 132kv powerline connecting the development to the existing Eskom grid and substation. Afri-Devo Energy prioritizes projects that will assist in the upliftment of economically marginalized communities – Groenwater 453 comprises of tribal land owned by the Metsimatala Communal Property Association (CPA); the community will directly benefit from the development. ArchaeoMaps was appointed by Enviroworks, on behalf of Afri-Devo Energy, to prepare the Phase 1 AIA for the proposed development.

THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT:

PROJECT AREA: Groenwater 453 (& Plaas 455), Siyanda District Municipality, Northern Cape [1:50,000 Map Ref – 2823AA, 2823AB, 2823AC and 2823AD].

GAP ANALYSIS: Phase 1 AIA assessment covered the proposed 6.1km powerline route, including archaeological site visits to the PV Solar Field (120ha) and the CSP Solar Field (210ha), assessed by Becker in 2011. Additional previously recorded sites (Becker 2011) were revisited. Assessment and site inspections were focused on areas proposed for development.

METHODOLOGY: Three day field assessment; GPS co-ordinates – Garmin Oregon 550; Photographic documentation – Pentax K20D. Archaeological and cultural heritage site significance assessment and mitigation recommendations – SAHRA 2007 system.

SUMMARY:

Sites	Period	Recommendations
The Powerline Route		
PLSA1 & PLSA2	Stone Age	Phase 2 archaeological monitoring and recording at the time of construction
PLIA1	Iron Age	In situ Conservation (Phase 2 archaeological monitoring at the time of construction)
PLCP1	Colonial Period	In situ Conservation
The PV Solar Field		
PVSA1; PVSA2 & PVSA3	Stone Age	Destruction without SAHRA Site Destruction Permits
PVSA4	Stone Age	Phase 2 archaeological monitoring and recording at the time of construction
PVIA1; PVIA2 & PVIA8	Iron Age	Destruction without SAHRA Site Destruction Permits
PVIA3; PVIA5; PVIA7; PVIA9; PVIA13; PVIA14; PVIA15 & PVIA16	Iron Age	Destruction under SAHRA Site Destruction Permits
PVIA4; PVIA6; PVIA10; PVIA11; PVIA12; PVIA17 & PVIA18	Iron Age	Phase 2 archaeological monitoring and recording at the time of construction
The CSP Solar Field		
N/A	N/A	N/A
Additional Archaeological and Cultural Heritage Sites		
MVIA1, MVIA3 & MVIA5	Iron Age Cemeteries	Formal conservation: Permanent sign posting and formal conservation measures (fences with access gates) to be negotiated with the community (MVIA1 & MVIA3)
MVIA4	Iron Age Cemetery	In situ Conservation
MVIA2	Iron Age	In situ Conservation
MVCP1	Colonial Period	In situ Conservation

RECOMMENDATIONS:

With reference to cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Metsimatala Solar Project*, to be situated on the property Groenwater 453, in the Siyanda Municipal District of the Northern Cape, proceeds as applied for provided the developer complies with the abovementioned recommendations.

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1) TERMS OF REFERENCE

Afri-Devo Energy, project proponent of the *Metsimatala Solar Project*, Groenwater 453, Siyanda District Municipality, Northern Cape, proposes to develop a solar plant with a combined capacity of 100MW. The development will comprise of a Photovoltaic (PV) Plant [120ha] of 50MW, a Concentrated Solar Power (CSP) Plant [210ha] of 50MW (and related infrastructure) and an approximate 6.1km 132kv powerline connecting the development to the existing Eskom grid and substation. Afri-Devo Energy prioritizes projects that will assist in the upliftment of economically marginalized communities – Groenwater 453 comprises of tribal land owned by the Metsimatala Communal Property Association (CPA); the community will directly benefit from the development. The project proponent engaged the services of the University of Stellenbosch in the identification of land for the development, Envass Environmental was appointed to manage the Environmental Impact Assessment (EIA) and facilitate Environmental Authorization (EA), while EnviroWorks was appointed to co-ordinate project management.

ArchaeoMaps was appointed by EnviroWorks to conduct the Phase 1 AIA for the proposed *Metsimatala Solar Project's* 132kv powerline route, to conduct archaeological site inspections at the PV and CSP Solar Fields and to co-ordinate heritage related project documentation for purposes of submission to the South African Heritage Resources Agency (SAHRA).

❖ *Development Location, Details & Impact*

The proposed *Metsimatala Solar Project*, Groenwater 453, is situated in the Siyanda District of the Northern Cape, roughly 25km south-west of Danielskuil and 25km north-east of Postmasburg [1:50,000 Map Ref – 2823AA, 2823AB, 2823AC and 2823AD].



Figure 1: General locality of Groenwater 453 in relation to Danielskuil and Postmasburg in the Northern Cape

The *Metsimatala Solar Project* will comprise of a solar plant with a combined capacity of 100MW, including a photovoltaic (PV) Plant [120ha] of 50MW, a Concentrated Solar Power (CSP) plant [210ha] of 50 MW (and associated infrastructure) and an approximate 6.1km 132kv powerline. The following associated infrastructure is anticipated (EnviroWorks 2012): PV panels / CSP Mirrors; PV inverters / CSP powerblock; on site substation; powerline linking the facility with Eskom; wiring between PV panels / CSP mirrors and substation; internal access roads; security infrastructure and a storage area.

Phased development is proposed over an approximate 2-3 year period, with production estimated to start 2015/2016. Existing Eskom transmission lines and the Vaal-Gamagara waterline situated on the property support the solar technologies proposed, while an existing gravel access road to the village will be utilized (EnviroWorks 2012).

Afri-Devo Energy has made provision for future expansion of the proposed development to facilitate estimated increasing energy demands – should the need arise the plant can be expanded to a 150MW facility with a power grid line connection via the existing Olien substation (Becker 2011).

The project proponent, Afri-Devo Energy, prioritizes projects that will assist in the upliftment of economically marginalized communities – Groenwater 453 comprises of tribal land owned by the Metsimatala Communal Property Association (CPA) [CPA Reg No – CPA/97/0006/A]; the community will directly benefit from the development. The CPA has passed a resolution for the establishment of a solar power plant on an approximate 400ha portion of their land. A portion of this 400ha will be utilized for the proposed approximate 100MW *Metsimatala Solar Project* and the remaining portion thereof for anticipated future extensions (Becker 2011).

METSIMATALA SOLAR PROJECT		
Technology Type	CSP (Concentrated Solar Power)	PV (Photovoltaic)
Category	Compact Linear Fresnel Reflectors (CLFR)	Poly crystalline
Structure height	Min of 10m – Max of 32m	Min of 3m – Max of 4m
Permanent laydown area footprint	N/A	N/A
Provision for Future Storage laydown Footprint	N/A	N/A
Surface area to be covered (including associated infrastructure such as roads);	210ha	120ha
Structure orientation	+/- 20° longitudinal deviation from North – South	Fixed Surface, Azimuth 0° North , Inclination 30°
Laydown area dimensions: Construction Period	1000m (W) x 1500m (L) = 1,650,000m ²	1290m (W) x 1290m (L) = 1,664,100m ²
Operation Period	1000m (W) x 1400m (Length) = 1,400,000m ²	1150m (W) x 1170m (L) = 1345500m ²
Generation capacity of the facility	50 MWeI	50 MWeI
Substations / transformers sites including footprint	10,000m ²	10,000m ²
Construction period laydown footprint (workshop, storage, ablution and site offices)	10,000m ²	10,000m ²
Internal roads indicating width (construction period width and operation period width) and with number sections between the other site elements which they serve(to make commenting on sections possible);	5m (construction period) – 6m (operation period) Access roads to lead directly to the construction laydown area.	5m (during construction) – 6m (during operation) Access roads to lead directly to the construction laydown area.
Planned Generation Output:	130 GWh / annum	101 466 000 Kwh / annum
Start Production Year:	2016	2015

Table 1: Summary of the *Metsimatala Solar Project* particulars



Figure 2: Groenwater 453 in relation to Danielskuil and Postmasburg



Figure 3: The proposed *Metsimatala Solar Project* development situated on the property Groenwater 453

2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT

❖ *Archaeological Legislative Compliance*

The Phase 1 Archaeological Impact Assessment (AIA) was done for purposes of compliance to the South African Heritage Resources Agency's (SAHRA) requirements in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Section 38.

The Phase 1 AIA was requested as specialist sub-section with findings and recommendations thereof to be included in the Environmental Impact Assessment (EIA) and Environmental Management Plan / Program (EMP), of the project in compliance with requirements of the National Environmental Management Act, No 107 of 1998 (NEMA 1998) and associated Regulations (2006 and 2010).

The Phase 1 AIA aimed to locate, identify and assess the significance of cultural heritage resources, inclusive of archaeological deposits / sites, built structures older than 60 years, burial grounds and graves, graves of victims of conflict and cultural landscapes or viewsapes as defined and protected by the NHRA 1999, that may be affected by the proposed development.

This report focuses on the Phase 1 AIA of the proposed 6.1km powerline route for the *Metsimatala Solar Project* development. In addition thereto the PV and CSP Solar Field study sites were revisited, the Phase 1 AIA's of which were done by Elize Becker (2011), referenced as:

- Becker, E. (Envass Environmental). 2011. *Archaeological Impact Assessment Technical Report prepared for Metsimatala Village, Portion 3, 4 and 5 of the Farm Groenwater 435, Postmasburg, Northern Cape*. Unpublished report to Afri-Devo Energy.

Comment is also made on identified sites, situated on the property Groenwater 453, that will not be directly affected by the proposed development, in order to further describe the immediate cultural receiving environment.

This study comprises of an AIA, including a basic pre-feasibility, Phase 1 AIA assessment and comment on the cultural landscape only. The report does not include additional specialist heritage components inclusive of socio-cultural consultation or historical architecture.

❖ *Methodology & Assessor Accreditation*

The Phase 1 AIA and additional site visits were done over a 3 day period (2012-03-07 to 03-09) by one archaeologist. The assessment was done by foot and off-road vehicle, and limited to a Phase 1 surface survey; no excavation or sub-surface testing was done. GPS co-ordinates were taken with a Garmin Oregon 550 (Datum: WGS84). Photographic documentation was done with a Pentax K20D camera. A combination of GIS, Garmap and Google Earth software was used in the display of spatial information.

Archaeological and cultural heritage site significance assessment and associated mitigation recommendations were done according to the system prescribed by SAHRA (2007).

SAHRA ARCHAEOLOGICAL AND CULTURAL HERITAGE SITE SIGNIFICANCE ASSESSMENT			
SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	-	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	-	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	-	On-site sampling, monitoring or no archaeological mitigation required prior to or during development / destruction

Table 2: SAHRA archaeological and cultural heritage site significance assessment

The assessment was done by Karen van Ryneveld (ArchaeoMaps):

- Qualification: MSc Archaeology (2003) WITS University.
- Accreditation:
 1. 2004 – Association of Southern African Professional Archaeologists (ASAPA) – Professional Member.
 2. 2005 – ASAPA CRM Section: Accreditation – Field Director (Stone Age, Iron Age, Colonial Period).
 3. 2010 – ASAPA CRM Section: Accreditation – Principle Investigator (Stone Age).

Karen van Ryneveld is a SAHRA listed CRM archaeologist.

❖ *Coverage and Gap Analysis*

The Phase 1 AIA covered the approximate 6.1km powerline route. Additional site visits included the PV (120ha) and CSP (210ha) Solar Field study sites, but with fieldwork not to a full Phase 1 AIA level. Additional sites reported on by Becker (2011), excluding the Metsimatala Informal Village meeting place, not in direct proximity to any of the proposed study sites but situated on the property Groenwater 453 were revisited. Additional sites reported on by Becker (2011) and in this report do not reflect an all inclusive heritage site record of all archaeological and cultural heritage resources that may be situated on the approximate 11,930ha Groenwater 453 property. Assessments in both cases and additional site inspections focused on areas proposed for development and the immediate surrounds.

Surface visibility across the general *Metsimatala Solar Project* study sites, including the PV and CSP Solar Fields and the powerline route can be described as fair.

2.1) PRE-FEASIBILITY ASSESSMENT

Based on the basic introductory literature assessment of South African archaeology (see Appendix – A) the probability of archaeological and cultural heritage sites within the proposed *Metsimatala Solar Project* study site can briefly be described as:

1. **EARLY HOMININ** : Probability – *None*

2. **STONE AGE**
 - a. ESA : Probability – *Medium*
 - b. MSA : Probability – *Medium*
 - c. LSA : Probability – *Medium – High* (Human remains may be expected; should they be identified they will be of both scientific and social significance)
 - i. Rock Art : Probability – *Medium – High*
 - ii. Shell Middens : Probability – *None*

3. **IRON AGE**
 - a. Early Iron Age : Probability – *None*
 - b. Middle Iron Age : Probability – *None*
 - c. Later Iron Age : Probability – *Medium – High* (Human remains expected to be in direct association with archaeological and contemporary sites – of scientific / social significance)

4. **COLONIAL PERIOD**
 - a. Colonial Period : Probability – *Medium* (Human remains expected to be primarily associated with formal cemeteries)
 - i. Iron Age / Colonial Period Contact : Probability – *Medium*
 - ii. Industrial Revolution : Probability – *Low*

A significant number of Cultural Resources Management (CRM) projects are recorded in the SAHRA mapping project (2009) database situated within the greater *Metsimatala Solar Project* study site region. Studies recorded within an approximate 50km radius from the study site are briefly summarized as:

- Beaumont, P.B. (McGregor Museum). 2006. *RE: Preliminary Comment of the (SAHRA) Archaeology, Palaeontology and Meteorite Unit for the Approval of an Environmental Management Plan for a Prospecting Right on Portion 1-3 of the Farm No 543, the Farm Grasvlakte No 61, Hay District.* (SAHRA reference: 2006-SAHRA-0231);
- Beaumont, P.B. (McGregor Museum). 2007a. *Phase 1 Heritage Assessment Report on the Farm Makganyene 667, between Postmasburg and Olifantshoek, Siyanda District Municipality, Northern Cape Province.* (SAHRA reference: 2007-SAHRA-0291);
- Beaumont, P.B. (McGregor Museum) 2007b. *Phase 1 Heritage Impact Assessment Report on Five Borrow Pits adjacent to the R383 and R386 Roads South of Postmasburg, Siyanda District Municipality, Northern Cape Province.* (SAHRA reference: 2007-SAHRA-0416);
- Dreyer, C. (Private). 2007. *Archaeological and Historical Investigation of the Proposed Mining Activities on the Farm Rosslyn, Lime Acres, Northern Cape.* (SAHRA reference: 2007-SAHRA-0549);

- Henderson, Z.L. (National Museum, Bloemfontein). 2005. *Cultural Heritage Assessment for Finsch Mine*. (SAHRA reference: 2005-SAHRA-0202);
- Morris, D. (McGregor Museum). 2001. *Report on Assessment of Archaeological Resources in the Vicinity of Proposed Mining at Morokwa*. (SAHRA reference: 2001-SAHRA-0078);
- Morris, D. (McGregor Museum). 2005. *Report on a Phase 1 Archaeological Assessment of Proposed Mining Areas on the Farms Ploegfontein, Klipbank Fontein, Welgevonden, Leeuw Fontein, Wolhaarkop and Kapsteveld, West of Postmasburg, Northern Cape*. (SAHRA reference: 2005-SAHRA-0184);
- Morris, D. (McGregor Museum). 2008a. *Archaeological and Heritage Impact Assessment on Remainder of Carter Block 458, near Limeacres, Northern Cape*. (SAHRA reference: 2008-SAHRA-0320);
- Morris, D. (McGregor Museum). 2008b. *Archaeological and Heritage Phase 1 Predicative Impact Assessment for Prospecting on Magoloring Portions 4 and 5 (Japies Rust), near Glosam, Northern Cape*. (SAHRA reference: 2008-SAHRA-0321);
- Morris, D. & Beaumont, P.B. (McGregor Museum) 1994. *Ouplaas, 2 Rock Engravings, Danielskuil*. (SAHRA reference: 1994-SAHRA-0025); and
- Van Ryneveld, K. (McGregor Museum). 2005. *Cultural Heritage Site Inspection Report for the Purpose of a Prospecting Right EMP – (Portion of) Skeyfontein 536, Postmasburg District, Northern Cape, South Africa*. (SAHRA reference: 2005-SAHRA-0160).

More recent CRM studies may well have been done in the greater *Metsimatala Solar Project* study site region post compilation of the SAHRA (2009) database. Directly applicable is the study by Elize Becker referenced as:

- Becker, E. (Envass Environmental). 2011. *Archaeological Impact Assessment Technical Report prepared for Metsimatala Village, Portion 3, 4 and 5 of the Farm Groenwater 435, Postmasburg, Northern Cape*. Unpublished report to Afri-Devo Energy.

The McGregor Museum, the SAHRA accredited Regional Data Recording Centre for the Northern Cape region was contacted on 2012-02-27 with regards to database access (SAHRA 2007). Short project time frames however did not allow the preliminary scheduled database consultation.

The greater *Metsimatala Solar Project* study site is particularly rich in Stone Age resources: Wonderwerk Cave, situated approximately 75km north of the project area is the site with the longest stratigraphic sequence in South Africa; record of a fairly continuous history dating back to 2Mya (Chazan *et.al.* 2008). Open air Earlier (ESA) and Middle Stone Age (MSA) sites are often associated with raw material outcrops, dolines, playas (palaeo-lakes) and palaeo-river channels in the Northern Cape. The general area also falls in what is sometimes referred to as the '*Fauresmith triangle*', where fairly small, often quite refined handaxes, typical *fossils directeurs* of the ESA are found in association with a Volman (1984) MSA2 flake typology. Further research is necessary to shed more light on the Fauresmith – as transitional industry between the ESA and MSA or as specialized MSA toolkit. Closer to the project area both Henderson (2005) and Morris (2008b) recorded quite significant MSA and Later Stone Age (LSA) deposits. Low density ESA, MSA and LSA occurrences remain regular phenomena characterizing the cultural landscape of the region.

In addition to recorded lithic LSA deposits the more complex LSA culture is evidenced by early mining: LSA people mined specularite at Blinkklipkop (700AD) near Postmasburg, at Doornfontein near Beeshoek (Beaumont & Boshier 1974), most probably at Kathu and Morris (2005) reported on a small specularite working at Wolhaarkop. The many petroglyph sites across the Northern Cape, including both fine-line and pecked engravings (and on the rare occasion painted art), signal an aesthetic and spiritual expression of a modern LSA cognition. In the more

immediate project area engravings are known from Klipvlei, Danielskuil, Carter's Block (Morris 2008a) and Ouplaas (Morris & Beaumont 1994). The LSA archaeological record is directly associated with the KhoiSan; whilst the San is recorded to have largely remained a hunter-gatherer people, significant Khoe kingships resulted in some large kraal complexes across the Northern Cape (Humphreys 1972). Both groups are known to have traded with Later Iron Age communities and Colonial settlers.

Iron Age stone settlements testify to Later Iron Age occupation of the Northern Cape prior to Colonial occupation. Humphreys (1972) is of the opinion that the Thlaping (Tswana) may well have settled in the Postmasburg area well before the 1800's, when the area was more commonly referred to as '*Tsantsibane*' or '*Sibilung*' (<http://www.routes.co.za/nc.postmasburg/index.html>). Recorded Iron Age sites in the greater *Metsimatala Solar Project* study site region remain surprisingly rare. However, Becker (2011) recorded 3 grave / cemetery sites, 1 meeting place and stone wall remains, evidencing earlier Thlaping occupation of the immediate Groenwater area.

From early Colonial times interest in the Northern Cape was firmly vested in its mineral wealth: Early settlers speculated about mountains rich in copper towards the north-west and in 1681 a group of Namas visiting the Castle of Good Hope brought along some pure copper, reinforcing Governor Simon van der Stel's interest in the region. In 1685 van der Stel set out for the mountains and sunk 3 shafts, but it took 200 years before James Alexander followed up on van der Stel's discovery. In 1852 he examined the old shafts, sunk some more and started mining operations. Prospectors, miners and speculators rushed to the area. Soon buildings, bridges and culverts were constructed and a narrow gauge railway started operating in 1876 carrying copper ore to Port Nolloth, returning with equipment and provisions for the miners (<http://en.wikipedia.org/wiki/Okiep>).

In 1866 Erasmus Jacobs discovered a 'brilliant pebble' on the farm De Kalk near Hopetown, leased by his father from local Griquas. The 'pebble' was sold to Schalk van Niekerk, who again sold it, only to turn out to be the 21.25 carat world famous '*Eureka*' diamond. Three years later van Niekerk sold another diamond from the De Kalk region, this time to become known as the '*Star of South Africa*', resold on the London market for £25,000. In 1871 an even larger diamond was found on the slopes of Colesberg Kopje, on the farm Vooruitzicht, belonging to the De Beers brothers and so the 'New Rush' was started, resulting in a literal stampede to the area; more than 3,000 men working almost 800 claims. Soon the Colesberg hillock lowered into the Kimberley Mine (the Big Hole). The Cape Colony, Transvaal, Orange Free State and Griqua leader Johannes Waterboer all laid claim to the diamond fields, but the Keate Award went in favor of Waterboer who placed himself under British protection: With that the territory known as Griqualand-West was proclaimed on 27 October 1871. Soon thereafter in 1873 'New Rush' was renamed Kimberley, at the time the 2nd largest town in South Africa. But riots and unrest started when it became known that the intension was to proclaim Griqualand-West as Crown Colony (1877) (http://en.wikipedia.org/wiki/Diamond_Fields).

The Anglo-Boer War saw Kimberley besieged by the *Boers* on the 14th of October 1899, with British forces suffering heavy losses. The siege was lifted in 1900 but the war continued until May 1902, by when the British had built a large concentration camp for *Boer* women and children (http://en.wikipedia.org/wiki/Diamond_Fields).

- ❖ **DANIELSKUIL:** Danielskuil is situated in the dolomite rich Ghaap Plateau, characterized by its many sinkholes. Interesting Griqua oral history pertains to the area as an early place of 'trial by ordeal'. It is believed that one of the sinkholes was infested with poisonous snakes. Accused persons lowered into it were considered to have proven their innocence if they survived. The tradition reminded early settlers of Daniel in the lion's den and they named the village accordingly 'Danielskuil'. In earlier times Danielskuil

was known as a center for asbestos mining, today limestone, marble and diamonds are still mined in the area (<http://www.eisha.co.za>).

- ❖ **POSTMASBURG:** Postmasburg was founded in 1892 as a ranching centre and named after Dirk Postma, one of the founders of the Reformed Church. Twenty six years later diamonds were discovered and in 1922 manganese, followed by rich iron deposits near Sishen (1940); discoveries that transformed a former small ranching area into a mining hub. An electrified railway was built in 1930 to convey ore to the main line north of Kimberley and another electrified line was built in 1974 to link the mines directly to Saldanha Bay (<http://www.eisha.co.za>).
- ❖ **GROENWATER 453:** Tswana refers to a people occupying both Botswana and the north-western parts of South Africa, with the majority living in South Africa. Eight major tribes are identified, all with a traditional Paramount Chief, or *Kgosikgolo*, including the BaKgatla, BaKwena, BaLete, BaNgwato, BaNgwaketse, BaRolong, BaTawana and BaThlokwa. Lesser Tswana polities, all with traditional Chiefs, or *Kgosi*, include the BaFokeng, BaThlaping, BaHurutse, BaTlharo, BaPo, BaPhalane, BaTlhako, BaPhiring, BaTaung, BaPhuting, BaThlounge, BaKubung, BaNare, BaRokologadi, BaKgalagadi and BaThlalerwa. The BaThlaping (also known as the '*Fish People*' or '*People of the Goat*') are subdivided into the BaThlaping Bagaphuduhudu, the BaThlaping Bagaphuduhutswane, the BaThlaping Ba Ga Maldi and the BaThlaping Ba Ga Mothibi (http://en.wikipedia.org/wiki/Tswana_people). The BaThlaping are traditionally known as the people occupying the south-western part of Tswana territory.

History states that the Tswana had occupied their territory by 1600AD. It is maintained that the BaKgalagadi were the 1st group to penetrate the interior of South Africa, followed by the present day BaRolong and BaThlaping groups, only after which the BaHurutse and BaKwena came to settle in South Africa. Extensive stone walled settlements, including Dithakong, Kaditshwene, Molokwane and Mabyanamatshwana are testimony to early migrations and large-scale settlement (http://myfundi.co.za/e/Ethnic_Cultures_of_South_Africa_II:Sotho-Tswanaspeaking_peoples).

The BaThlaping were of the 1st Soto-Tswana people to have been encountered by settlers *trekking* from the Cape (in about 1801) and it is recorded that in 1823 the missionary Reverend William J. Burchell hired armed Griqua people (indigenous Khoe group) to help protect the BaThlaping living at Dithakong (<http://www.sahistory.org.za/bloemfontein/prehistory-bloemfontein-area>).

Not much is recorded on BaThlaping settlement at Groenwater, but it is known that '*metsimatala*' means '*green water*' (Afrikaans translation – '*groen water*'). Metsimatala is recorded to have been the original name of the settlement before the forced removal of the community in 1968 by the Apartheid government, when the farm was '*renamed*' Groenwater after the Tswana name of the original settlement (http://africanlanguages.com/south_africa/place_names_sagns.html). This piece of recorded history however in slight contradiction with records of the Chief Surveyor General, indicating the property name as Groenwater from as early as 1881, albeit not negating that the property could locally have been known as Metsimatala after the Tlaping village situated thereon.

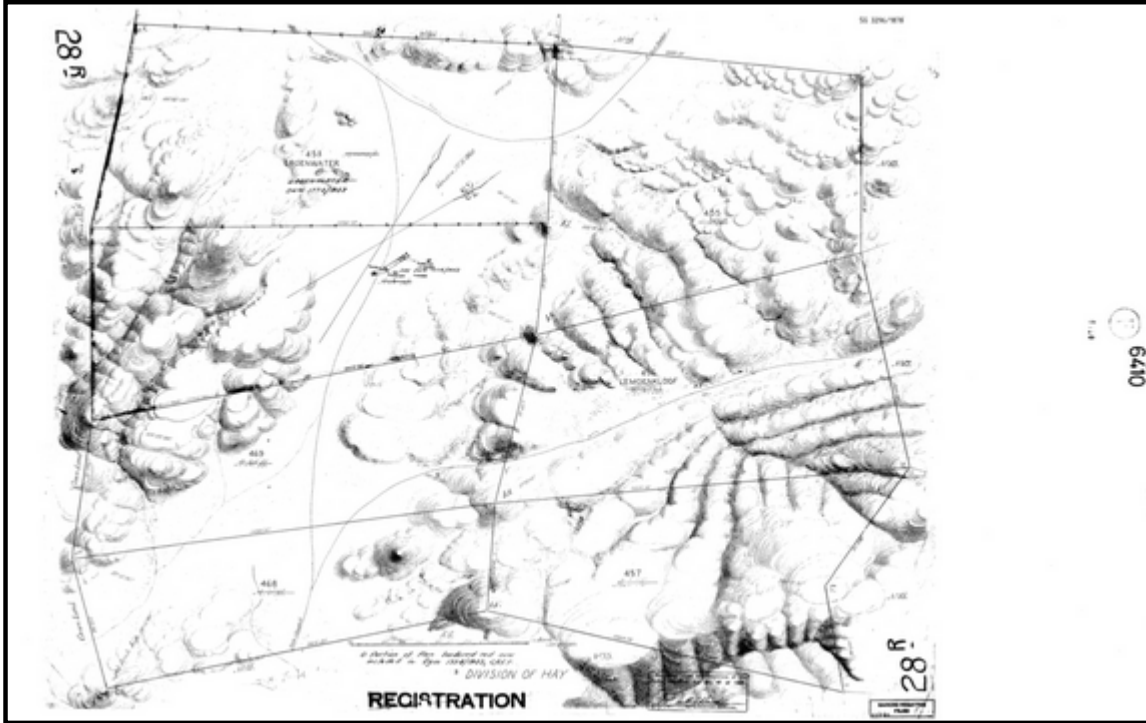


Figure 4: Groenwater 453, 1st known survey by J.H. Ford in 1881 and registered as Crown Title (CSG Record Number F3296/1878)

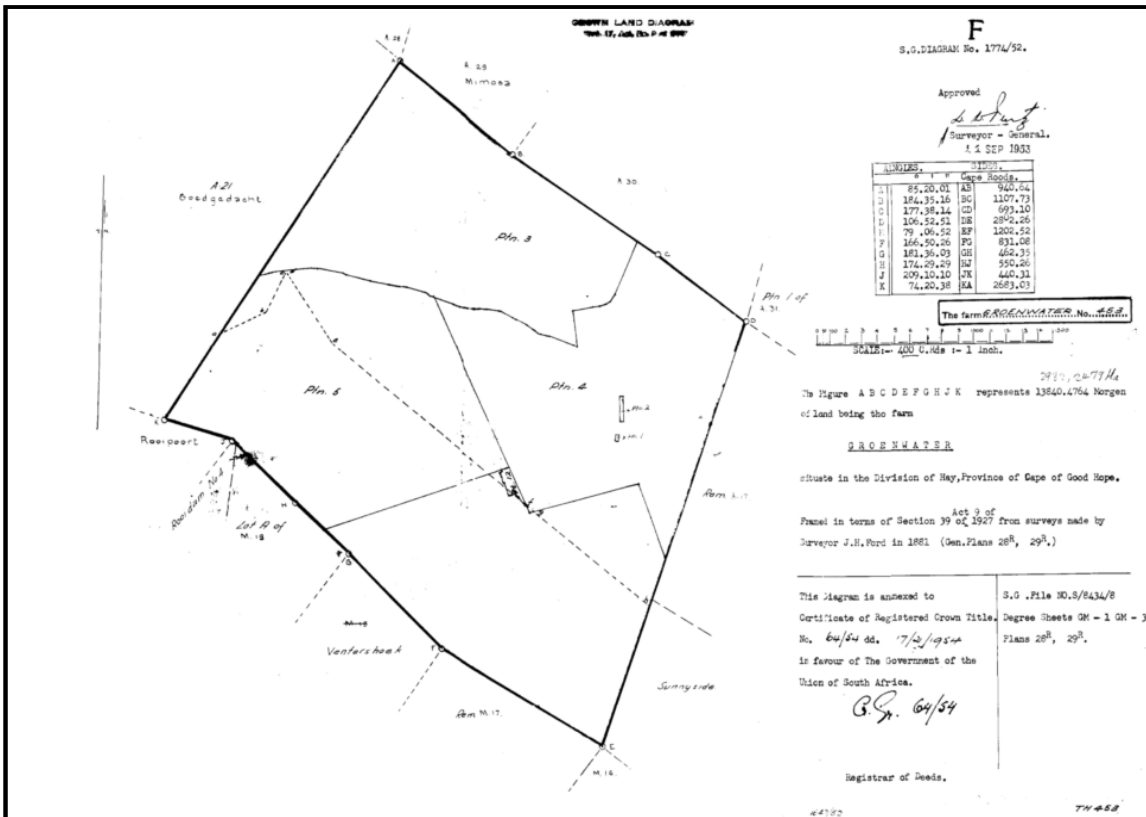


Figure 5: Groenwater 453 subdivided in 1952 with the southern portion leased for mining purposes (blue asbestos) in 1963 (CSG Record Number F1774/1952)

2.2) THE PHASE 1 AIA AND ARCHAEOLOGICAL SITE INSPECTIONS

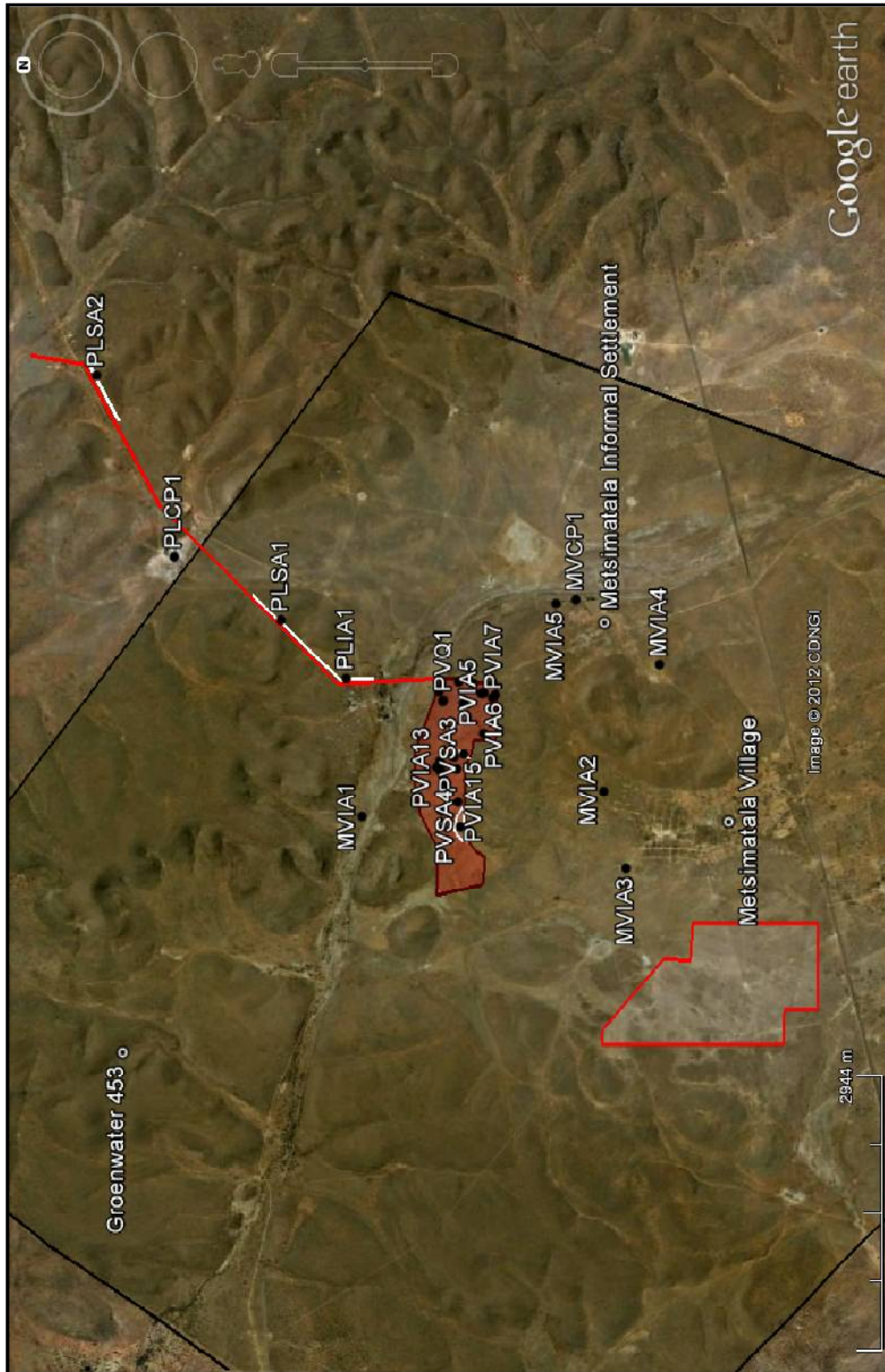


Figure 6: Metsimatala Solar Project – Spatial summary of the Phase 1 AIA and archaeological site visit findings

2.2.1) THE POWERLINE ROUTE



Figure 7: The Powerline study site – Phase 1 AIA assessment findings

The proposed approximate 6.1km powerline study site starts in the south on Groenwater 453 crossing about midway over to the property Plaas 455 where the powerline will feed into the existing grid at its northern extremity. Assessment of the study site (2012-03-09) yielded a range of heritage resources representative of all the major archaeological periods including the Stone Age, the Iron Age and the Colonial Period. The Stone Age is represented by vast sites with fairly rich artefact densities primarily yielding Middle Stone Age (MSA) types but with a macrolithic Later Stone Age (LSA) admixture. These type sites are represented elsewhere on Groenwater and quite common within a more immediate regional context and in that representative of fairly typical deposit types. The Iron Age is represented by what is inferred to have been a former homestead with its related structures – a family or extended family settlement on 1 of the set out plots of Old Metsimatala Village. Colonial Period presence is signified by the farmstead remains situated on Plaas 455.

The proposed powerline alignment, with its impact limited to the immediate footprint of the pylons and associated access road, planned to pass east of the Iron Age site (PLIA1) and south of the Colonial Period site (PLCP1), with impact literally limited to the vast Stone Age occurrences is deemed a particularly ‘safe development’ alignment considering the rich cultural heritage of the area.

RECOMMENDATIONS: Limited impact on Stone Age resources (PLSA1 and PLSA2) is envisioned. Based on the vast assemblage sizes together with the regularity of these type sites on Groenwater itself and in its more immediate regional context archaeological monitoring and recording is recommended at the time of development impact rather than full Phase 2 archaeological mitigation. The line route will pass along the eastern extremity of recorded Iron Age site PLIA1 and may impact on lesser associated features – on-site archaeological monitoring at the time of development impact is recommended. The Colonial Period farmstead, Site PLCP1, will be conserved.

❖ *Stone Age*

Identified Stone Age resources are summarized as:

- **PLSA1 (S28°14'46.3"; E23°20'02.8"):**

The PLSA1 site refers to a vast Stone Age assemblage, situated on the farm Groenwater 453 and identified for an approximate 1.6km stretch along the powerline alignment (from roughly S28°15'18.1"; E23°19'39.8" in the south to S28°14'36.8"; E23°20'12.9" in the north-east). Towards the south of the identified assemblage artefacts are routinely found in dense dolerite and banded iron stone geological substrate lenses. Further east artefacts were found scattered loosely across the plain and foot of the nearby hill, while the hillslopes and crest proved to yield clusters rich in raw material and artefacts, intersected by less significant deposits. Artefact ratios (artefacts: m²) vary greatly across the extent of the deposit, on average ranging between 1:1 and 7-10:1. Based on typology artefacts are primarily assigned to the Middle Stone Age (MSA) but including macrolithic Later Stone Age (LSA) samples. Deposits are inferred to extend far beyond the recorded demarcation along the development alignment: Stone Age people would have utilized the total of a natural feature or resource, thus the total of the plain or all of the hill, which would result in a remarkable site extent. However, despite inferred extent of the deposit and fairly rich recorded artefact densities, the PLSA1 site, within a greater regional context is not of primary significance and in fact deposits of sort are fairly common phenomena in the more immediate region and the greater Northern Cape.

Site PLSA1 comprises of an archaeological site as defined and protected under the NHRA 1999. The Stone Age assemblage will be impacted on by development. Inferred vast site extent and the fact that similar type Stone Age occurrences are known to occur regularly in the more immediate regional area does not warrant realignment of the line route, with its limited impact restricted to pylon positions and the associated access road.

The PLSA1 assemblage is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological recording and monitoring be done at the time of development impact: Construction section monitoring should aim to record stratigraphic depth of the deposit and collect artefactual information relating to typological sequencing if present.

- **PLSA2 (S28°13'43.1"; E23°21'38.1"):**

The PLSA2 site, situated on the property Plaas 455, signifies a Stone Age assemblage across which the powerline will run for an approximate 700m stretch (from the south-west at S28°13'51.2"; E23°21'19.9" to the north-east at S28°13'40.1"; E23°21'19.9"). Deposits are concentrated at the slopes and crest of the hill and associated interchangeably with both dolerite and banded iron stone geological substrate 'layers' or lenses or directly with raw material outcrops. Again vastly varying artefact ratios were recorded, ranging from 1:1 to approximately 5-8:1, with a typology primarily reminiscent of an amorphous Middle Stone Age (MSA) with a definite macrolithic Later Stone Age (LSA) admixture. The assemblage is again not limited to the indicated portion on the map but stretches across the surface of the hill and seemingly quite similar to Stone Age resources observed on the hills just north of the access road. Despite large site extent and fairly high artefact densities recorded, the assemblage is quite typical of deposits recorded on Groenwater and the more immediate regional context.

The PLSA2 archaeological deposits are formally protected under the NHRA 1999 and will be impacted on by development. However, limited development impact (pylon positions and access road only), vast site extent and frequency of the type of assemblage do not warrant full Phase 2 archaeological mitigation prior to development; on-site archaeological recording and monitoring should suffice to further describe the deposits.

The PLSA2 assemblage is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological recording and monitoring be done at the time of development impact: Construction section monitoring should aim to record stratigraphic depth of the deposit and collect artefactual information relating to typological sequencing if present.

❖ *Iron Age*

The identified Iron Age site (collection of site features) is summarized as:

- **PLIA1 (S28°15'08.8"; E23°19'40.1"):**

The PLIA1 site or collection of site features is inferred to represent the extensive farmstead remains of a former Old Metsimatala Village plot, most probably farmed or owned by an extended family unit. Residential remains are present at PLIA1-1 (S28°15'12.9"; E23°19'38.4"), demarcating also the south-western extremity of the site. Here mound remains with an approximate diameter of 4m, with built stone rubble in association with metal artefacts, clearly demarcate the feature remains. PLIA1-2 (S28°15'12.5"; E23°19'37.0") represent further residential remains, again characterized by a clear mound with an approximate diameter of 5m, complete with building stone rubble strewn across the site locality. Interesting cultural overlay is also evident – immediately west of the mound remains are the cemented foundation remains of a rectangular structure, inferred to have been a later residential structure. Feature PLIA1-3 (S28°15'11.2"; E23°19'40.4") is identified by a rough 7m linear stone line, representing a former stone built stock enclosure. The feature is situated in direct proximity to 2 smallish mounds or hut remains. Immediately east thereof and running north are further primarily residential remains, demarcated by structure mounds, routinely associated with stone rubble scatters and primarily metal artefacts and including PLIA1-4 (S28°15'11.1"; E23°19'39.3"), PLIA1-5 (S28°15'08.8"; E23°19'40.1" [site co-ordinate]), also 1 of the western most recorded site features and PLIA1-6 (S28°15'07.1"; E23°19'41.4"). Recorded feature PLIA1-7 (S28°15'04.0"; E23°19'40.6) represent an evident further hut mound with dimensions approximating 3-4m in diameter, while PLIA1-8 (S28°15'10.6"; E23°19'42.1") seems to have been the locale of a former stone lined pit with the remains of a structure built on a raised stone platform of roughly 40-50cm high immediately north-west thereof.

Recorded site features do not represent an all inclusive recording of remains and the general area is characterized by scattered artefacts, primarily metal, but including the odd piece of old bottle glass and earthenware. In addition smaller features including small circular stone platforms, inferred to have been used for grain storage, rough linear stone alignments, which may or may not represent additional stock enclosures, but difficult to identify in the naturally stone rich environment, small stone lined pits, some with corrugated iron linings and most probably representing later water tanks, are all present. In typical Later Iron Age manner site features are widely scattered across the general PLIA1 terrain. (A contemporary homestead is situated to the north-west of the site.)

Development will not directly impact on the site, but proximity of the powerline alignment to the eastern extremity of the site remains a cause for concern and development may well impact on lesser site features. Archaeological monitoring at the time of construction is recommended.

Site PLIA1 is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. Development will not impact on the site proper, but proximity to the eastern extremity of the site remains a cause for concern. Development may well impact on lesser site features. It is recommended that Phase 2 monitoring be done at the time of development impact.

❖ *Colonial Period*

The identified Colonial Period site is summarized as:

- **PLCP1 (S28°14'09.5"; E23°20'27.7"):**

Site PLCP1 comprises of a Colonial Period farmstead, situated on the property Plaas 455, including the main residence and 2 outbuildings. Later period structures, including a 2nd residence and garage are built on the property, but not impacting directly on any of the Colonial Period structures. All structures, both old and new are still in use. The Steenkamp family acquired the land about 12 years ago and not much is known about the old structures, aside from the fact that the main residence and 1 outbuilding is constructed of a sand-rich baked brick and have been plastered in order to ascertain maintenance thereof. The 2nd outbuilding is stone built. Based on architectural style of the main residence a date easily preceding 60 years is ascribed; structures may well date to the late 1800's / early 1900's. The site will not be impacted on by development, with the powerline running south of the site and roughly midway between the site and the large sand dam situated to the south of the access road.

Site PLCP1, comprising of structures pre-dating 60 years of age, receives automatic SAHRA protection as a site of *High Significance* with a *Provincial Grade 2 Field Rating* (although the site is architecturally of low significance). The site will be conserved *in situ*.



PLSA1 – Rich Stone Age lenses



Artefacts from PLSA1



View of PLSA1 – 1



View of PLSA1 – 2



View of PLSA2



PLSA2 – Rich geological substrate lenses



Artefacts from PLSA2



View of PLIA1-1

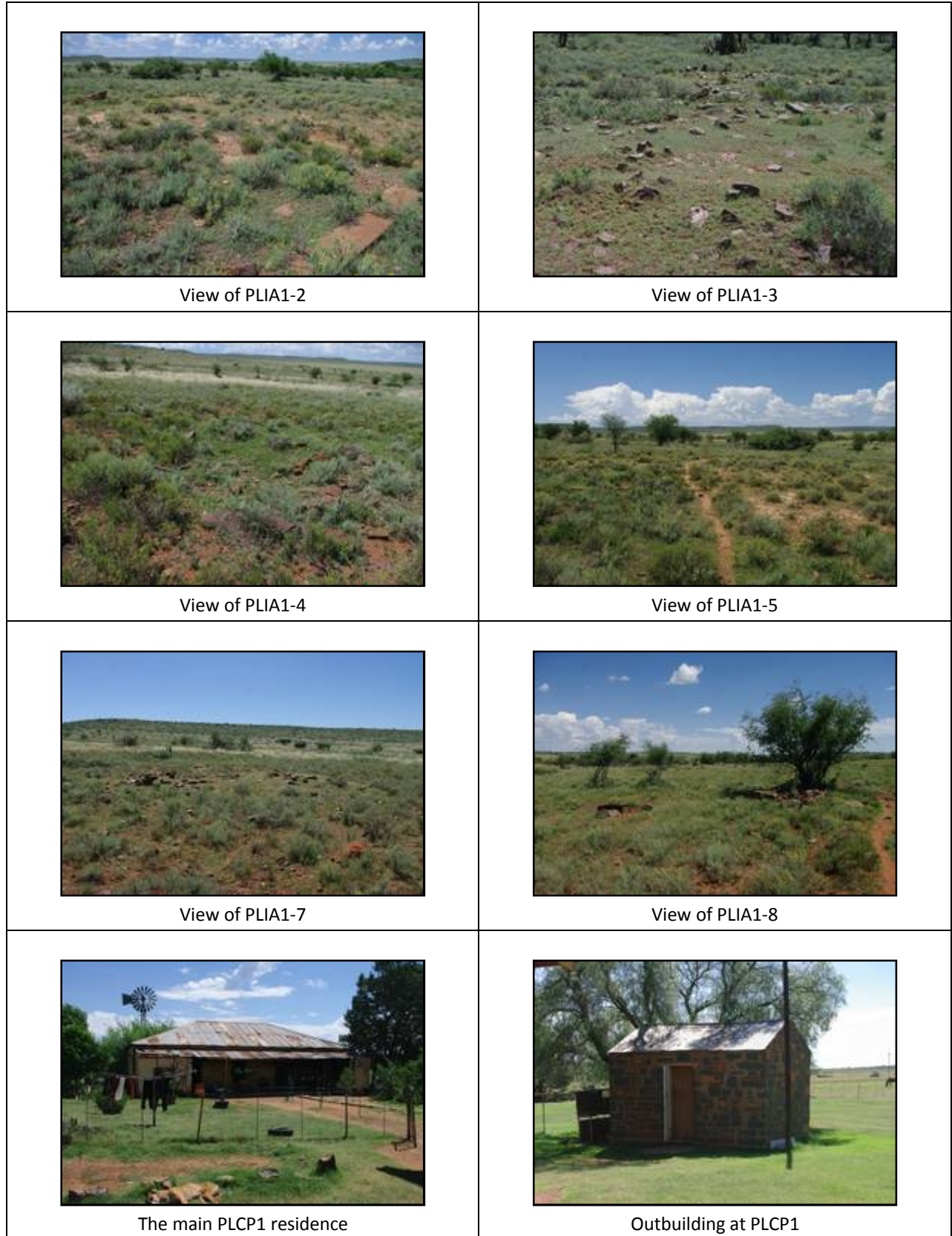


Figure 8: Image gallery – The Powerline Route

2.2.2) THE PV SOLAR FIELD

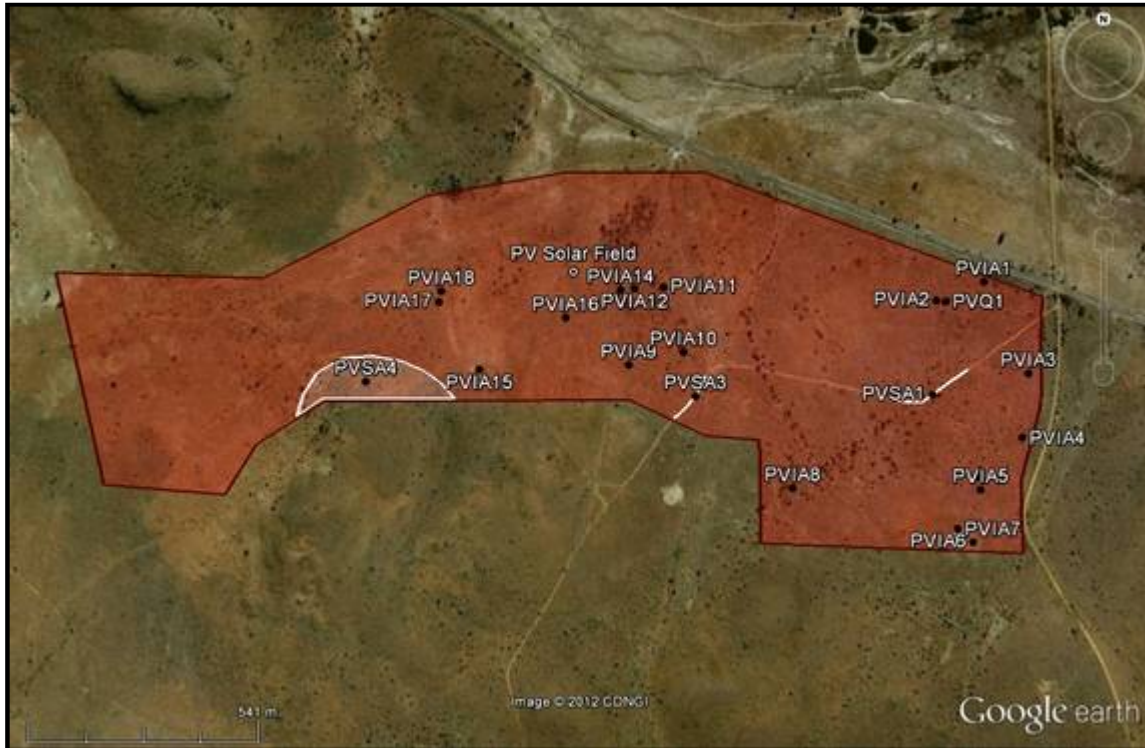


Figure 9: The PV Solar Field study site – Phase 1 AIA assessment findings

Scatters of the geological substrate, a combined dolerite cum banded iron stone ‘pebble’ layer, surfaces in patches across the total of the study site, in all cases associated with the odd Middle (MSA) or macrolithic Later Stone Age (LSA) artefact. The more significant of these lenses, though not necessarily archaeologically of major significance were recorded, including PVSA1, PVSA2 and PVSA3. At PVSA4 however, situated on the hillslope, archaeologically noteworthy deposits were identified, but again indicating the hill as the site proper and artefacts recorded within the study site rather as site perimeter. Selection of the development area shape, being situated in the flatter areas, surrounded by hills, serves as the major conservation factor regarding Stone Age deposits, where archaeological significant deposits seem to be concentrated on higher lying areas, directly associated with raw material use.

At 1st glance spatial distribution of Iron Age sites or features seem remarkably significant. However, if considered against the site proper, or the Old Metsimatala Village, site features identified within the PV Solar Field study site resemble only the remains of occupation and farming activities on a selected pie section of the plots set out around Old Metsimatala Village. Only further archaeological reconnaissance will serve to determine the true extent of the old settlement and surrounds. Impact on the selected portion of the old plots will be permanent: On the other hand with virtually no written data on former Thlaping occupation in the area, Phase 2 archaeological monitoring and recording at the time of development impact will provide the 1st set of scientific archaeological information on earlier Thlaping lifeways at Groenwater. Inferred outcomes of Phase 2 monitoring include:

1. Settlement pattern, already observed to be in stark contrast with the Central Cattle Pattern (CCP), typical of the Sotho-Tswana and Nguni people of South Africa, with its origins dating back to the Early Iron Age;
2. Intra-site settlement pattern variation;
3. Further investigation into the preliminary observation of a radical decline in wealth in the years preceding Apartheid expulsion from Groenwater; and

4. Early burial practice in cemeteries rather than according to the CCP pattern (a preference also evidenced amongst the Thlaping of Schmidtsdrift).

The site was 1st inspected and reported on by Becker (2011) and revisited on 2012-03-07.

RECOMMENDATIONS: It is recommended that low density Stone Age occurrences be destroyed without the developer having to apply for SAHRA Site Destruction Permits, including PVSA1, PVSA2 and PVSA3. At PVSA4 Phase 2 archaeological monitoring and recording should coincide with development impact. It is recommended that Iron Age features of little significance and not associated with any stone walling be destroyed without the developer having to apply for SAHRA Site Destruction Permits and including features PVIA1, PVIA2 and PVIA8. Features described as of low significance but associated with stone wall remains should be destroyed under SAHRA Site Destruction Permits, including features PVIA3, PVIA5, PVIA7, PVIA9, PVIA13, PVIA14, PVIA15 and PVIA16. Phase 2 archaeological monitoring and recording at the time of development impact at identified features PVIA4, PVIA6, PVIA10, PVIA11, PVIA12, PVIA17 and PVIA18 will serve as a representative sample of Iron Age features destroyed *in lieu* of the development.

❖ *Stone Age*

Identified Stone Age resources are summarized as:

- **PVSA1 (S28°15'49.1"; E23°19'30.7"):**

The PVSA1 locality demarcates an approximate 200m area within the gravel access road in which a low quantity of Stone Age artefacts were discovered within a surfacing geological substrate lens, a mixed dolerite and banded iron stone gravel member, visible from S28°15'49.5: E23°19'27.6" in the west to more or less S28°15'47.2"; E23°19'33.7" in the north-east. Artefact densities were particularly low and too low to attempt an artefact ratio (artefacts: m²) assignation. Collected artefacts can typologically be assigned to a rough later Middle Stone Age (MSA) industrial complex with a macrolithic Later Stone Age (LSA) admixture. Surface artefacts adjacent to the road, together with scraped road sections give the impression of a surface restricted lens without any sub-surface stratigraphic depth thereto. From a Stone Age perspective the lens in itself is of little archaeological significance, but the occurrence does serve as indicator of more significant Stone Age deposits in the area.

The PVSA1 low density Stone Age occurrence is ascribed a SAHRA *Low Significance* and *Generally Protected C Field Rating*. It is recommended that development proceed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVSA2 (S28°15'55.3"; E23°19'34.5"):**

The PVSA2 deposits, scattered across a low rising hill, directly underlies the PVIA5 Iron Age feature remains. Here a low density of primarily macrolithic Later Stone Age (LSA) artefacts was found. Artefact densities (artefacts: m²) approximated a ratio of 3:1. The significance of the find lies in the observation that different parts of the landscape were preferred by temporally differing Stone Age peoples. But in itself further mitigation, based on the low density of artefacts and their random scatter without an indication of use of space or defined activity areas, as is often found in the case of LSA sites, poses little potential for furthering our understanding of the cognitively more advanced LSA cultures.

The PVSA2 low density Stone Age occurrence is ascribed a SAHRA *Low Significance* and *Generally Protected C Field Rating*. It is recommended that development proceed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVSA3 (S28°15'49.3"; E23°19'10.4"):**

The PVSA3 locality again represents a geological substrate lens surfacing within the scraped road for approximately 120m, from north at S28°15'47.8"; E23°19'11.1" to south at S28°15'51.1"; E23°19'08.4". Geological deposit depth and artefact densities increase radically towards the south, where deposits continue up-hill demarcating the hill as the actual site and deposits encountered within the study site rather as hill-wash or site perimeter deposits. Within the study site artefact ratios (artefacts: m²) vary quite significantly, from 0-1:1 in the north to approximately 3-5:1 in the south. Artefacts are typologically ascribed to the latter part of the Middle Stone Age (MSA) and a macrolithic Later Stone Age (LSA). The current development layout will in essence conserve the site proper, impacting only on the site perimeter.

The PVSA3 Stone Age occurrence is ascribed a SAHRA *Low Significance* and *Generally Protected C Field Rating*. It is recommended that development proceed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVSA4 (S28°15'48.2"; E23°18'48.2"):**

The PVSA4 locality running along the foot of the hill for approximately 300m is further testimony to rich Stone Age deposits on the hill itself. Along the foot of the hill patches rich in raw material, used for the production of the directly associated lithic artefacts are found. Artefacts, produced from this mix of dolerite and banded iron stone, are found in fairly high densities, approximating a recorded ratio (artefacts: m²) of 5-8:1. The assemblage is typologically suggestive of a later Middle Stone Age (MSA) and macrolithic Later Stone Age (LSA) industrial complex. The portion of the assemblage recorded within the study site is representative of the type of artefacts that can be expected at the site proper, the hill situated immediately to the south of the study site. The site proper will by implication be conserved, with impact limited to the foot of the hills.

The PVSA4 archaeological deposits are formally protected under the NHRA 1999 and will be impacted on by development. However, limited development impact, ensuring the conservation of the site proper do not warrant full Phase 2 archaeological mitigation prior to development; on-site archaeological monitoring and recording should suffice to further describe the deposits of the site.

The PVSA4 assemblage is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological monitoring and recording be done at the time of development impact: Construction section monitoring should aim to record stratigraphic depth of the deposit and collect artefactual information relating to typological sequencing if present.

❖ *Iron Age*

Identified Iron Age features are summarized as:

- **PVIA1 (S28°15'40.7"; E23°19'35.2"):**

Feature PVIA1 is characterized by an evident change in vegetation, confined to the interior of an approximate 4m in diameter circular earth mound, inferred to represent the collapsed walls of a former hut.

Feature PVIA1 is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVIA2 (S28°15'42.1" E23°19'31.1"):**

Feature PVIA2, situated immediately east of a small quarry (PVQ1 – S28°15'42.2"; E23°19'31.9"), of approximately 4m in diameter and 1.5m in depth, is again characterized by a change in vegetation, confined to the interior of a circular earth mound, interpreted as the collapsed wall remains of a residential unit.

Feature PVIA2 is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVIA3 (S28°15'47.6"; E23°19'38.9"):**

Feature PVIA3 is situated on the foot of a low rising dolerite hill. The feature comprises of the partial circular foundation remains of a structure inferred to have been between 3-4m in diameter. Foundation remains are however heavily impacted on by natural post-deposition agents; not much more than the partial wall remains could be identified and it is not expected that much more will be visible through vegetation clearing.

Feature PVIA3, already largely destroyed by natural agents, is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed under a SAHRA Site Destruction Permit.

- **PVIA4 (S28°15'52.4"; E23°19'38.3"):**

The PVIA4 feature complex or farmstead is characterized by stone walling (PVIA4-1 – S28°15'52.4"; E23°19'38.3" [site co-ordinate]) scattered over an approximate 10x15m area. Only partial foundations of the original walls remain, indicating fairly small rectangular stock encampments, indicative either of calf management or goat keeping. North of the stone wall stock enclosure complex is the remains of a former circular structure (PVIA4-2 – S28°15'51.8"; E23°19'38.2") of approximately 5m in diameter, at present only characterized by rehabilitating vegetation. The structure is inferred to have been an additional stock enclosure. To the south of the stone wall stock enclosure complex lies the circular stone remains of what may well have been a hut (PVIA4-3 – S28°15'53.8"; E23°19'36.2"). Here prominent circular stone mounds indicate a structure with an approximate diameter of 3m, built with stone walls. Slightly to the west of the mentioned PVIA4 remains are a further stock enclosure feature (PVIA4-4 – S28°15'52.9"; E23°19'38.3), again characterized only by clearly demarcated circular vegetation change of approximately 5m in diameter. The general PVIA4-4 terrain is distinguished by rehabilitating vegetation, indicating a fair degree of anthropogenic disturbance in the area, most probably the result of stock keeping activities, also specifically in the lack of feature or associated artefact remains.

The PVIA4 feature complex is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological monitoring and recording be done at the time of development impact: Vegetation clearing will assist in the detailed mapping of the feature complex, while construction section monitoring may yield additional artefactual remains or sub-surface site related data.

- **PVIA5 (S28°15'56.3"; E23°19'34.7"):**

Feature PVIA5 directly overlies the PVSA2 low density Stone Age occurrence. The general area is characterized by a low rising dolerite hill with loose dolerite builders, hindering identification of feature outlines. At least 2 Iron Age features were situated on the hill, but more may well have been present. Identified features include PVIA5-1 (S28°15'56.3"; E23°19'34.7" [site co-ordinate]) characterized by circular stone foundation remains with an approximate diameter of 3m; inferred to have been a hut. Directly to the south-east thereof a curious linear

alignment of approximately 6-8m (PVIA5-1 – S28°15'56.8"; E23°19'34.9") may indicate the outer demarcation of a rectangular stock enclosure. The jumble of dolerite builders at the hill, many of which natural and many inferred to once have formed part of the aforementioned structures, radically hampers interpretation and further investigation of the site, where specifically Iron Age features are known to have been built from surface level upwards: Natural weathering has in effect taken a permanent toll on the PVIA5 features.

Feature PVIA5, already largely destroyed by natural agents, is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed under a SAHRA Site Destruction Permit.

- **PVIA6 (S28°16'00.2"; E23°19'34.0"):**

Feature PVIA6 constitutes an interesting case of intra-site cultural overlay. Early use of the stock enclosure is evidenced by circular mound remains, with an approximate diameter of 8-10m. A monolithic stone may well be indicative of the original enclosure entrance. Subsequent to use of the circular enclosure a small stone built rectangular stock enclosure was erected at the former site. The rectangular structure, with walls still standing to an approximate 0.7-1m level measures more or less 4x4m in size.

Intra-site amendments as evidenced by the PVIA6 feature indicates both a degree of generational culture change as well as reduced wealth at the time of Old Metsimatala Village: It is well known that cultural contact, in this case specifically Thlaping contact with Colonial settlers, have resulted in a change from the predominant circular cognitive world view, extensively expressed in settlement pattern amongst pre-Colonial Iron Age peoples in South Africa to a preference or regular use of rectangular shaped structures. The change in structure pattern also serves as a relative indicator of site age and associated western influence or adaptation to concepts with a western origin amongst Iron Age groups. On the other hand the radical reduction in size of the stock enclosure indicates reduced stock that needed to be attended to, a possible indicator of increasing poverty amongst the Metsimatala community in the years preceding Apartheid expulsion from Groenwater.

The PVIA6 feature is situated approximately 120m north of some large rectangular stock enclosures (S28°16'03.9"; E23°19'32.4"), demarcated by a quite extensive complex of stone walling but primarily 'Garingboom' (*Agave americana*), an exotic widely used to demarcate stock enclosures amongst both Iron Age and Colonial farmers.

The PVIA6 feature is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological monitoring and recording be done at the time of development impact: Detailed mapping and construction section monitoring may yield additional artefactual remains or sub-surface site related data.

- **PVIA7 (S28°15'59.2"; E23°19'32.7"):**

PVIA7 is situated approximately 50m north-west of PVIA6 and is inferred to indicate directly associated living quarters (huts) of the PVIA6 feature. Here the partial circular stone foundation remains of a hut could be identified, but the general area is characterized by a jumble of stones, making any further feature identification particularly difficult. In addition to the partial hut remains rusted metal were found strewn across the locale, indicating perhaps occupation debris of the PVIA6 rectangular stock enclosure occupation time. The unfortunate decayed state of the PVIA7 remains hampers any possible integrated interpretation of the site with PVIA6 or any inferred outcome of further studies at the site itself.

Feature PVIA7, already largely destroyed by natural agents, is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed under a SAHRA Site Destruction Permit.

- **PVIA8 (S28°15'56.2"; E23°19'18.7"):**

The PVIA8 features are characterized only by changes in the vegetation, in all cases measuring approximately 4-5m in diameter and inferred to have been small circular stock enclosures most probably demarcated originally by organic material such as pole and branch or even 'Garingboom' (*Agave americana*). A few rusted metal objects were observed in the general area. The 4 stock enclosures are further spatially described as PVIA8-1 (S28°15'56.2"; E23°19'18.7" [site co-ordinate]), PVIA8-2 (S28°15'55.2"; E23°19'19.0"), PVIA8-3 (S28°15'55.5"; E23°19'19.6") and PVIA8-4 (S28°15'54.9"; E23°19'19.4").

The PVIA8 features are situated to the south-west of a curious aerially identified vegetation composition often associated with past anthropogenic disturbance. However, in the case of PVIA8, it seems as though the large right angled aerial vegetation feature demarcates little more than former access roads; running north-west to south-east, from the railway line to the large stock enclosures to the south of the PV Solar Field Study site and from north-east to south-west along a former track to Old Metsimatata Village respectively. To the south of the old Metsimatata track is a circular arrangement of vegetation, but closer inspection indicated that it may have a natural origin, being situated around a small water hole, a natural draw-card to the immediate environment, evidently exploited by early Iron Age farmers.

The PVIA8 features are ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the features be destroyed without the developer having to apply for a SAHRA Site Destruction Permit.

- **PVIA9 (S28°15'49.6"; E23°19'04.7"):**

The PVIA9 feature comprises of the ruined stone remains of a fairly large, approximately 6x4m in size rectangular shaped stock enclosure.

Feature PVIA9 is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the feature be destroyed under a SAHRA Site Destruction Permit.

- **PVIA10 (S28°15'46.0"; E23°19'09.4"):**

Feature PVIA10 comprises of a small cluster of 2 stock enclosures: PVIA10-1 (S28°15'46.0"; E23°19'09.4" [site co-ordinate]) constitutes the ruined stone wall remains of a fairly large square-shaped enclosure, approximating 6x6m in size. Here walls standing in places to roughly 40-50cm high provide a very good example of former Iron Age building technique, clearly indicating the use of larger stone along the outer and inner sides of the wall with the typical smaller rubble infill. Slightly to the east of the PVIA10-1 enclosure are the remains of part of a former rectangular shaped stone stock enclosure (PVIA10-2 – S28°15'46.1"; E23°19'09.8"), identifiable only by one corner of the feature, with the remainder of the feature having weathered away.

The feature PVIA10 complex is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. However, it is recommended that Phase 2 archaeological monitoring and recording be done at the time of construction impact to ensure the monitoring of a sample of the residential remains towards the central part of the study site.

- **PVIA11 (S28°15'41.1"; E23°19'07.7"):**

The PVIA11 structure remains constitute the ruined remains of a stone built livestock enclosure. The enclosure, built on a basic rectangular framework was sub-divided into fairly small compartments, inferred to have been used for calf management but perhaps more probably for goat keeping. Rusted metal objects were found scattered

across the general locale. The structure remains measures approximately 12x7m in extent and in general layout very similar to remains identified at PVIA4, albeit much smaller in size.

Feature PVIA11 is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. However, it is recommended that Phase 2 archaeological monitoring and recording be done at the time of construction impact to ensure the monitoring of a sample of the residential remains towards the central part of the study site.

- **PVIA12 (S28°15'41.2"; E23°19'05.2"):**

The PVIA12 feature represents the locality of a former hut, characterized by mound remains only. Mound remains measures approximately 4m in diameter, indicating a particularly large residence. Metal artefacts were found scattered across the general terrain. It is recommended that Phase 2 archaeological monitoring and recording be done at the time of construction impact to ensure monitoring of a sample of the residential remains towards the central portion of the study site.

The PVIA12 feature is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. However, it is recommended that Phase 2 archaeological monitoring and recording be done at the time of construction impact to ensure the monitoring of a sample of the residential remains towards the central part of the study site.

- **PVIA13 (S28°15'40.0"; E23°19'05.4"):**

PVIA13 comprises of 2 mound remains situated immediately adjacent to one another. Both structures seem to have originally been square in shape, roughly measuring 4x3m in size each. Structures seem to have been built with pole and *daga*, with a scant scatter of metal artefacts scattered across the site terrain.

The PVIA13 feature is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the site be destroyed under a SAHRA Site Destruction Permit.

- **PVIA14 (S28°15'41.3"; E23°19'04.0"):**

The PVIA14 locale represents the locality of the ruined remains of 2 rectangular stone built stock enclosures: Feature PVIA14-1 (S28°15'41.3"; E23°19'05.4" [site co-ordinate]) is characterized only by scattered stone but original structure demarcations are still clearly visible at feature PVIA14-2 (S28°15'41.7"; E23°19'03.6"), indicating an original enclosure with rough dimensions of 2.5x2.5m in size.

The PVIA14 features are ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the site be destroyed under a SAHRA Site Destruction Permit.

- **PVIA15 (S28°15'47.3"; E23°18'51.9"):**

The PVIA15 structure is situated to the south of the study site, on the foothill of the PVSA4 deposits' site proper. The site is characterized by the remains of a large stone built 'kraal', measuring roughly 12x9m in size. Portions of the stone walls are still standing to a height of 40-50cm in places, providing a quite good example of Later Iron Age building technique, with clearly visible large stones used on the outer and inner sides of the walls with smaller stone rubble infill. A low density of rusted metal artefacts was found at the site as well as a piece of earthenware.

Feature PVIA15 is ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the site be destroyed under a SAHRA Site Destruction Permit.

- **PVIA16 (S28°15'43.4"; E23°18'49.2"):**

The PVIA16 locality demarcates the position of 2 huts situated in close proximity to one another. At PVIA16-1 (S28°15'43.4"; E23°18'49.2" [site co-ordinate]) mound remains, measuring just in excess of 3m in diameter are clearly outlined by standing stones, indicating that the walls of the hut may well have been stone built. However, more probably, considering the low number of stones in the immediate area, only the foundation 'ring' was stone built with walls from pole and *daga*. At PVIA16-2 (S28°15'44.2"; E23°18'49.6) thickly covered circular stone mounds indicate a structure with walls completely built of stone. Based on mound remains the structure is inferred to have had a rough approximate 3m diameter. Limited metal was found in the vicinity of the 2 structures together with scant scatters of old bottle glass pieces.

The PVIA16 residential features are ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. It is recommended that the structures be destroyed under a SAHRA Site Destruction Permit.

- **PVIA17 (S28°15'42.2"; E23°18'48.4"):**

The PVIA17 locality demarcates the position of a stone outlined approximate 1m in diameter feature. The feature is surrounded by additional structure remains, including what seems like short 'paths' leading to mounded areas scattered with stone, which may have been either circular or rectangular residential structures. Rusted metal was found at the site. Phase 2 archaeological monitoring and recording is recommended to further identify and describe the PVIA17 remains.

The PVIA17 feature is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. Phase 2 archaeological monitoring and recording is recommended at the time of construction impact to further identify and describe the PVIA17 remains.

- **PVIA18 (S28°15'41.4"; E23°18'48.6"):**

The PVIA18 farmstead is characterized by stone outlined circular mound remains, inferred to be indicative of a stone foundation 'ring' with the remainder of the hut built of pole and *daga*. Mound remains are indicative of a structure measuring approximately 3-4m in diameter. Immediately to the east of the mound and channeled by a type of stone outlined 'pathway' are the rectangular remains of what seems to have been stone built stock enclosures, measuring roughly 5x5-7m in size each, 1 situated to the north of the pathway and 1 to the south. Stock enclosure areas are characterized by jumbles of stone, but with foundations traces in cases still visible, indicating also the partitioning of these structures into even smaller units at places, inferred to have been for calf management or goat keeping.

The PVIA18 farmstead is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. It is recommended that Phase 2 archaeological monitoring and recording be done at the time of development impact: Detailed mapping and construction section monitoring may yield additional artefactual remains or sub-surface site related data.



View of PVSA1



Artefacts from PVSA1



The PVSA2 hill



Artefacts from PVSA2



View of PVSA3











Artefacts from PVSA3



View of PVSA4



Artefacts from PVSA4

 <p>View of PVIA1</p>	 <p>View of PVIA2</p>
 <p>PVIA3 – Partial wall remains</p>	 <p>Stone walling at PVIA4-1 – 1</p>
 <p>Stone walling at PVIA4-1 – 2</p>	 <p>Stone walling at PVIA4-1 – 3</p>
 <p>Structure remains demarcated by vegetation at PVIA4-2</p>	 <p>Circular stone wall structure remains – PVIA4-3</p>



Structure remains demarcated by vegetation at PVIA4-4



PVIA5-2 – Stone wall structure remains



Stone wall remains at PVIA6



Former circular structure remains at PVIA6



Large stock enclosures to the south of PVIA6



Stone wall remains at PVIA7



Metal artefacts at PVIA7



View of the PVIA8 enclosures



View of PVIA9



Close-up of stone walling at PVIA10



View of the PVIA10 remains



Livestock enclosure remains at PVIA11



Portion of the PVIA11 remains



View of PVIA12



Metal artefacts at PVIA12



View of PVIA13



View of PVIA14-2



Stock enclosure remains at PVIA15



Earthenware at PVIA15



Structure remains at PVIA16-1



Portion of PVIA17



Metal artefact at PVIA17



View of the PVIA18 remains



Close-up of stone walling at PVIA18

2.2.3) THE CSP SOLAR FIELD



Figure 10: The CSP Solar Field study site – Phase 1 AIA assessment findings

The CSP Solar Field (210ha) study site, Groenwater 453, was 1st surveyed and reported on by Becker (2011). The site was revisited on 2011-03-08. No archaeological or cultural heritage resources of significance were identified within the site parameters. The study site is characterized by a number of dolerite outcrops, whilst the geological substrate, a dolerite combined with banded iron stone ‘pebble’ layer surfaced at intervals, more prominently within flatter areas. A surprisingly low density of Stone Age artefacts is routinely associated with these surfacing ‘pebble’ lenses. Artefact quantities are too low to ascribe an artefact ratio (artefacts: m²) thereto. A very preliminary Middle Stone Age (MSA) assignment is ascribed based primarily on typology. Viewed from a Groenwater 453, and also a more regional perspective, these Stone Age deposits are of particularly low significance; Phase 2 archaeological monitoring and mitigation can reasonably be expected to yield little to no informative data. Development will however impact on the odd artefact. It is recommended that development proceed without the developer having to comply with any additional cultural heritage compliance requirements.

RECOMMENDATIONS: No archaeological or cultural heritage resources of significance were identified within the CSP Solar Field site parameters. Development is expected to impact on a particularly low density of Stone Age artefacts. It is recommended that development proceed without the developer having to apply for a SAHRA Site Destruction Permit.

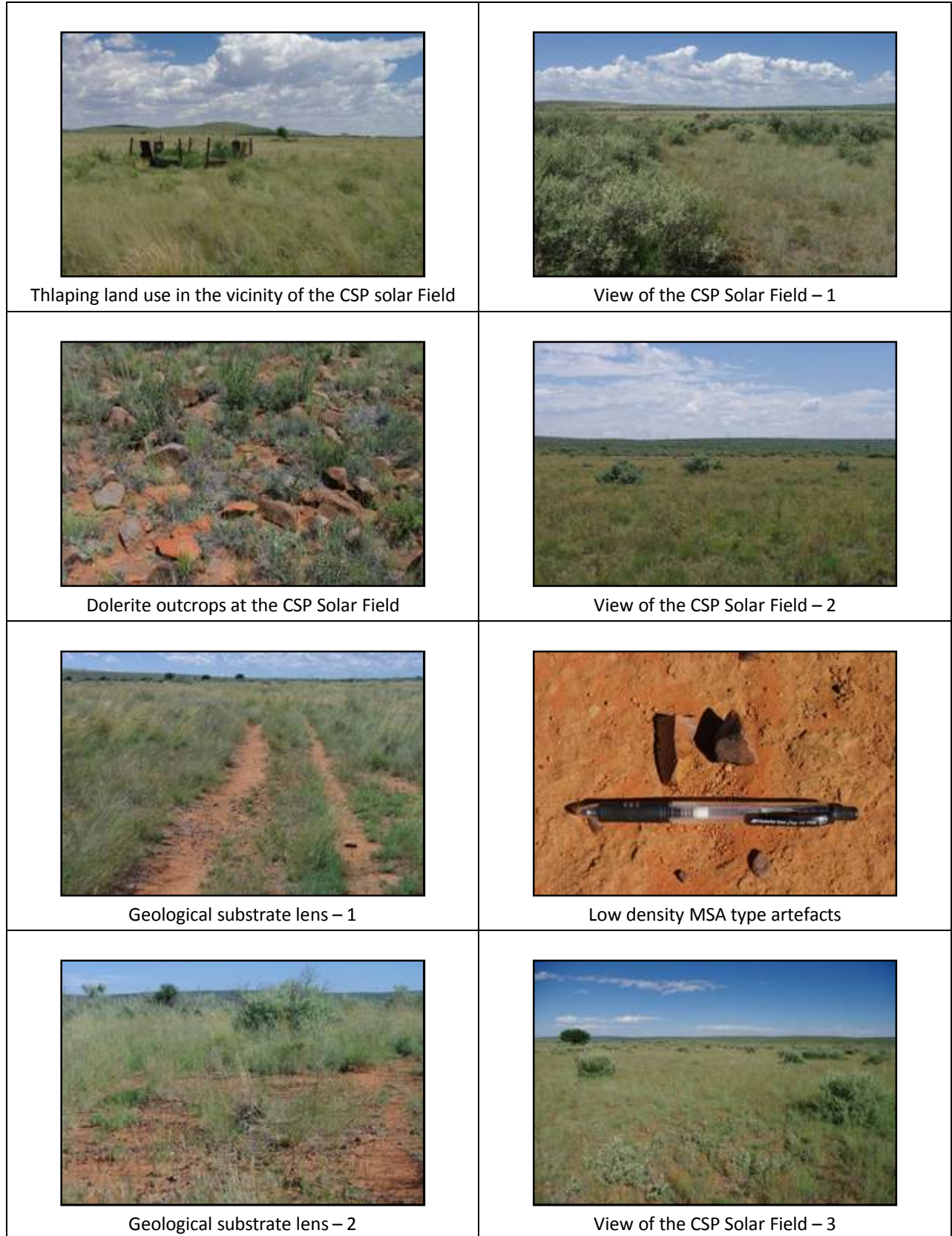


Figure 11: Image gallery – The CSP Solar Field

2.2.4) ADDITIONAL ARCHAEOLOGICAL SITES



Figure 12: Additional sites – Phase 1 AIA assessment findings

In 1997 the Groenwater 453 land claim was granted to the Metsimatala BaThlaping Community, a primary Thlaping people with some admixture, and in the years to follow, 1998-1999, the community resettled on their former land, mainly from the Kuruman area (Pers. Comm: Obemang Kgoronyane – CPA member). The new Metsimatala Village (S28°17'20.4"; E23°18'44.3") was planned just south of the Old Metsimatala Village, Site MVIA2, the remnants of which can be identified across a vast area, stretching more than a kilometer in diameter, cluttered with stone walls and stock enclosure encampment remains, 'Garingboom' (*Agave americana*) clusters and metal, bottle glass and limited earthenware artefacts. From Old Metsimatala Village a number of plots were laid out for farmers, with remains identified at the PV Solar Field and along the powerline route testimony to occupation and activities of some of these farmers. A number of large cemeteries further evidence large scale early occupation, including Sites MVIA1, MVIA3 and MVIA5. More recent settlement of the Metsimatala Informal Settlement (S28°16'37.6"; E23°20'02.0") also speaks of cultural overlay, specifically with reference to the MVIA5 cemetery but including proximity to identified cultural remains in the PV Solar Field area and immediately south thereof.

Colonial Period influence is most prominently evidenced on the landscape by the still in use electrified railway line built in 1930 and directly associated therewith, remains of the former railway station, Site MVCP1. In addition thereto the landscape is cluttered with Colonial Period farming remains, dating from after 1968, when the Thlaping was forcefully removed and characterized mainly by cemented farming infrastructure.

RECOMMENDATIONS: Both the Old Metsimatala Village (MVIA2) site proper and the Railway Station (MVCP1) remains will be conserved *in situ*. Site MVIA4 comprises of a contemporary cemetery not formally protected under the NHRA 1999. The Iron Age cemeteries MVIA1, MVIA3 and MVIA5 all constitute heritage sites formally protected under the NHRA 1999. It is recommended that these cemeteries be permanently sign-posted. In addition the

developer should consider formal conservation measures (fences with access gates) in the case of Sites MVIA1 and MVIA3. Formal conservation measures should be pre-negotiated with the community.

❖ *Iron Age*

Identified Iron Age sites are summarized as:

- **MVIA1 (S28°15'14.1"; E23°18'46.2"):**

Site MVIA1 was 1st identified and reported on by Becker (2011). The Iron Age cemetery site is characterized by the individually fenced grave of the former *Kgosi*, Kgosi Kgangeng Steenbok Kweetsane, with its granite, marbleized and white quartz platform and inscribed headstone '*This is a symbol of love to my beloved our father and grandfather Kgangeng Steenbok Kweetsane. Born – 20-06-1884, Died – 16-01-1959, Buried – 23-01-1959. Rest in peace.*' The grave of the *Kgosi* is situated amidst an old cemetery with rough dimensions measuring about 45x25m in size containing easily 250-300+ graves. The majority of the graves comprise of traditional style graves, mostly characterized by stone cairns only, but including stone headstones, stone platforms with headstones and cemented platforms with inscribed cement headstones. Graves are in cases heavily weathered, with older graves often identifiable by nothing more than a rough cluster of stones.

It is inferred that most of the graves at the site pre-date 60 years of age, implying that the cemetery is formally protected under the NHRA 1999. Being situated north of the PV Solar Field, north of the fenced electrified railway, the site will despite proximity to the PV Solar Field (approximately 600m) not be impacted on by development: The site will by implication be conserved. It is recommended that the developer considers formal conservation measures before development commences – including that the site be formally fenced with an access gate. Fencing of grave sites should be pre-negotiated with the community. In addition the site should be permanently sign-posted, including at minimum that the site is formally protected by SAHRA under the NHRA 1999.

Site MVIA1 is ascribed a SAHRA *High Significance* and a *Generally Protected A Field Rating*. The site will be conserved. It is recommended that the site be permanently sign-posted. In addition the developer should negotiate formal conservation measures (fence with access gate) with the community.

- **MVIA2 (S28°16'37.6"; E23°18'56.2"):**

Site MVIA2 demarcates the locality of the Old Metsimatala Village. Here occupation and farming remains can be identified across a vast area, stretching more than a kilometer in diameter, cluttered with stone walls and stock enclosure encampment remains, 'Garingboom' (*Agave americana*) clusters and metal, bottle glass and limited earthenware artefacts. From Old Metsimatala Village a number of plots were laid out for farmers, with remains identified at the PV Solar Field and along the powerline route testimony to occupation and activities of some of these farmers.

Development will not impact on the Old Metsimatala Village site proper; the site will be conserved *in situ*.

Site MVIA2 is ascribed a SAHRA *Medium Significance* and a *Generally Protected B Field Rating*. The site will not be impacted on by development; the site will be conserved *in situ*.

- **MVIA3 (S28°16'45.3"; E23°18'26.0"):**

The Site MVIA3 Iron Age cemetery constitutes in part an old cemetery directly associated with occupation of the Old Metsimatala Village. A rough, approximate 150 graves are situated at the old portion of the cemetery, mainly including traditional style graves identifiable by stone cairns, many of which have been weathered to resemble only a cluster of stones. Some old graves are demarcated by stone headstones, while others have complete platform outlines with inscribed headstones. The limited number of graves with inscribed headstones is evidence of this portion of the cemetery pre-dating 60 years of age, thus formally protected under the NHRA 1999.

After reoccupation of Groenwater by the community in the late 1990's it was decided to continue use of the cemetery, rather than to establish a new cemetery (Pers. Comm: Obemang Kgoronyane – CPA member). The new portion of the cemetery is situated immediately adjacent to the old portion, without any impact on the old portion. The new portion of the cemetery is clearly distinguished from the old, with graves arranged in neat alignments, including traditional style graves, often inscribed with metal headstone or cross, or characterized by modern style graves, including decorated platforms and inscribed headstones.

Development will not impact on the MVIA3 cemetery. The cemetery site is formally protected under the NHRA 1999 (with specific reference to the old portion of the cemetery). It is recommended that the developer considers instating formal conservation measures (fence with access gate). Formal conservation measures should be pre-negotiated with the community. In addition the site should be permanently sign-posted, stating at minimum that the site is formally protected by SAHRA under the NHRA 1999.

Site MVIA3 (with specific reference to the old portion of the cemetery) is ascribed a SAHRA *High Significance* and a *Generally Protected A Field Rating*. The site will be conserved. It is recommended that the site be permanently sign-posted. In addition the developer should negotiate formal conservation measures (fence with access gate) with the community.

- **MVIA4 (S28°16'56.7"; E23°19'45.4"):**

Site MVIA4 was 1st identified and reported on by Becker (2011). The MVIA4 Iron Age cemetery sites constitute a contemporary cemetery. The site is not formally protected under the NHRA 1999, but does represent a culturally sensitive site. The site, containing approximately 25-30 graves, is in part fenced. Graves comprise of both traditional and modern style graves. The site will not be impacted on by development.

Site MVIA4 comprises of a contemporary cemetery. The site is not formally protected under the NHRA, but does represent a culturally sensitive site – a SAHRA site significance assignation is irrelevant. The site will not be impacted on by development.

- **MVIA5 (S28°16'21.2"; E23°20'09.5"):**

Site MVIA5 was 1st identified and reported on by Becker (2011). The MVIA5 Iron Age cemetery is situated immediately adjacent to the railway line fence, with a now dry streambed demarcating the northern boundary of the site. At MVIA5 approximately 40 traditional style graves, characterized by stone cairns without any headstones are clustered under thick tree cover. Graves are all inferred to pre-date 60 years of age, implying that the site is formally protected under the NHRA 1999. The site is directly associated with early occupation of Old Metsimatala Village, and known amongst the community of the Metsimatala Informal Village as the '*old cemetery*' or '*graves of the old people*'. The site is no longer in use.

Site MVIA5 will not be impacted on by development; the site will be conserved. The site is formally protected under the NHRA 1999. Due to thick tree cover and immediate proximity to the stream bed formal conservation measures will not be feasible. It is recommended that the site be permanently sign-posted, stating at minimum that the site is formally protected by SAHRA under the NHRA 1999.

Site MVIA5 is ascribed a SAHRA *High Significance* and a *Generally Protected A Field Rating*. The site will be conserved. It is recommended that the site be permanently sign-posted. Due to locality formal conservation measures may not be feasible and are not recommended.

❖ *Colonial Period*

The identified Colonial Period site is summarized as:

- **MVCP1 (S28°16'28.0"; E23°20'11.1"):**

The old 1930's electrified railway line, upgraded but still in use, meanders through the Groenwater property from west (S28°14'43.5"; E23°14'57.5") to south-east (S28°18'19.6"; E23°20'55.5"), in itself forming the most visible heritage feature on the cultural landscape. Remains of the original railway station, Site MVCP1, built in the 1930's at the time of the railway line construction, are identifiable only by the station's platform ruins, situated amidst the new station buildings and old sleeper remains. The 1930's railway station structure remains post-date 60 years of age, by implication formally protected under the NHRA 1999. The remains, situated within the fenced railway corridor, will not be impacted on by the development. The site will be conserved.

Site MVCP1 was 1st identified and reported on by Becker (2011).

Site MVCP1, comprising of a structure pre-dating 60 years of age, receives automatic SAHRA protection as a site of *High Significance* with a *Provincial Grade 2 Field Rating* (although the site is architecturally of low significance). The site will be conserved *in situ*.



The railway line – still in daily use



View of Metsimatala Village



Portion of Metsimatala Informal Village



Grave of Kgosi Kgangeng Steenbok Kweetsane – MVIA1



Traditional style graves at MVIA1



Traditional grave with stone headstone – MVIA1



Portion of the MVIA1 cemetery



View of the Old Metsimatala Village terrain – 1

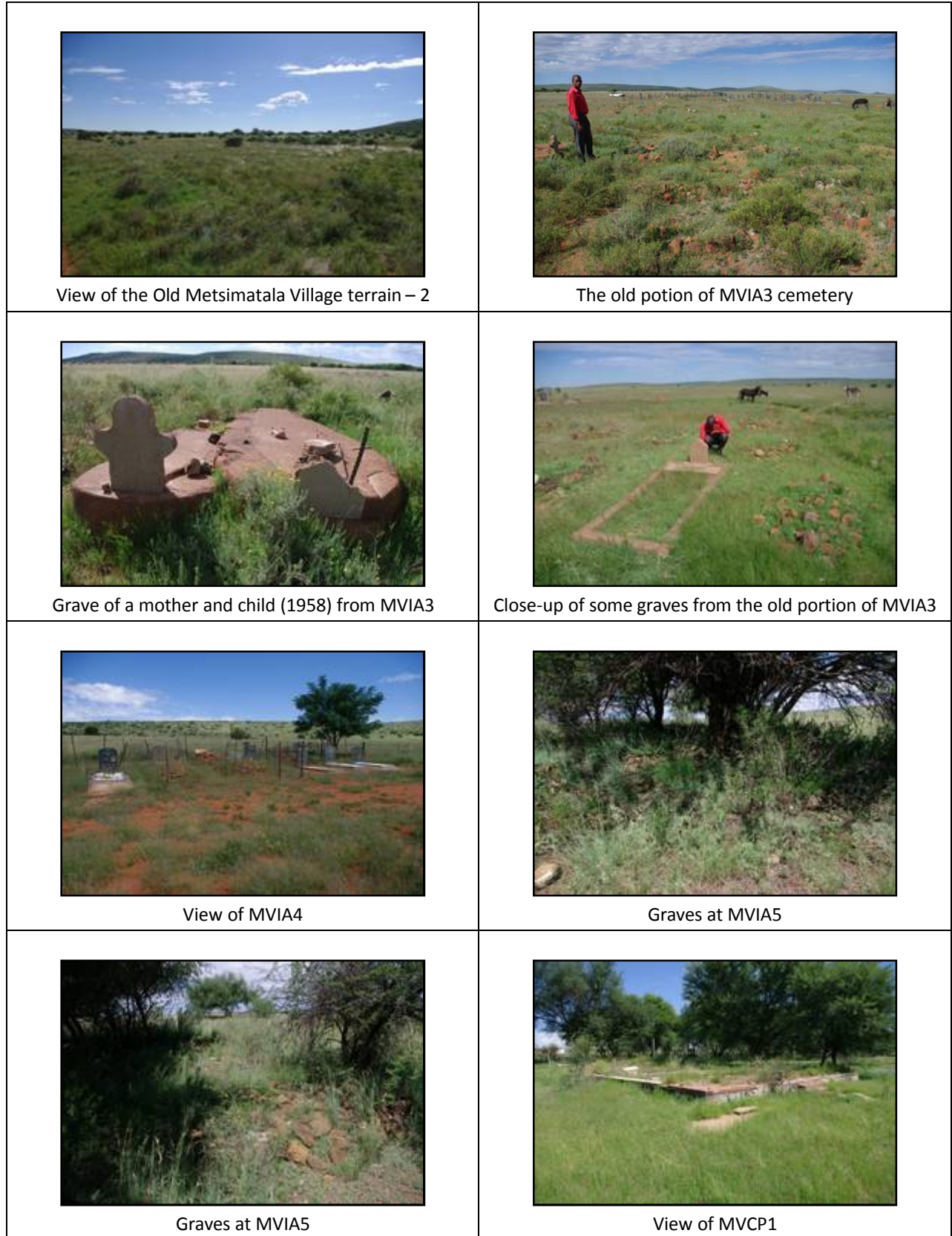


Figure 13: Image gallery – Additional Archaeological Sites

2.3) CULTURAL LANDSCAPES AND VIEWSCAPES

A 'Cultural Landscape' refers to a particular geographical area that represents the unique combined work of man and nature (James & Martin 1981). The term has its origins in 16th Century Germany where 'Cultural Landscape' (*Kultur Landschaft*) implies 'shaped lands' to differentiate it from the 'Original Landscape' (*Urlandschaft*), or the 'unaltered' landscape, prior to human impact (Sauer 1925). Sauer (1925) stresses the agency of culture as a force in shaping the visible features of the earth's surface in delimited areas where the physical environment retains a central significance, as the medium with and through which human cultures act. According to Sauer (1925) *'The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural the medium, the cultural landscape is the result'*.

In order to better understand the concept of 'Cultural Landscape' it is necessary to separate the term 'Culture' to further our understanding of its many definitions. Within the anthropological arena culture is generally understood as a *'complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society'*. Culture is *'human nature'* and is acquired through a learning process. Through culture people can adapt to their environment in non-genetic ways, so people living in different environments will often have different cultures, or will develop different cultures (Van Willigen 1986). An integral part of culture is change; be it the result of a changing natural environment to which the culture have to adapt or contact with another culture, the primary force of cultural change, and often the result of socio-political pressure. Els (1992) explain that cultural contact change usually occurs according to either the process of acculturation (dominating 'donor' culture) or the process of enculturation (dominating 'receiver' culture). Both cultural processes can be spontaneous, forced or guided; but cultural process is never a one-way street; any given cultural system is at once a 'donor' and a 'receiver'. The essence of cultural change lies in the restructuring of the parts so that a new cultural pattern results. Bourguignon (1979) highlights the fact that this 'restructuring' should center on the question of *'What changes are (were) necessary to make culture, as we know it, possible?'* Culture is thus a process of constant change and adaptation; psychologically, behaviorally, technologically, politically, economically and spiritually (religiously), collectively referred to as 'cultural evolution'. [Certain forms of society and culture could simply not have arisen before others; for example, industrial farming could not have been invented before simple farming, and metallurgy could not have developed without previous non-smelting processes involving metals (Van Willigen 1986).]

When considering the concept of 'Cultural Landscape', taking cognizance of the vital force of change as an agent of culture, it is only logical that cultural change will be reflected in a changing cultural landscape.

The concept of 'Cultural Landscape' has also been adapted and developed within international heritage arenas (UNESCO 2005) as part of an international effort to reconcile one of the most encompassing dualisms in Western thought; those of 'nature' and 'culture'. In so doing the World Heritage Committee has adopted 3 categories of 'Cultural Landscape', ranging from (a) those landscapes most deliberately 'shaped' by people, through (b) the full range of 'combined' works, to (c) those least evidently 'shaped' by people (yet highly valued). The 3 categories extracted from the UNESCO Committee's Operational Guidelines, are as follows (Punnell 2006):

1. A landscape designed and created intentionally by man;
2. An 'organically evolved landscape' which may be a 'relict (or fossil) landscape' or a 'continuing landscape'; and
3. An 'associative cultural landscape' which may be valued because of the religious, artistic or cultural associations of the natural environment.

❖ *The Metsimatala / Groenwater Cultural Landscape*

Based on the known archaeological record, as described in the general introduction to South African archaeology (Appendix 1), the more immediate regional context of Groenwater 453, briefly illustrated in the pre-feasibility assessment and findings of the Phase 1 AIA and associated site inspections for the *Metsimatala Solar Project*, it can be concluded that the following cultural landscapes will be affected by the development:

1. Stone Age (MSA and macrolithic LSA);
2. Later Iron Age (BaThlaping); and
3. Colonial Period (Industrial revolution).

THE MSA AND MACROLITHIC LSA CULTURAL LANDSCAPE: The Middle Stone Age (MSA) and macrolithic Later Stone Age (LSA) Cultural Landscape of the *Metsimatala Solar Project* study site can be classified, according to the UNESCO Operational Guidelines (Punnell 2006), as an ‘organically evolved fossil landscape’ that has been least evidently shaped by humans.

MSA and subsequent LSA occupation, inferred to have been the 1st impact on the natural or unaltered Groenwater 453 landscape, can be described as of Medium-Low Significance. Sites recorded are of considerable size, a fairly common phenomenon of the more immediate region; evidence of use over an extensive period of time, taken cognizance of comparatively low artefact densities, implying non-intensive exploitation. Stone Age people seem to have preferred higher lying areas, hilltops and crests, where raw material sources were the most prominent draw-card for lithic production. Along the powerline study site, evidence for use of the plain and the nearby stream point to a more holistic Stone Age use of the landscape. MSA and macrolithic LSA visual impact on the natural landscape can again be described as minimal, though not denying extensive geographical use thereof.

THE BATHLAPING LATER IRON AGE CULTURAL LANDSCAPE: The BaThlaping Later Iron Age Cultural landscape of the *Metsimatala Solar Project* study site can be classified, according to the UNESCO Operation Guidelines (Punnell 2006), as an ‘organically evolved continuing cultural landscape’, shaped by a range of combined works and human impacts.

Later Iron Age Thlaping occupation of the area was extensive and intense: Measured by the size of Old Metsimatala Village and distances thereof of the plots laid out (a minimum measure provided by the Phase 1 AIA assessment findings), considering both villagers and livestock, it can reasonably be inferred that early Thlaping occupation permanently transformed the cultural landscape of Groenwater 453. However, remains of these days are today quite trivial, Old Metsimatala Village has withered into low lying stone foundation remains, barely noticeable changes in vegetation and the odd cluster of ‘Garingboom’ (*Agave americana*); the silence of a once industrious African village evidenced most prominently by its extensive cemeteries.

Findings of the Phase 1 AIA points to a preliminary conclusion of a noticeable reduction in wealth in the years preceding the 1968 forced removals.

Reoccupation of Groenwater by the community in the late 1990’s has to date far from equaled inferred former Thlaping impact. It was a destitute people who arrived, on government granted land, many of whom still rely on grants as their major source of income. Subsistence farming has picked up and a number of smaller projects are ongoing (Pers. Comm: Obemang Kgoronyane – CPA member). But the Thlaping of Groenwater remains a poor people struggling for economic freedom in an ever more challenging South Africa.

THE COLONIAL PERIOD – INDUSTRIAL CULTURAL LANDSCAPE: The Colonial Period Industrial Cultural Landscape of the *Metsimatala Solar Project* study site can be classified, according to the UNESCO Operation Guidelines (Punnell 2006), as an ‘organically evolved continuing cultural landscape’, designed and created intentionally by man.

The most prominent, though not the most significant cultural heritage feature on the landscape remains the 1930’s built railway line (and associated infrastructure) with its very purpose reflecting also its transitory goal.

* * *

Visual impact of the *Metsimatala Solar Project* on the multi-layered cultural landscape of Groenwater 453 will be high, permanent and non-mitigatable: Despite the fact that structures are in theory mitigatable (structures can be dismantled), projected energy demands and the current emphasis on green, renewable energy would very likely prohibit dismantlement of a nationally essential resource: Demand for energy would thus most likely render the project non-mitigatable.

This permanent visual impact on the cultural landscape will most critically affect the Later Iron Age Thlaping landscape: Regularity of the type of Stone Age resources identified on Groenwater 453 (and Plaas 455), within a more immediate regional and greater Northern Cape context, lessens the significance of visual impact on the Stone Age cultural landscape. The very transitory goal of the Colonial Period Industrial landscape speaks of its significance at start and end destinations. But the uniqueness of the Later Iron Age Thlaping cultural landscape, the focus of which remains Old Metsimatala Village, with its poorly recorded history, will be undoubtedly jeopardized. However, it is development (and associated Phase 2 archaeological monitoring and recording) that will provide for the 1st scientific glimpse into the history of Old Metsimatala Village and surrounds. It is also the very descendants of Old Metsimatala Village that will directly benefit from the project; an impoverished contemporary community that will through development ensure a presence for themselves more reminiscent of their past.

3) CONCLUSION AND RECOMMENDATIONS

With reference to cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Metsimatala Solar Project*, to be situated on the property Groenwater 453, in the Siyanda Municipal District of the Northern Cape, proceeds as applied for, provided the developer complies with the following recommendations:

RECOMMENDATIONS –

1. THE POWERLINE ROUTE:

Recommendations: Limited impact on Stone Age resources (PLSA1 and PLSA2) is envisioned. Based on the vast assemblage sizes together with the regularity of these type sites on Groenwater itself and in its more immediate regional context archaeological monitoring and recording is recommended at the time of development impact rather than full Phase 2 archaeological mitigation. The line route will pass along the eastern extremity of recorded Iron Age site PLIA1 and may impact on lesser associated features – on-site archaeological monitoring at the time of development impact is recommended. The Colonial Period farmstead, Site PLCP1, will be conserved.

2. THE PV SOLAR FIELD:

Recommendations: It is recommended that low density Stone Age occurrences be destroyed without the developer having to apply for SAHRA Site Destruction Permits, including PVSA1, PVSA2 and PVSA3. At PVSA4 Phase 2 archaeological monitoring and recording should coincide with development impact. It is recommended that Iron Age features of little significance and not associated with any stone walling be destroyed without the developer having to apply for SAHRA Site Destruction Permits and including features PVIA1, PVIA2 and PVIA8. Features described as of low significance but associated with stone wall remains should be destroyed under SAHRA Site Destruction Permits, including features PVIA3, PVIA5, PVIA7, PVIA9, PVIA13, PVIA14, PVIA15 and PVIA16. Phase 2 archaeological monitoring and recording at the time of development impact at identified features PVIA4, PVIA6, PVIA10, PVIA11, PVIA12, PVIA17 and PVIA18 will serve as a representative sample of Iron Age features destroyed *in lieu* of the development.

3. THE CSP SOLAR FIELD:

Recommendations: No archaeological or cultural heritage resources of significance were identified within the CSP Solar Field site parameters. Development is expected to impact on a particularly low density of Stone Age artefacts. It is recommended that development proceed without the developer having to apply for a SAHRA Site Destruction Permit.

4. ADDITIONAL ARCHAEOLOGICAL SITES:

Recommendations: Both the Old Metsimatala Village (MVIA2) site proper and the Railway Station (MVCP1) remains will be conserved *in situ*. Site MVIA4 comprises of a contemporary cemetery not formally protected under the NHRA 1999. The Iron Age cemeteries MVIA1, MVIA3 and MVIA5 all constitute heritage sites formally protected under the NHRA 1999. It is recommended that these cemeteries be permanently sign-posted. In addition the developer should consider formal conservation measures (fences with access gates) in the case of Sites MVIA1 and MVIA3. Formal conservation measures should be pre-negotiated with the community.

THE METSIMATALA SOLAR PROJECT					
GROENWATER 453 (NEAR DANIELSKUIL), FRANCIS BAARD DISTRICT MUNICIPALITY, NORTHERN CAPE					
MAP CODE	SITE	TYPE / PERIOD	DESCRIPTION	CO-ORDINATES	PRELIMINARY RECOMMENDATIONS
THE POWERLINE ROUTE					
PLSA1	PLSA1	Stone Age	MSA (& LSA)	S28°14'46.3"; E23°20'02.8"	Phase 2 archaeological monitoring and recording at the time of construction
PLSA2	PLSA2	Stone Age	MSA (& LSA)	S28°13'43.1"; E23°21'38.1"	Phase 2 archaeological monitoring and recording at the time of construction
PLIA1	PLIA1	Iron Age	Farmstead	S28°15'08.8"; E23°19'40.1"	In situ Conservation (Phase 2 archaeological monitoring at the time of construction)
PLCP1	PLCP1	Colonial Period	Farmstead	S28°14'09.5"; E23°20'27.7"	In situ Conservation
THE PV SOLAR FIELD					
PVSA1	PVSA1	Stone Age	MSA (& LSA)	S28°15'49.1"; E23°19'30.7"	Destruction without a SAHRA Permit
PVSA2	PVSA2	Stone Age	LSA	S28°15'55.3"; E23°19'34.5"	Destruction without a SAHRA Permit
PVSA3	PVSA3	Stone Age	MSA (& LSA)	S28°15'49.3"; E23°19'10.4"	Destruction without a SAHRA Permit
PVSA4	PVSA4	Stone Age	MSA (& LSA)	S28°15'48.2"; E23°18'48.2"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA1	PVIA1	Iron Age	Feature	S28°15'40.7"; E23°19'35.2"	Destruction without a SAHRA Permit
PVIA2	PVIA2	Iron Age	Feature	S28°15'42.1"; E23°19'31.1"	Destruction without a SAHRA Permit
PVIA3	PVIA3	Iron Age	Feature	S28°15'47.6"; E23°19'38.9"	Destruction under SAHRA Permit
PVIA4	PVIA4	Iron Age	Farmstead	S28°15'52.4"; E23°19'38.3"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA5	PVIA5	Iron Age	Feature	S28°15'56.3"; E23°19'34.7"	Destruction under SAHRA Permit
PVIA6	PVIA6	Iron Age	Feature	S28°16'00.2"; E23°19'34.0"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA7	PVIA7	Iron Age	Feature	S28°15'59.2"; E23°19'32.7"	Destruction under SAHRA Permit
PVIA8	PVIA8	Iron Age	Feature	S28°15'56.2"; E23°19'18.7"	Destruction without a SAHRA Permit
PVIA9	PVIA9	Iron Age	Feature	S28°15'49.6"; E23°19'04.7"	Destruction under SAHRA Permit
PVIA10	PVIA10	Iron Age	Feature	S28°15'46.0"; E23°19'09.4"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA11	PVIA11	Iron Age	Feature	S28°15'41.1"; E23°19'07.7"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA12	PVIA12	Iron Age	Feature	S28°15'41.2"; E23°19'05.2"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA13	PVIA13	Iron Age	Feature	S28°15'40.0"; E23°19'05.4"	Destruction under SAHRA Permit
PVIA14	PVIA14	Iron Age	Feature	S28°15'41.3"; E23°19'04.0"	Destruction under SAHRA Permit
PVIA15	PVIA15	Iron Age	Feature	S28°15'47.3"; E23°18'51.9"	Destruction under SAHRA Permit
PVIA16	PVIA16	Iron Age	Feature	S28°15'43.4"; E23°18'49.2"	Destruction under SAHRA Permit
PVIA17	PVIA17	Iron Age	Feature	S28°15'42.2"; E23°18'48.4"	Phase 2 archaeological monitoring and recording at the time of construction
PVIA18	PVIA18	Iron Age	Farmstead	S28°15'41.4"; E23°18'48.6"	Phase 2 archaeological monitoring and recording at the time of construction
THE PV SOLAR FIELD					
N/A	N/A	N/A	N/A	N/A	N/A
ADDITIONAL ARCHAEOLOGICAL SITES					
MVIA1	MVIA1	Iron Age	Cemetery	S28°15'14.1"; E23°18'46.2"	Formal conservation: Permanent sign-posting & fence with access gate (to be negotiated with the community)
MVIA2	MVIA2	Iron Age	Village	S28°16'37.6"; E23°18'56.2"	In situ Conservation
MVIA3	MVIA3	Iron Age	Cemetery	S28°16'45.3"; E23°18'26.0"	Formal conservation: Permanent sign-posting & fence with access gate (to be negotiated with the community)
MVIA4	MVIA4	Iron Age / Cont.	Cemetery	S28°16'56.7"; E23°19'45.4"	In situ Conservation
MVIA5	MVIA5	Iron Age	Cemetery	S28°16'21.2"; E23°20'09.5"	Formal Conservation: Permanent sign-posting
MVCP1	MVCP1	Colonial Period	Railway Station	S28°16'28.0"; E23°20'11.1"	In situ Conservation

Table 3: Development and Phase 1 AIA assessment findings – co-ordinate details

- ❖ **Sign Posting:** Sign posting is not at present defined by SAHRA and the following can be used as guideline: Signs should indicate that the sites are formally protected under the NHRA 1999 and that any damage thereto or impact thereon is prohibited by law. In addition the signs should indicate a reference for purposes of future identification. Sign boards can be in the region of approximately 60-80cm x 40-50cm in size which will provide for a reasonable size sign with clear legible lettering. Sign boards are usually done by professional sign writers (durability) on a metal board and fixed to a treated wooden or metal pole. Sign boards can be in a basic color (black / white / green / blue) with any font type (lettering in black / white). It is recommended that sign posts be done in English / Tswana.

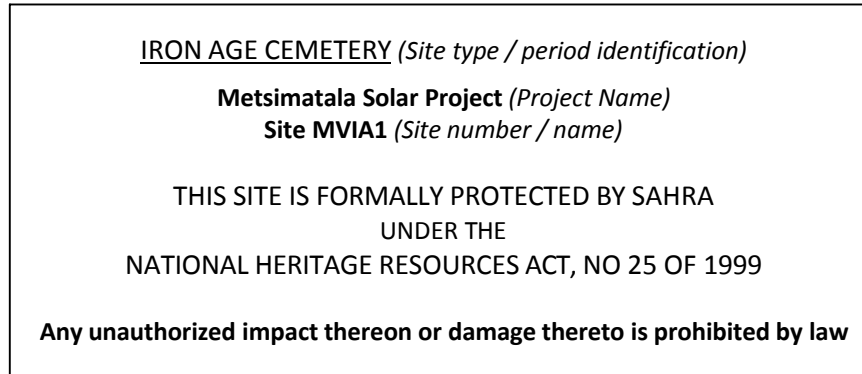


Figure 14: Recommended heritage sign posting

- ❖ **Archaeological Monitoring and Recording:** Archaeological monitoring and recording is done under SAHRA Excavation / Collection Permits, issued to the appointed archaeologist. Monitoring and recording would include at minimum manual vegetation clearing and the systematic recording of all identified features before development starts. On-site monitoring may require careful and slow mechanical excavation, in cases to 5-10cm spit levels may be necessary and where significant features are identified work may need to proceed by means of manual archaeological excavation methods. The developer is reminded that archaeological monitoring and recording in the prescribed areas will slow development down for the tenure of the monitoring process.

NOTE: Should any archaeological or cultural heritage resources, including human remains / graves, as defined and protected under the NHRA 1999, and not reported on in this report be identified during the course of development the developer should immediately cease operation in the vicinity of the find and report the site to SAHRA / an ASAPA accredited CRM archaeologist.

4) ACKNOWLEDGEMENTS

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INTRODUCTION TO THE ARCHAEOLOGY OF SOUTH AFRICA

Archaeologically the southern African cultural environment is roughly divided into the Stone Age, the Iron Age and the Colonial Period, including its subsequent Industrial component. This cultural division has a rough temporal association beginning with the Stone Age, followed by the Iron Age and the Colonial Period. The division is based on the identified primary technology used. The hunter-gatherer lifestyle of the Stone Age is identified in the archaeological record through stone being the primary raw material used to produce tools. Iron Age people, known for their skill to work iron and other metal, also practiced agriculture and animal husbandry. Kingdoms and civilizations associated with the Iron Age are indicative of a complex social hierarchy. The Colonial Period is marked by the advent of writing, in southern Africa primarily associated with the first European travelers (Mitchell 2002).

During the latter part of the Later Stone Age (LSA) hunter-gatherers shared their cultural landscape with both pastoralists and Iron Age people, while the advent of the Colonial Period in South Africa is marked by a complex cultural mosaic of people; including LSA hunter-gatherers, pastoralists, Later Iron Age farming communities and Colonial occupation.

1) Early Hominin Evolution

DNA studies indicate that humans and chimpanzees shared a common ancestor between 6-8Mya (Sibley & Ahlquist 1984). By 4Mya, based on fossil evidence from Ethiopia and Kenya, hominins (humans and their immediate fossil ancestors and relatives) had already evolved. The earliest fossils are ascribed to *Ardipithecus ramidus* (4.4Mya), succeeded by *Australopithecus anamensis* (4.2-3.9Mya). These fossils are inferred to lie at the base from which all other hominins evolved (Leakey *et al.* 1995; White *et al.* 1994).

In South Africa the later hominins are classed into 3 groups or distinct genera; *Australopithecus* (gracile australopithecines), *Paranthropus* (robust australopithecines) and *Homo*. South Africa has 3 major hominin sites: Taung in the North-West Province, where Raymond Dart identified the first *Australopithecus* fossil in 1924 (Dart 1925); The Cradle of Humankind (Sterkfontein Valley) sites in Gauteng, the most prolific hominin locality in the world for the period dating 3.5-1.5Mya which have yielded numerous *Australopithecus*, *Paranthropus* and limited *Homo* fossils (Keyser *et al.* 2000; Tobias 2000); and Makapansgat in the Limpopo Province, where several more specimens believed to be older than most of the Cradle specimens were discovered (Klein 1999).

A. africanus, represented at all 3 sites are believed to have been present on the South African landscape from about 3Mya. From approximately 2.8Mya they shared, at least in the Cradle area, the landscape with *P. robustus* and from roughly 2.3Mya with early forms of *Homo* (Clarke 1999). Global climatic cooling around 2.5Mya may have stimulated a burst of species turnover amongst hominins (Vrba 1992); the approximate contemporary appearance of the first stone tools suggests that this was a critical stage in human evolution. But exactly which early hominin population is to be accredited as the ancestor of *Homo* remains elusive.

H. ergaster is present in the African palaeo-anthropological record from around 1.8Mya and shortly thereafter the first exodus from Africa is evidenced by *H. erectus* specimens from China, Indonesia and even Europe (Klein 1999).

2) The Stone Age

2.1) The Earlier Stone Age

In South Africa the only Earlier Stone Age (ESA) Oldowan lithic assemblage comes from Sterkfontein Cave. The predominant quartz assemblage is technologically very simple, highly informal and inferred to comprise exclusively of multi-purpose tools (Kuman *et al.* 1997). The latter part of the ESA is characterized by the Acheulean Industrial Complex, present in the archaeological record from at least 1.5Mya. Both *H. ergaster* and *P. robustus* may be accredited with the production of these tools. The association between stone tools and increased access to meat and marrow supporting the greater dietary breadth of *Homo* may have been vital to *Homo's* evolutionary success; and the eventual extinction of the robust australopithecines (Klein 1999).

Probably the longest lasting artefact tradition ever created by hominins, the Acheulean is found from Cape Town to north-western Europe and India, occurring widely in South Africa. Despite the many sites it is still considered a 'prehistoric dark age' by many archaeologists, encompassing one of the most critical periods in human evolution; the transition from *H. ergaster* to archaic forms of *H. Sapiens* (Klein 1999).

The Acheulean industry is characterized by handaxes and cleavers as *fosilles directeurs* (signature artefact types), in association with cores and flakes. Handaxes and cleavers were multi-purpose tools used to work both meat and plant matter (Binneman & Beaumont 1992). Later Acheulean

flaking techniques involved a degree of core preparation that allowed a single large flake of predetermined shape and size to be produced. This *Victoria West technique* indicates an origin within the Acheulean for the *Levallois technique* of the Middle Stone Age (Noble & Davidson 1966). The lithic artefact component was supplemented by wood and other organic material (Deacon 1970).

2.2) The Middle Stone Age

The Middle Stone Age (MSA), dating from approximately 500kya to 40-27/23kya is interpreted as an intermediate technology between the Acheulean and the Later Stone Age (LSA) (Goodwin & van Riet Lowe 1929). The MSA is typologically characterized by the absence of handaxes and cleavers, the use of prepared core techniques and the production of blades, triangular and convergent flakes, with convergent dorsal scars and faceted striking platforms, often produced by means of the *Levallois technique* (Volman 1984). The widespread occurrence of MSA technology across Africa and its spread into much of Eurasia in Oxygen Isotope Stage (OIS) 7 is viewed as part of a process of population dispersal associated with both the ancestors of the later Neanderthals in Europe and anatomically modern humans in Africa (Foley & Lahr 1997).

After the riches offered by the Cradle sites and Makapansgat, southern Africa's Middle Pleistocene fossil record is comparatively poor. Early Middle Pleistocene fossil evidence suggests an archaic appearance and fossils are often assigned to *H. heidelbergensis* and *H. sapiens rhodesiensis* (Rightmire 1976). Modern looking remains, primarily from Border Cave (KwaZulu-Natal) and Klasies River Mouth (Eastern Cape) raised the possibility that anatomically modern humans had, by 120kya, originated south of the Sahara before spreading to other parts of the world (Brauer 1982; Stringer 1985). Subsequent studies of modern DNA indicated that African populations are genetically more diverse and probably older than those elsewhere (Cann *et al.* 1994). Combined, the fossil and genetic evidence underpins the so-called *Out of Africa 2* model (arguing that gene flow and natural selection led regional hominin populations along distinct evolutionary trajectories after *Homo's* expansion from Africa in the Lower Pleistocene *Out of Africa 1* model) of modern human origins and the continuing debate as to whether it should be preferred to its *Multiregional* alternative (arguing that modern humans evolved more or less simultaneously right across the Old World) (Mellars & Stringer 1989; Aitken *et al.* 1993; Nitecki & Nitecki 1994).

Persuasive evidence of ritual activity or bodily decoration is evidenced by the widespread presence of red ochre at particularly MSA 2 sites (after Volman's 1984 MSA 1-4 model; Hensilwood & Sealy 1997), while evidence from Lion Cave, Swaziland, indicates that specularite may have been mined as early as 100kya (Beaumont 1973). Evidence for symbolic behavioral activity is largely absent; no evidence for rock art or formal burial practices exists.

2.3) The Later Stone Age

Artefacts characteristic of the Later Stone Age (LSA) appear in the archaeological record from 40/27-23kya and incorporates microlithic as well as macrolithic assemblages. Artefacts were produced by modern *H. sapien* or *H. sapien sapien*, who subsisted on a hunter-gatherer way of life (Deacon 1984; Mitchell 2002).

According to Deacon (1984) the LSA can temporally be divided into 4 broad units directly associated with climatic, technological and subsistence changes:

1. Late Pleistocene microlithic assemblages (40-12kya);
2. Terminal Pleistocene / early Holocene non-microlithic assemblages (12-8kya);
3. Holocene microlithic assemblages (8kya to the Historic Period); and
4. Holocene assemblages with pottery (2kya to the Historic Period) closely associated with the influx of pastoralist communities into South Africa (Mitchell 2002).

Elements of material culture characteristic of the LSA reflect modern behavior. Deacon (1984) summarizes these as:

1. Symbolic and representational art (paintings and engravings);
2. Items of personal adornment such as decorated ostrich eggshell, decorated bone tools and beads, pendants and amulets of ostrich eggshell, marine and freshwater shells;
3. Specialized hunting and fishing equipment in the form of bows and arrows, fish hooks and sinkers;
4. A greater variety of specialized tools including bone needles and awls and bone skin-working tools;
5. Specialized food gathering tools and containers such as bored stone digging stick weights, carrying bags of leather and netting, ostrich eggshell water containers, tortoiseshell bowls and scoops and later pottery and stone bowls;
6. Formal burial of the dead in graves (sometimes covered with painted stones or grindstones and accompanied by grave goods);
7. The miniaturization of selected stone tools linked to the practice of hafting for composite tools production; and
8. A characteristic range of specialized tools designed for making some of the items listed above.

Rock Art

Rock Art is one of the most visible and informative components of South Africa's archaeological record. Research into LSA ethnography (as KhoiSan history) has revolutionized our understanding of both painted and engraved (petroglyph) images, resulting in a paradigm shift in Stone Age archaeology (Deacon & Dowson 2001). Paintings are concentrated in the Drakensberg / Maluti mountains, the eastern Free State, the Cape Fold Mountains, the Waterberg Plateau and the Soutpansberg mountains. Engravings on the other hand are found throughout the Karoo, the western Free State and North-West Province (Mitchell 2002). Both forms of LSA art drew upon a common stock of motifs, derived from widely shared beliefs and include a restricted range of naturalistically depicted animals, geometric imagery, human body postures and non-realistic combinations of human and animal figures (anthropomorphic figurines). LSA Rock Art is closely associated with spiritual or magical significance (Lewis-Williams & Dowson 1999).

Aside from LSA or KhoiSan Rock Art, thus art produced by both hunter-gatherer and pastoralist and agro-pastoralist groups, Rock Art produced by Iron Age populations are known to be present towards the north of the country.

Shell Middens ('Strandloper' Cultures)

South Africa's nearly 3,000km coastline is dotted by thousands of shell middens, situated between the high water mark and approximately 5km inland, bearing witness to long-term exploitation of shellfish mainly over the past 12,000 years. These LSA shell middens are easily distinguishable from natural accumulations of shells and deposits can include bones of animals eaten such as shellfish, turtles and seabirds, crustaceans like crabs and crayfish and marine mammal remains of seals, dolphins and occasionally whales. Artefacts and hearth and cooking remains are often found in shell midden deposits. Evidence exist that fish were speared, collected by hand, reed baskets and by means of stone fish traps in tidal pools (Mitchell 2002).

Shell midden remains were in the past erroneously assigned to 'Strandloper cultures'. Deacon & Deacon (1999) explain that '*no biological or cultural group had exclusive rights to coastal resources.*' Some LSA groups visited the coast periodically while others stayed year round and it is misleading to call them all by the same name. Two primary sources of archaeological enquiry serves to shed more light on the lifestyles of people who accumulated shell middens, one being the analysis of food remains in the middens itself and the other being the analysis of LSA human skeletal remains of people buried either in shell middens or within reasonable proximity to the coast.

Shell middens vary in character ranging from large sites tens of meters in extent and with considerable depositional depth to fairly small ephemeral collections, easily exposed and destroyed by shifting dune action. Shell middens are also found inland, along rivers where fresh water mussels occur. These middens are often fairly small and less common; in the Eastern Cape often dated to within the past 3,000 years (Deacon & Deacon 1999).

In addition shell middens are not exclusively assigned to LSA cultures; shellfish were exploited during the Last Interglacial, indicating that the practice was most probably continuous for the past 120,000 years (MSA shell middens). Along the coast of KwaZulu-Natal evidence exist for the exploitation of marine food resources by Iron Age communities. These shell middens are easily distinguished from Stone Age middens by particularly rich, often decorated ceramic artefact content. Colonial Period shell middens are quite rare and extremely ephemeral in character; primarily the result of European shipwreck survivors and reported on along the coast of KwaZulu-Natal and the Transkei, Eastern Cape.

3) The Iron Age

For close to 2 millennia people combining cereal agriculture with stock keeping have occupied most of southern Africa's summer rainfall zone. The rapid spread of farming, distinctive ceramics and metallurgy is understood as the expansion of a Bantu-speaking population, in archaeological terms referred to as the Iron Age.

3.1) The Early Iron Age

Ceramic typology is central to current discussions of the expansion of iron using farming communities. The most widely used approach is that of Huffman (1980), who employs a multidimensional analysis (vessel profile, decoration layout and motif) to reconstruct different ceramic types. Huffman (1998) argues that ceramics can be used to trace the movements of people, though not necessarily of specific social or political groupings. Huffman's Urewe Tradition coincides largely with Phillipson's (1977) Eastern Stream. A combined Urewe Tradition / Eastern Stream model for the Early Iron Age can be summarized as:

1. The Kwale branch (extending along the coast from Kenya to KwaZulu-Natal);
2. The Nkope branch (located inland and reaching from southern Tanzania through Malawi and eastern Zambia into Zimbabwe); and
3. The Kalundu branch (stretching from Angola through western Zambia, Botswana and Zimbabwe into South Africa).

In southern Africa, recent work distinguishes two phases of the Kwale branch: The earlier Silver Leaves facies (250-430AD) occurring as far south as the Northern Province. The later expression or Mzonjani facies (420-580AD) occurs in the Northern Province as well as along the KwaZulu-Natal coastal belt (Huffman 1998). Since the Silver Leaves facies is only slightly younger than the Kwale type site in Kenya, very rapid movement along the coast, perhaps partly by boat, is inferred (Klapwijk 1974). Subsequently (550-650AD) people making Mzonjani derived ceramics settled more widely in the interior of South Africa.

Assemblages attributable to the Nkope branch appear south of the Zambezi but north of South Africa from the 5th Century. Ziwa represents an early facies, with Gokomere deriving jointly from Ziwa and Bambata. A subsequent phase is represented by the Zhizo facies of the Shashe-Limpopo basin, and by Taukome (Huffman 1994). Related sites occur in the Kruger National Park (Meyer 1988). Zhizo (7th – 10th Century) is ancestral to the Toutswe tradition which persisted in eastern Botswana into the 13th Century.

Kalundu origins need further investigation; its subsequent development is however better understood. A post Bambata phase is represented by the 5th – 7th Century sites of Happy Rest, Klein Africa and Maunatlana in the Northern Province and Mpumalanga (Prinsloo 1974, 1989). Later phases are present at the Lydenburg Heads site (Whitelaw & Moon 1996) and by the succession of Mzuluzi, Ndongonwane and Ntshekane in KwaZulu-Natal (7th – 10th Centuries) (Prins & Grainger 1993). Later Kalundu facies include Klingbeil and Eiland in the northern part of the country (Evers 1980) with Kgopolwe being a lowveld variant in Mpumalanga (10th – 12th Century). Broadhurst and other sites indicate a still later survival in Botswana (Campbell 1991).

Despite the importance accorded to iron agricultural implements in expanding the spread of farming and frequent finds of production debris, metal objects are rare. Metal techniques were simple, with no particular sign of casting, wire drawing or hot working. Jewelry (bangles, beads, pendants etc.) constitute by far the largest number of finds but arrows, adzes, chisels, points and spatulae are known (Miller 1996).

Early Iron Age people were limited to the Miombo and Savannah biomes; excluded from much of the continent's western half by aridity and confined in the south during the 1st millennium to bushveld areas of the old Transvaal. Declining summer rainfall restricted occupation to a diminishing belt close to the East Coast and north of S33° (Maggs 1994); sites such as Canasta Place (800AD), Eastern Cape, mark the southern-most limit of Early Iron Age settlement (Nogwaza 1994).

The Central Cattle Pattern

The Central Cattle Pattern (CCP) was the main cognitive pattern since the Early Iron Age (Huffman 1986). The system can be summarized as opposition between male pastoralism and female agriculture; ancestors and descendants; rulers and subjects; and men and women. Cattle served as the primary means of transaction; they represented symbols exchanged for the fertility of wives, legitimacy of children and appeasement of ancestors. Cattle were also used as tribute to rulers confirming sub-ordination and redistribution as loan cattle by the ruler to gain political support. Cattle represented healing and fertilizing qualities (Huffman 1998; Kuper 1980).

This cognitive and conceptual structure underlies all cultural behavior, including the placement of features in a settlement. The oppositions of male and female, pastoralism and agriculture, ancestors and descendants, rulers and subjects, cool and hot are represented in spatial oppositions, either concentric or diametric (Huffman 1986).

A typical CCP village comprise of a central cattle enclosure (byre) where men are buried. The *Kgotla* (men's meeting place / court) is situated adjacent to the cattle enclosure. Surrounding the enclosure is an arc of houses, occupied according to seniority. Around the outer perimeter of the houses is an arc of granaries where women keep their pots and grinding stones (Huffman 1986). The model varies per ethnic group which helps to distinguish ethnicity throughout the Iron Age, but more studies are required to recognize the patterns.

3.2) The Middle Iron Age

The hiatus of South African Middle Iron Age activity was centered in the Shashe-Limpopo Valley and characterized by the 5-tier hierarchical Mapungubwe State spanning some 30,000km². By the 1st millennium ivory and skins were already exported overseas, with sites like Sofala and Chibueni, Mozambique, interfacing between interior and transoceanic traders. Exotic glass beads, cloth and Middle Eastern ceramics present at southern African sites mark the beginning of the regions incorporation into the expanding economic system that, partly tied together with maritime trading links across the Indian Ocean, increasingly united Africa, Asia and Europe long before Da Gama or Columbus (Eloff & Meyer 1981; Meyer 1998).

Occupation was initially focused at Bambandanyalo and K2. The Bambandanyalo main midden (1030-1220AD) stands out above the surrounding area, reaching more than 6m in places and covering more than 8ha the site may have housed as many as 2,000 people (Meyer 1998). The CCP was not strictly followed; whether this is ideologically significant or merely a reflection of local topography remains unclear. The

midden, the size of which may reflect the status of the settlement's ruler, engulfed the byre around 1060-1080AD, necessitating relocation of the cattle previously kept there. The re-organization of space and worldview implied suggests profound social changes even before the sites' abandonment in the early 13th century, when the focus of occupation moved to Mapungubwe Hill, 1 km away (Huffman 1998).

Excavations at Mapungubwe Hill, though only occupied for a few decades (1220-1290AD), yielded a deep succession of gravel floors and house debris (Eloff & Meyer 1981). Huffman (1998) suggests that the suddenness with which Mapungubwe was occupied may imply a deliberate decision to give spatial expression to a new social order in which leaders physically removed themselves from ordinary people by moving onto more inaccessible, higher elevations behind the stone walls demarcating elite residential areas. Social and settlement changes speak of considerable centralization of power and perhaps the elaboration of new ways of linking leaders and subjects.

At Bambandanyalo and Mapungubwe elite burial grave goods include copper, bone, ivory and golden ornaments and beads. Social significance of cattle is reinforced by their importance among the many human and animal ceramic figurines and at least 6 'beast burials' (Meyer 1998).

Today the drought prone Shashe-Limpopo Valley receives less than 350mm of rainfall per annum, making cereal cultivation virtually impossible. The shift to drier conditions in the late 1200's across the Shashe-Limpopo basin and the eastern Kalahari may have been pivotal in the break-up of the Mapungubwe polity, the collapse of Botswana's Toutswe tradition and the emergence of Great Zimbabwe (1220-1550AD), southern Africa's best known and largest (720ha) archaeological site (Meyer 1998).

South of the Limpopo and north of the Soutpansberg, Mapungubwe derived communities survived into the 14th Century, contemporary with the establishment of Sotho-speaking makers of Maloko pottery.

3.3) *The Later Iron Age*

South African farming communities of the 2nd millennium experienced increased specialization of production and exchange, the development of more nucleated settlement patterns and growing political centralization, albeit not to the same extent as those participating in the Zimbabwe tradition. However, together they form the background to the cataclysmic events of the late 18th / early 19th Century *Mfecane* (Mitchell 2002).

Archaeological evidence of settlement pattern, social organization and ritual practice often differ from those recorded ethnographically. The Moloko ceramic tradition seems to be ancestral to modern Sotho-Tswana speakers (Evers 1980) and from about 1,100AD a second tradition, the Blackburn tradition, appears along South Africa's eastern coastline. Blackburn produced mostly undecorated pottery (Davies 1971), while Mpambanyoni assemblages, reaching as far south as Transkei, includes examples of rim notching, incised lines and burnished ochre slip (Robey 1980). At present, no contemporary farming sites are known further inland in KwaZulu-Natal or the Eastern Cape.

Huffman (1989) argues that similarities between Blackburn and early Maloko wares imply a related origin, presumably in the Chifumbaze of Zambia or the Ivuna of Tanzania, which contains a range of ceramic attributes important in the Blackburn as well as beehive grass huts similar to those made by the Nguni. This is one of the few suggestions of contact between Sotho-Tswana and Nguni speakers on the one hand and farming communities who, if Huffman is correct, were already long established south of the Limpopo. Both ethnographic and archaeological data demonstrate that Sotho-Tswana and Nguni are patrilineal and organize their settlements according to the CCP (Kuper 1980).

From 1,300AD there is increasing evidence for the beginning of agro-pastoralist expansion considerably beyond the area of previous occupation. It is also to this time that the genealogies of several contemporary Bantu speaking groups can be traced (Wilson & Thompson 1969). Associated with this expansion was the regular employment of stone, rather than wood, as building material, an adaptation that has greatly facilitated the discovery and identification of settlements. Maggs (1976) describes 4 basic settlement types all characterized by the use of semi weathered dolorite to produce hard binding *daga* for house floors and a wall building tradition employing larger more regular stones for the inner and outer faces and smaller rubble for the infill. As with the more dispersed homesteads of KwaZulu-Natal and the Eastern Cape, sites tend to be in locally elevated situations, reflecting a deep seated Sotho and Nguni preference for benign higher places rather than supernaturally dangerous riverside localities; another important contrast to both 1st millennium (Maggs 1976) and later Zulu Kingdom settlement patterns (Hall & Maggs 1979).

The lack of evidence for iron production in the interior and eastern part of South Africa emphasize exchange relationships between various groups and associated more centralized polities. By the 19th Century iron production in KwaZulu-Natal was concentrated in particular clans and lineages and associated with a range of social and religious taboos (Maggs 1992). South of Durban comparatively few smelting sites are known (Whitelaw 1991), a trend even more apparent in Transkei (Feely 1987). However, metal remained the most important and archaeologically evident item traded between later farming communities. (Other recorded trade items include glass and ostrich eggshell beads; Indian Ocean seashells; siltstone pipes; *dagga*, and later on tobacco; pigments including ochre, graphite and specularite; hides and salt.)

Rising polity settlements are particularly evident in the north of the country and dated to the 17th Century, including Molokwane, capital of the Bakwena chiefdom (Pistorius 1994) and Kaditshwene, capital of a major section of the Hurutshe, whose population of 20,000 in 1820 almost equals contemporary Cape Town in size (Boeyens 2000). The agglomeration of Tswana settlements in the north of the country was fuelled by both population growth and conflict over access to elephant herds for ivory and long distance trade with the East Coast. During this period ceramic decoration became blander and more standardized than the earlier elaborate decoration that included red ochre and graphite coloring.

The *Mfecane* refers to the wars and population movements of the early 19th Century which culminated in the establishment of the Zulu Kingdom and came to affect much of the interior, even beyond the Zambezi: The late 18th Century was marked by increasing demands for ivory (and slaves) on the part of European traders at Delagoa Bay; as many as 50 tones of ivory were exported annually from 1750-1790. As elephant populations declined, competition increased both for them and for the post 1790 supply of food to European and American whalers calling at Delagoa Bay (Smith 1970). Cattle raiding, conflict over land and changes in climatic and subsistence strategies characterized much of the cultural landscape of the time.

Competition for access to overseas trade encouraged some leaders to replace locally organized circumcision schools and age-sets with more permanently maintained military regiments. These were now used to gain access through warfare to land, cattle and stored food. By 1810 three groups, the Mthethwa, Ndwandwe and Ngwane dominated northern KwaZulu-Natal (Wright 1995). The Mthethwa paramourcy was undermined by the killing of its leader Dingiswayo in *circa* 1818, which led to a brief period of Ndwandwe dominance. In consequence one of Dingiswayo's former tributaries, Shaka, established often forceful alliances with chiefdoms further south. Shaka's Zulu dominated coalition resisted the Ndwandwe who in return fled to Mozambique. As the Zulu polity expanded it consolidated its control over large areas, incorporating many communities into it. Others sought refuge from political instability by moving south of the Thukela River, precipitating a further *domino effect* as far as the Cape Colony's eastern border (Wright 1995).

4) *The Colonial Period*

In the 15th Century Admiral Zheng He and his subordinates impressed the power of the Ming Dynasty rulers in a series of voyages as far afield as Java, Sri Lanka, southern Arabia and along the East African coast, collecting exotic animals *en route*. But nothing more came of his expeditions and China never pursued opportunities for trade or colonization (Mote 1991).

Portuguese maritime expansion began around the time of Zheng He's voyages; motivated by a desire to establish a sea route to the riches of the Far East. By 1485 Diogo Cao had reached Cape Cross, 3 years later Bartolomeu Dias rounded the Cape of Good Hope and less than a decade later Vasco da Gama called at several places along South Africa's coast, trading with Khoekhoen (Khoi) at Mossel Bay before reaching Mozambique and crossing the ocean to India. His voyage initiated subsequent Portuguese bases from China to Iraq. In Africa interest was focused on seizing important coastal trading towns such as Sofala and gaining access to the gold of Zimbabwe. Following the 1510 Portuguese-Khoekhoen battle at Table Bay, in which the viceroy of India was killed, Portuguese ships ceased to call along the South African coast (Elphick 1985).

A number of shipwrecks, primarily along the eastern coast attest to Portuguese activity including the Sao Joao, wrecked in 1552 near Port Edward and the Sao Bento, destroyed in 1554 off the Transkei coast. Survivors' accounts provided the 1st detailed information on Africa's inhabitants (Auret & Maggs 1982).

By the late 1500's Portuguese supremacy of the Indian Ocean was threatened. From 1591 numerous Dutch and English ships called at Table Bay and in 1652 the Dutch East Indian Company (VOC) established a permanent base, with the intent to provide fresh food and water to VOC ships. In an attempt to improve the food supply a few settlers (free burghers) were allowed to establish farms. The establishment of an intensive mixed farming economy failed due to shortages of capital and labor, and free burghers turned to wheat cultivation and livestock farming. While the population grew slowly the area of settlement expanded rapidly with new administrative centers established at Stellenbosch (1676), Swellendam (1743) and Graaf-Reinet (1785). By the 1960's the Colony's frontier was too long to be effectively policed by VOC officials (Elphick 1985).

From the 1700's many settlers expanded inland over the Cape Fold Mountain Belt. The high cost of overland transport constrained the ability to sell their produce while settlement of the interior was increasingly made difficult by resident KhoiSan groups, contributing due to a lack of VOC military support to growing Company opposition in the years before British control of the Cape (1795 / 1806) (Davenport & Saunders 2000).

In 1820 a major British settlement was implanted on the eastern frontier of the Cape Colony, resulting in large numbers of the community moving into the interior, initially to KwaZulu-Natal, and then after Britain annexed Natal (1843), further into the interior to beyond the Vaal River. Disruptions of the *Mfecane* eased their takeover of African lands and the *Boers* (farmers) established several Republics. A few years later the 2nd South African War saw both the South African and Orange Free State Republics annexed by Britain, a move largely motivated by British desire to control the goldfields of the Witwatersrand. With adjacent regions of the sub-continent also falling, directly or indirectly, under

British rule and German colonization of Namibia, European control of the whole of southern Africa was firmly established before the 1st World War (Davenport & Saunders 2000).

❖ **Xhosa Iron Age Cultures meets Colonists in the Eastern Cape**

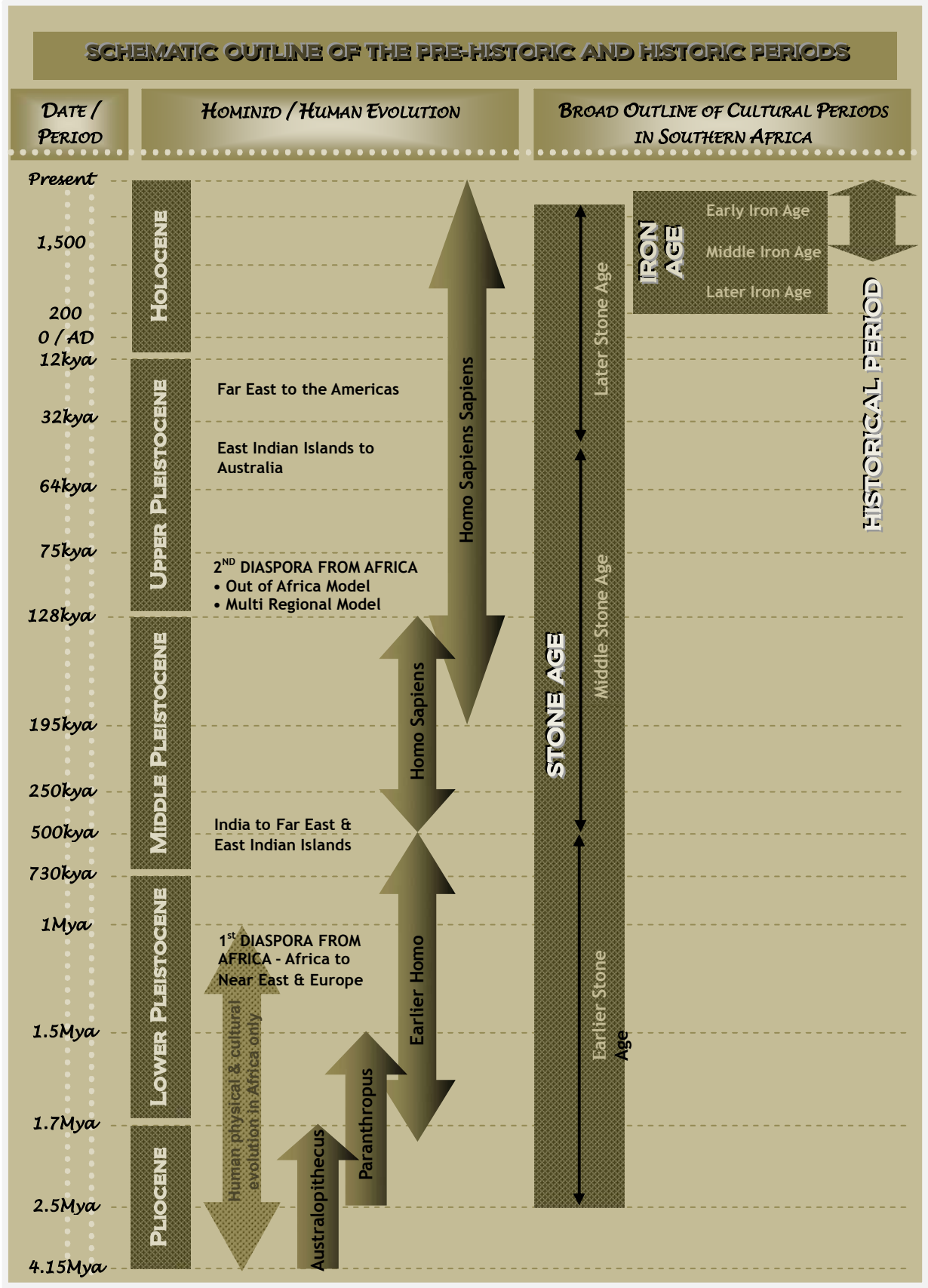
From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming. As more Cape migrants, and later settlers from Britain (1820) and elsewhere arrived, population pressures and competition over land, cattle and good grazing became intense. Cattle raiding became endemic on all sides, with retaliatory raids launched in response. As missionaries arrived with evangelical messages, confrontations with hostile chiefs who saw them as undermining traditional Xhosa ways of life resulted in conflicts which flared into wars.

As pressures between the European settlers and the Xhosa grew, settlers organized themselves into local militia, counteracted by Xhosa warring skills: But both sides were limited by the demands of seasonal farming and the need for labor during harvest. Wars between the Boers and the Xhosa resulted in shifting borders, from the Fish to the Sundays River, but it was only after the British annexed the Cape in 1806 that authorities turned their attention to the Eastern regions and petitions by the settlers about Xhosa raids. British expeditions, in particular under Colonel John Graham in 1811 and later Harry Smith in 1834, were sent not only to secure the frontier against the Xhosa, but also to impose British authority on the settlers, with the aim to establish a permanent British presence. Military forts were built and permanently manned. Over time the British came to dominate the area both militarily and through occupation with the introduction of British settlers. The imposition of British authority led to confrontations not only with the Xhosa but also with disaffected Boers and other settlers, and other native groups such as the Khoikhoi, the Griqua and the Mpondo. The frontier wars continued over a period of about 150 years; from the 1st arrival of the Cape settlers, and with the intervention of the British military ultimately ending in the subjugation of the Xhosa people. Fighting ended on the Eastern Cape frontier in June 1878 with the annexation of the western areas of the Transkei and administration under the authority of the Cape Colony (Milton 1983).

❖ **The Industrial Revolution**

The Industrial Revolution refers roughly to the period between the 18th - 19th Centuries, typified by major changes in agriculture, manufacturing, mining, transport, and technology. Changing industry had a profound effect on socio-economic and socio-cultural conditions across the world: The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was eventually influenced in some way. Average income and population size began to exhibit unprecedented growth; in the two centuries following 1800 the world's population increased over 6-fold, associated with increasing urbanization and demand of resources. Starting in the latter part of the 18th century, the transition from manual labor towards machine-based manufacturing changed the face of economic activity; including the mechanization of the textile industries, the development of iron-making techniques and the increased use of refined coal. Trade expansion was enabled by the introduction of canals, improved roads and railways. The introduction of steam power fuelled primarily by coal and powered machinery was underpinned by dramatic increases in production capacity. The development of all-metal machine tools in the first two decades of the 19th century facilitated the manufacture of more production machines in other industries (More 2000).

Effects of the Industrial Revolution were widespread across the world, with its enormous impact of change on society, a process that continues today as 'industrialization'.



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EXTRACTS FROM THE NATIONAL HERITAGE RESOURCES ACT, NO 25 OF 1999

DEFINITIONS**Section 2**

In this Act, unless the context requires otherwise:

- ii. *"Archaeological"* means –
 - a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
 - b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation;
 - c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic,... and any cargo, debris, or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.
- viii. *"Development"* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
 - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
 - b) carrying out any works on or over or under a place;
 - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
 - d) constructing or putting up for display signs or hoardings;
 - e) any change to the natural or existing condition or topography of land; and
 - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. *"Grave"* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. *"Living heritage"* means the intangible aspects of inherited culture, and may include –
 - a) cultural tradition;
 - b) oral history;
 - c) performance;
 - d) ritual;
 - e) popular memory;
 - f) skills and techniques;
 - g) indigenous knowledge systems; and
 - h) the holistic approach to nature, society and social relationships.
- xxxi. *"Palaeontological"* means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trance;
- xli. *"Site"* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *"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;

NATIONAL ESTATE**Section 3**

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
 - 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 natural features of cultural significance;
 - e) geological sites of scientific or cultural importance
 - f) archaeological and palaeontological sites;
 - g) graves and burial grounds, including –
 - i. ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
 - h) sites of significance relating to the history of slavery in South Africa;
 - i) movable objects, including –
 - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

STRUCTURES

Section 34

- 1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

ARCHAEOLOGY, PALAEOLOGY AND METEORITES

Section 35

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 4) No person may, without a permit issued by the responsible heritage resources authority –
 - 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 which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
 - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
 - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

BURIAL GROUNDS AND GRAVES

Section 36

- 3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority –
 - a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - b) destroy, damage, alter, exhume, 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 equipment, or any equipment which assists in the detection or recovery of metals.
- 4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- 5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –
 - a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
 - b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

- 6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –
- a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
 - b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-internment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

HERITAGE RESOURCES MANAGEMENT

Section 38

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
 - a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
 - b) the construction of a bridge or similar structure exceeding 50 m in length;
 - c) any development or other activity which will change the character of a site –
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or
 - iii. involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
 - iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning of a site exceeding 10 000 m² in extent; or
 - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.

APPOINTMENT AND POWERS OF HERITAGE INSPECTORS

Section 50

- 7) Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any other means of recording information necessary for the purposes of this Act.
- 8) A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- 9) Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
 - a) enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
 - b) confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
 - c) take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.
- 10) A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.